- General Information
- Specifications
  - Standards and Service Limits
    - Engine
    - Trans/Driveline
    - Steering
    - Suspension
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    - HVAC
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- Maintenance Schedule
  - Lubricants and Fluids
  - Maintenance
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  - Charging System
  - Cooling System
    - Fan Controls
  - Cruise Control System
  - Cylinder Head Assembly
    - Camshaft
    - Rocker Arm Assembly
    - Timing/Cam Chain
    - Valves
    - VTEC System
  - Engine Assembly and Mounts
    - Engine Assembly
    - Engine Mounts
  - Engine Block Assembly
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    - Crankshaft
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  - Starting System
- Fuel and Emissions
  - Catalytic Converter System
  - EVAP Control System
  - EGR System
  - Electronic Throttle Control System
  - Fuel Supply System
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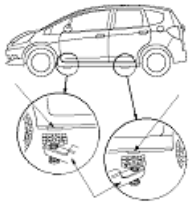
  - Idle Control System
  - Intake Air System
  - PCV System
- Trans/Driveline
  - Automatic Transaxle
    - A/T Assembly
    - A/T Electronic Control System
    - A/T Gear Position Indicator System
    - A/T Hydraulic Controls
    - A/T Countershaft Assembly
    - A/T Mainshaft Assembly
    - A/T Secondary Shaft Assembly
    - A/T Gearshift Mechanism
    - A/T Differential
    - A/T Idler Gear Shaft Assembly
    - Interlock System
    - Torque Converter
    - Valve Bodies
  - Driveshafts
    - Front Driveshaft Assembly
    - Intermediate Shaft Assembly

    - Manual Transaxle
        - Clutch
        - M/T Assembly
        - M/T Countershaft Assembly
        - M/T Gearshift Mechanism
        - M/T Mainshaft Assembly
        - M/T Differential
        - Synchro Assemblies
- Steering
    - EPS Components
- Suspension
    - Front Suspension
    - Rear Suspension
    - Wheels and Tires
- Brakes
    - ABS-TCS Components
    - Conventional Brake Components
        - Brake System indicator Components
    - VSA System (includes ABS, TCS)
    - Parking Brake
- HVAC
    - A/C
        - A/C Compressor
        - A/C Condenser
        - Evaporator-Heater Unit
    - Automatic Climate Control
    - Heating/Ventilation
        - Blower Unit
        - Evaporator-Heater Unit
        - Rear Window Defogger
- Body
    - Audio/Entertainment
    - Communication
    - Cigarette Lighter
    - Doors
        - Front Doors
        - Rear Doors
    - Exterior
        - Bumpers
        - Fenders
        - Fuel Fill Door
        - Fuel Fill Door Opener
        - Hood
        - Hood Opener
        - Openers
        - Trim
        - Tailgate
        - Tailgate Opnener
    - Frame
        - Subframes
    - Gauges
    - Horns
    - Interior
        - Console
        - Dashboard
        - Trim
    - Indicators
        - Lights-on Reminder
        - Multi-information Display
        - Safety Indicator System
    - Lights, Exterior
        - Automatic Lighting Control
        - Back-up Lights
        - Brake Lights
        - Front Fog Lights

        - Headlights
        - Headlight Leveling System
        - Lights-on Reminder
        - Taillights
        - Turn Signal/Hazard Warning Lights
    - Lights, Interior
        - Cargo Area Light
        - Entry Light Control System
    - Mirrors
        - Outside Power Mirros
    - Multiplex Integrated Control System (MICS)
    - Seats
        - Front Seats
        - Rear Seat
        - Seat Heaters
    - Security/Keyless Entry/Locks
        - Immobilizer System
        - Keyless Entry/Security Alarm System
    - Sunshade
    - Wiring System
        - Accessory Power Sockets
        - Fuse/Relay Boxes
        - Ground Distribution
        - Power Distribution
        - Wire Harnesses
    - Wiper/Washer
    - Windows
        - Power Windows
        - Driving Support & Restraints
            - Seat Belts
            - SRS
        - DTC Troubleshooting
            - ABS Control Unit
            - Automatic Lighting/ Rain Sensor
            - Climate Control Unit
            - ECM
            - EPS Control Unit
            - Gauge Control Module
            - Hands Free Telephone Control Unit
            - Headlight Leveling Control Unit
            - Immobilizer-keyless Control Unit
            - MICU (Multiplex Integrated Control Unit)
            - PCM
            - SRS Unit
            - VSA Control Unit
        - Wiring Diagrams

Lift and Support Points

NOTE: If you are going to remove heavy components such as suspension from the rear of the vehicle, first support the front of the vehicle with tall safety stands. When substantial weight is removed from the rear of the vehicle, the center of gravity can change, causing the vehicle to tip forward on the lift.



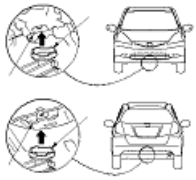
Vehicle Lift

1. Position the lift blocks (A), under the vehicle's front support points (B) and rear support points (C).
2. Raise the lift a few inches, and rock the vehicle gently to be sure it is firmly supported.
3. Raise the lift to its full height, and inspect the vehicle support points for solid contact with the lift blocks.

Safety Stands

To support the vehicle on safety stands, use the same support points (B and C) as for a vehicle lift. Always use safety stands when working on or under any vehicle that is supported only by a jack.

Floor Jack



1. When lifting the front of the vehicle, set the parking brake. When lifting the rear of the vehicle, put the shift lever in reverse for manual transmission, or P for automatic transmission.
2. Block the wheels that are not being lifted.
3. Position the floor jack under the front jacking bracket (A) or the rear jacking bracket (B). Center the jacking bracket on the jack lift platform (C), and jack up the vehicle high enough to fit the safety stands under it.
4. Position the safety stands under the support points, and adjust them so the vehicle is level.
5. Lower the vehicle onto the stands.

Towing

If the vehicle needs to be towed, call a professional towing service. Never tow the vehicle behind another vehicle with just a rope or chain. It is very dangerous.

Emergency Towing

There are three popular methods of towing a vehicle.

Flat-bed Equipment − The operator loads the vehicle on the back of a truck. **This is the best way of transporting the vehicle.**

To accommodate flat-bed equipment, the vehicle is equipped with front towing hook (A), front tie down hook slots (B), rear towing hook (C), and the rear tie down hook slots (D).

The towing hook can be used with a winch to pull the vehicle onto the truck, and the tie down hook slots can be used to secure the vehicle to the truck.

NOTE: The tie down hook slots use rubber plugs (E) to cover the openings.

Towing Hook Installation

The detachable towing hook is for towing very short distance, such as freeing the car. The hook mounts to the anchor in the front and rear bumper.

NOTICE

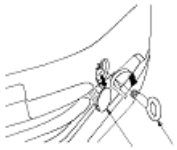
- To avoid damage to the vehicle, use the towing hook for straight flat ground towing only. Do not tow on an angle.
- The tow hook should not be used to tow the vehicle onto a flat-bed. Do not use it as a tie down.

Front:

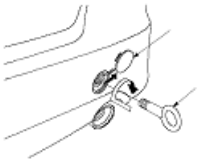
Rear:

1. Remove the cover (A) from the bumper.
2. Remove the towing hook placed behind a cover under the cargo area.
3. Screw in the towing hook (B), and tighten it securely by hand.

Front bumper:



Rear bumper:



Wheel Lift Equipment − The tow truck uses two pivoting arms that go under the tyres (front or rear) and lifts them off the ground. The other two wheels remain on the ground. **This is an acceptable way of towing the vehicle.**

Sling-type Equipment − The tow truck uses metal cables with hooks on the ends. These hooks go around parts of the frame or suspension, and the cables lift that end of the vehicle off the ground. The vehicle's suspension and body can be seriously damaged if this method of towing is attempted. **This method of towing the vehicle is unacceptable.**

If the vehicle cannot be transported by a flat-bed, it should be towed with the front wheels off the ground. If the vehicle is damaged, and must be towed with the front wheels on the ground, or with all four wheels on the ground, do this:

Manual Transmission

- Release the parking brake.
- Shift the transmission in Neutral.
- Leave the ignition switch in ACCESSORY (I) so the steering wheel does not lock.
- Make sure all accessories are turned off to minimize battery current draw.

Automatic Transmission

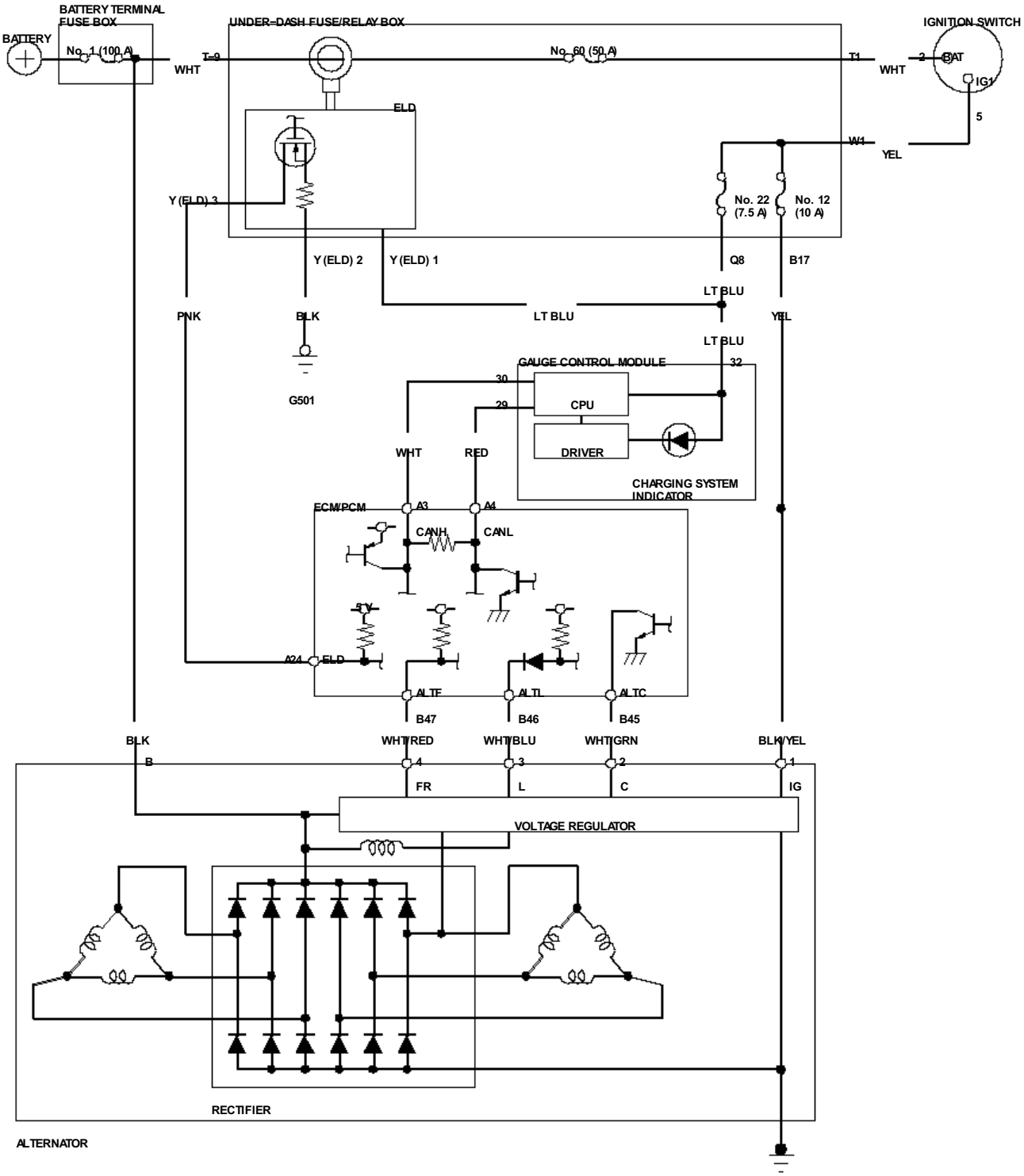
- Release the parking brake.
- Start the engine.
- Shift to D, then N.
- Turn off the engine.
- Leave the ignition switch in ACCESSORY (I) so the steering wheel does not lock.
- Make sure all accessories are turned off to minimize battery current draw.

It is best to tow the vehicle no farther than 80 km (50 miles), and keep the vehicle speed below 55 km/h (35 mph).

NOTICE

- Improper towing preparation will damage the transmission. Follow the above procedure exactly. If you cannot shift the transmission or start the engine (automatic transmission), the vehicle must be transported on a flat-bed.
- Trying to lift or tow the vehicle by the bumpers will cause serious damage. The bumpers are not designed to support the vehicle's weight.

Charging System Circuit Diagram



Charging system indicator does not come on with the ignition switch in ON (II)

Diagnostic procedure

1. Troubleshoot the charging system indicator circuit.

Charging system indicator stays on

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Check the drive belt auto-tensioner.
3. Check for a broken drive belt.
4. Troubleshoot the charging system indicator circuit.

Battery discharged

Diagnostic procedure

1. Check for a poor connection at the battery terminal.
2. Test the battery.
3. Check the drive belt auto-tensioner.
4. Check for a broken drive belt.
5. Check for excessive parasitic electrical current draw.
6. Troubleshoot the alternator and regulator circuit.

Battery overcharged

Diagnostic procedure

1. Test the battery.
2. Troubleshoot the alternator and regulator circuit.

Charging System Symptom Troubleshooting Index

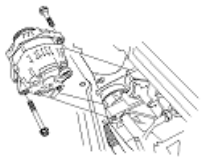
Symptom	Diagnostic procedure	Also check for
Charging system indicator does not come on with the ignition switch in ON (II)	Troubleshoot the charging system indicator circuit.	
Charging system indicator stays on	1. Check for PGM-FI DTCs. 2. Check the drive belt auto-tensioner. 3. Check for a broken drive belt. 4. Troubleshoot the charging system indicator circuit.	
Battery discharged	1. Check for a poor connection at the battery terminal. 2. Test the battery. 3. Check the drive belt auto-tensioner. 4. Check for a broken drive belt. 5. Check for excessive parasitic electrical current draw. 6. Troubleshoot the alternator and regulator circuit.	
Battery overcharged	1. Test the battery. 2. Troubleshoot the alternator and regulator circuit.	

Alternator Removal and Installation

Removal

1. Do the battery terminal disconnection procedure.
2. Remove the drive belt.
3. Remove the intake manifold.
4. Disconnect the alternator connector (A) and BLK wire (B), then remove the harness clamp (C) from the alternator.

5. Remove the alternator.



Installation

1. Install the alternator.

2. Connect the alternator connector (A) and BLK wire (B), then install the harness clamp (C) to the alternator.
3. Install the intake manifold.
4. Install the drive belt.
5. Do the battery terminal reconnection procedure.

Alternator Overhaul

Exploded View

Special Tools Required

Driver handle, 15 x 135L
07749-0010000

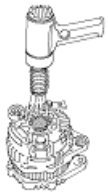
Bearing driver attachment, 42 x 47 mm
07746-0010300

NOTE: Refer to the Exploded View as needed during this procedure.

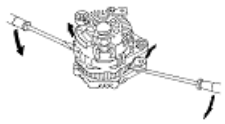
Alternator Disassembly

1. Test the alternator and regulator before you remove them.
2. Remove the alternator.
3. Remove the four through bolts.

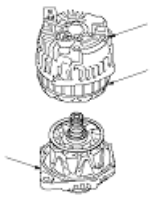
4. Heat the rear bearing seat with a heat gun for about 5 minutes (50−60 °C, 129−140 °F).



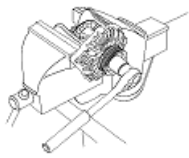
5. Separate the rear housing from the drive end housing by inserting a flat-tip screwdriver into the openings and prying them apart.
   NOTE: Be careful not to damage the stator with the tip of the screwdriver.



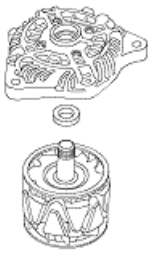
6. Separate the rear housing (A) and drive end housing (B) with the stator (C) attached to the rear housing.



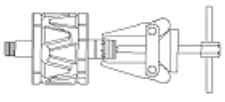
7. If you are not replacing the front bearing and/or rear bearing, go to Step 15 . Clamp the rotor in a soft-jawed vise, then remove the pulley locknut.



8. Remove the rotor.
9. Inspect the rotor shaft for scoring, and inspect the bearing journal surface in the drive end housing for seizure marks.
   - If either the rotor or drive end housing is damaged, replace the alternator.
   - If both the rotor and the drive end housing are OK, go to Step 10 .

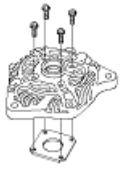


10. Remove the rear bearing using the puller as shown.



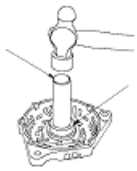
11. Use a hand press to install the new rear bearing. Apply pressure only on the inner race to avoid damaging the bearing.

12. Remove the front bearing retainer plate.



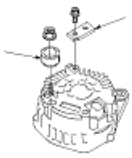
13. Support the drive end housing in a vise, and drive out the front bearing with a brass drift and hammer.

14. With a hammer and the special tools, install a new front bearing in the drive end housing.

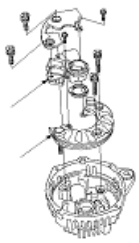


15. Remove the stator.

16. Remove the terminal insulator (A) and harness bracket (B).



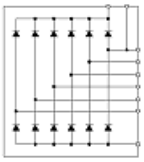
17. Remove the voltage regulator/brush holder assembly (A) and the rectifier (B).



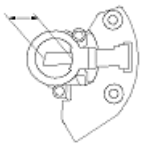
18. Check for continuity in each direction, between the B terminal (A) and P terminals (B), and between the E terminal (C) and P terminals (B) of each diode pair. All diodes should have continuity in only one direction. Because the rectifier diodes are designed to allow current to pass in one direction, and the rectifier is made up of six diodes (six pairs), you must test each diode in both directions for continuity with an ohmmeter that has diode checking capability: a total of 24 checks.
    - If any diode failed, replace the rectifier assembly. (Diodes are not available separately.)
    - If all the diodes are OK, go to Step 19 .

Stator side

Rear housing side



Alternator Brush Inspection

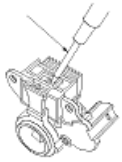


19. Measure the length of both brushes with a vernier caliper.
    - If either brush is shorter than the service limit, replace the rear housing assembly.
    - If brush length is OK, go to Step 20 .

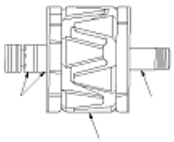
    Alternator Brush Length

Standard (New):	**23 mm (0.91 in.)**
Service Limit:	**18 mm (0.71 in.)**

20. Unsolder the brush leads from the voltage regulator/brush holder assembly with a 100 W soldering iron (A), then replace the brushes.



Rotor Slip Ring Test

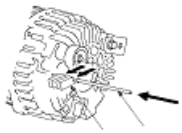


21. Check for continuity between the slip rings (A).
    - If there is continuity, go to Step 22 .
    - If there is no continuity, replace the rotor assembly.
22. Check for continuity between each slip ring (A) and the rotor (B) and the rotor shaft (C).
    - If there is no continuity, replace the rear housing assembly, go to Step 23 .
    - If there is continuity, replace the rotor assembly.

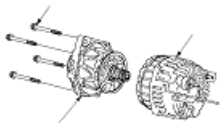
Stator Test

23. Check that there is continuity between each leads (A).
    - If there is continuity, go to Step 24 .
    - If there is no continuity, replace the stator.
24. Check for continuity between each lead and the coil core (B).
    - If there is no continuity, go to Step 25 .
    - If there is continuity, replace the stator.

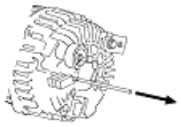
Alternator Reassembly



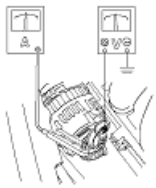
25. If you removed the pulley, put the rotor in the drive end housing, then tighten its locknut to 110 N·m (11.2 kgf·m, 81.0 lbf·ft).
26. Remove any grease or any oil from the slip rings.
27. Install the voltage regulator/brush holder assembly and rectifier on the rear housing.
28. Install the stator on the rear housing.
29. Push the brushes (A) in, then insert a pin or drill bit (B) (about 1.8 mm (0.07 in.) diameter) to hold them there.
30. Heat the rear bearing seat with a heat gun for about 5 minutes (50−60 °C, 129−140 °F).
31. Put the rear housing assembly (A) and drive end housing/rotor assembly (B) together, tighten the four through bolts (C).



32. Pull put the pin.
33. After assembling the alternator, turn the pulley by hand to make sure the rotor turns smoothly and without noise.
34. Install the alternator and drive belt.



Alternator and Regulator Circuit Troubleshooting



1. Be sure the battery connections are good, and that the battery is sufficiently charged and in good condition.
2. Hook up the following equipment:
   - Ammeter, 0−400 A
   - Voltmeter, 0−20 V (accurate within 0.1 V)
3. Start the engine. Hold the engine at 3,000 rpm (min $^{-1}$) with no load (in P or N (A/T model) or neutral (M/T model)), until the radiator fan comes on then let it idle.
4. Raise the engine speed to 2,000 rpm (min $^{-1}$) and hold it there.
5. Turn the headlights (high beam) on, and measure the voltage at the alternator terminal.

   Is the voltage within 13.9−15.1 V?
   YES - Go to Step 6 .
   NO - Replace the alternator, or repair the alternator. ■
6. Read the amperage at 13.5 V.
   NOTE: Adjust the voltage by turning the blower motor, rear window defogger, brake lights and etc. on.

   Is the amperage 60 A or more?
   YES - The charging system is OK. Go to alternator control circuit troubleshooting. ■
   NO - Replace the alternator, or repair the alternator. ■

Alternator Control Circuit Troubleshooting

1. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC).
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the engine control module (ECM)/powertrain control module (PCM). If it doesn't communicate, troubleshoot the DLC circuit.
4. Check for DTCs. If a DTC is present, diagnose and repair the cause before continuing with this test.
5. Disconnect the alternator 4P connector from the alternator.
6. Start the engine, and turn on the headlights to high beam.
7. Measure the voltage between alternator 4P connector terminal No. 2 and the positive terminal of the battery.

Is there 1 V or less?
YES - Go to Step 11 .
NO - Go to Step 8 .

8. Jump the SCS line with the HDS, then turn the ignition switch to LOCK (0).
NOTE: This step must be done to protect the ECM/PCM from damage.
9. Disconnect ECM/PCM connector B (49P).

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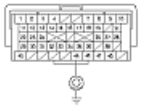
10. Check for continuity between ECM/PCM connector terminal B45 and body ground.



Is there continuity?
YES - Repair short in the wire between the alternator and the ECM/PCM.■
NO - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■

11. Jump the SCS line with the HDS, then turn the ignition switch to LOCK (0).
NOTE: This step must be done to protect the ECM/PCM from damage.
12. Disconnect ECM/PCM connector B (49P).

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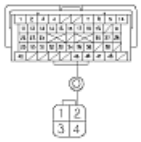
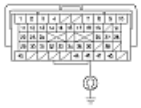
13. Check for continuity between ECM/PCM connector terminal B45 and alternator 4P connector terminal No. 2.



Is there continuity?
YES - Replace the alternator, or repair the alternator. ■
NO - Repair open in the wire between the alternator and the ECM/PCM.■

Charging System Indicator Circuit Troubleshooting

1. Turn the ignition switch to ON (II).



Does the charging system indicator come on?
YES - Go to Step 2 .
NO - Go to Step 14 .

2. Start the engine. Hold the engine speed at 2,000 rpm (min $^{-1}$) for 1 minute.

Does the charging system indicator go off?
YES - Charging system indicator circuit is OK. Go to the alternator and regulator circuit troubleshooting. ■
NO - Go to Step 3 .

3. Do the gauge control module self-diagnostic function procedure.

Does the charging system indicator flash?
YES - Go to Step 4 .
NO - Replace the gauge control module .■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the alternator 4P connector.
6. Turn the ignition switch to ON (II).
NOTE: The charging system indicator may come on and then go off.

Does the charging system indicator go off?
YES - Replace the alternator, or repair the alternator. ■
NO - Go to Step 7 .

7. Turn the ignition switch to LOCK (0).
8. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC).
9. Turn the ignition switch to ON (II).
10. Make sure the HDS communicates with the vehicle and the engine control module (ECM)/powertrain control module (PCM). If it doesn't communicate, troubleshoot the DLC circuit.
11. Jump the SCS line with the HDS, then turn the ignition switch to LOCK (0).
NOTE: This step must be done to protect the ECM/PCM from damage.
12. Disconnect ECM/PCM connector B (49P).
13. Check for continuity between ECM/PCM connector terminal B46 and body ground.

Is there continuity?
YES - Repair short in the wire between the alternator and the ECM/PCM (B46).■
NO - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■

14. Do the gauge control module self-diagnostic function procedure.

Does the charging system indicator flash?
YES - Go to Step 15 .
NO - Replace the gauge control module. ■

15. Turn the ignition switch to LOCK (0).
16. Disconnect the alternator 4P connector.

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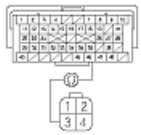
17. Connect alternator 4P connector terminal No. 3 to body ground with a jumper wire.
18. Turn the ignition switch to ON (II).

Does the charging system indicator come on?
YES - Replace the alternator, or repair the alternator. ■
NO - Disconnect the jumper wire, then go to Step 19 .

19. Connect the HDS to the DLC.
20. Turn the ignition switch to ON (II).
21. Make sure the HDS communicates with the vehicle and the ECM/PCM. If it doesn't communicate, troubleshoot the DLC circuit.
22. Jump the SCS line with the HDS, then turn the ignition switch to LOCK (0).
NOTE: This step must be done to protect the ECM/PCM from damage.
23. Disconnect ECM/PCM connector B (49P).

24. Check for continuity between ECM/PCM connector terminal B46 and alternator 4P connector terminal No. 3.



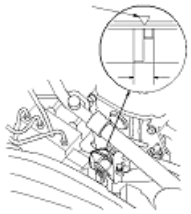
Is there continuity?

YES - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■

NO - Repair open in the wire between the alternator and the ECM/PCM.■

Drive Belt Inspection

1. Inspect the belt for cracks or damage. If the belt is cracked or damaged, replace it.
2. Check the position of the auto-tensioner indicator's pointer (A) is within the standard range (B) as shown. If it is out of the standard range, replace the drive belt.

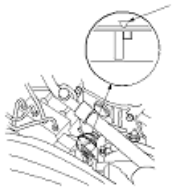


Drive Belt Auto-tensioner Removal/Installation

1. Remove the drive belt.
2. Remove the auto-tensioner
3. Install the auto-tensioner in the reverse order of removal.

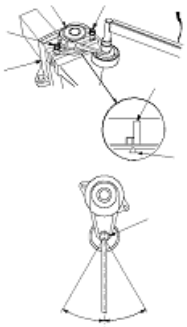
Drive Belt Auto-tensioner Inspection

1. Turn the ignition switch to ON (II), and make sure to turn the A/C switch off. Turn the ignition switch to LOCK (0).
2. Check the position of the auto-tensioner indicator's pointer (A). Start the engine then check the position again with the engine idling. If the position of the indicator moves or fluctuates very much, replace the auto-tensioner.
3. Check for abnormal noise from the tensioner pulley. If you hear abnormal noise, replace the tensioner pulley.
4. Remove the drive belt.



5. Move the auto-tensioner within its limit with a wrench in the direction shown. Check that the tensioner moves smoothly and without any abnormal noise. If the tensioner does not move smoothly or if you hear abnormal noise, replace the auto-tensioner.
6. Remove the auto-tensioner.

7. Clamp the auto-tensioner (A) by using two 8 mm bolts (B) and a vise (C) as shown. Do not clamp the auto-tensioner itself.
8. Set the torque wrench (D) on the pulley bolt, and align it as shown.
9. Align the indicator (E) on the tensioner base with Max. belt position mark (F) on the tensioner arm by using the torque wrench, and measure the torque. If the torque value is out of specification, replace the auto-tensioner.
   NOTE: If the indicator exceeds the Max. belt position mark, recheck the torque.
   Auto-tensioner Spring Torque:
   20.6–25.2 N·m (2.10–2.25 kgf·m, 15.2–18.6 lbf·ft)



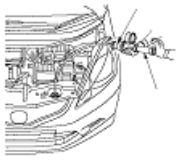
Drive Belt Auto-tensioner Pulley Replacement

1. Remove the auto-tensioner.
2. Remove the tensioner pulley.
3. Install the auto-tensioner in the reverse order of removal.

Coolant Check

1. Look at the coolant level in the coolant reservoir. Make sure it is between the MAX mark (A) and MIN mark (B).
2. If the coolant level in the coolant reservoir is at or below the MIN mark, add coolant to bring it up to the MAX mark, then inspect the cooling system for leaks.

Radiator Test



1. Wait until the engine is cool, then carefully remove the radiator cap and fill the radiator with engine coolant to the top of the filler neck.
2. Attach the pressure tester (A) (commercially available) to the radiator. Use a small adapter H-901122-09 (B) (commercially available) to attach the pressure tester.
3. Apply a pressure of 93−123 kPa (0.95−1.25 kgf/cm ^{2} , 14−18 psi).
4. Inspect for engine coolant leaks and a drop in pressure.
5. Remove the tester, and reinstall the radiator cap.
6. Check for engine oil in the coolant and/or coolant in the engine oil.

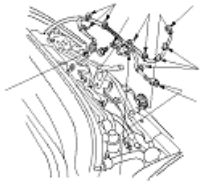
Radiator Replacement

1. Drain the engine coolant.
2. Remove the right side splash shield.
3. Remove the front bumper.

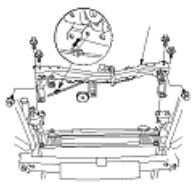
4. Disconnect the fan motor connectors (A), the hood latch switch connector (B), and the horn connector (C), then remove the ground cable (D) and the harness clamps (E).

RHD model

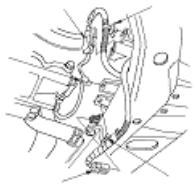
LHD model



5. Remove the bulkhead mounting bolts, and remove the hood opener cable clamp (A), then remove the bulkhead (B).
6. Raise the vehicle on the lift to full height.

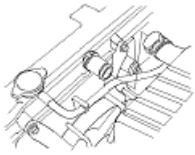


7. Disconnect the engine coolant temperature (ECT) sensor 2 connector (A), and remove the A/C compressor clutch connector (B) from the clamp.
8. Remove the harness clamps (C).

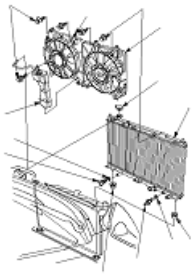


9. Disconnect the lower radiator hose (A).
10. With A/T model: Remove the automatic transmission fluid (ATF) cooler hoses (B), then plug the hose and line.
11. Lower the vehicle on the lift.

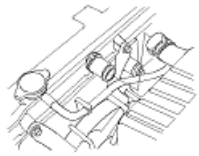
12. Remove the upper radiator hose.



13. Pull up the radiator (A), then remove the coolant reservoir (B), the radiator fan shroud assembly (C), the A/C condenser fan shroud assembly (D), the radiator cap (E), the ETC sensor 2 (F), and the drain plug (G).
14. Reassemble the radiator with new O-rings (H).
15. Install the radiator. Make sure the lower cushions (I) are set securely.



16. Install the upper radiator hose.
17. Raise the vehicle on the lift to full height.



18. Install the lower radiator hose (A).
19. With A/T model: Install the ATF cooler hoses (B).

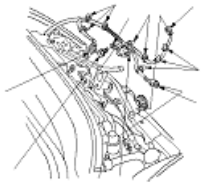
20. Connect the ECT sensor 2 connector (A), and install the A/C compressor clutch connector (B) to the clamp.
21. Install the harness clamps (C).
22. Lower the vehicle on the lift.

23. Install the hood opener cable clamp (A), then install the bulkhead (B).
24. Apply body paint to the bulkhead mounting bolts.

25. Connect the fan motor connectors (A), the hood latch switch connector (B), and the horn connector (C), then install the ground cable (D) and the harness clamps (E).
26. Install the front bumper.

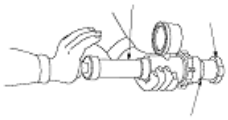
RHD model

LHD model



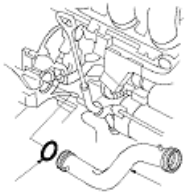
27. Install the right side splash shield.
28. Refill the radiator with engine coolant, and bleed the air from the cooling system with the heater valve open.
29. Clean up any spilled engine coolant.

Radiator Cap Test



1. Remove the radiator cap (A), wet the seal with engine coolant, then install it on the pressure tester (B) (commercially available). Use a small adapter H-901122-09 (C) (commercially available) to install the radiator cap.
2. Apply a pressure of 93−123 kPa (0.95−1.25 kgf/cm ^{2} , 14−18 psi).
3. Check for a drop in pressure.
4. If the pressure drops, replace the cap.

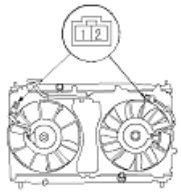
Connecting Pipe Replacement



1. Drain the engine coolant.
2. Remove the thermostat housing.
3. Remove the connecting pipe (A).
4. Install the connecting pipe with a new O-ring (B).
5. Install the thermostat housing.
6. Refill the radiator with engine coolant, and bleed the air from the cooling system with the heater valve open.
7. Clean up any spilled engine coolant.

Radiator and A/C Condenser Fan Motor Test

1. Disconnect the 2P connectors from the radiator fan motor and condenser fan motor.
2. Test the motor by connecting battery power to No. 2 terminal and ground to No. 1 terminal.
3. If the motor fails to run, or does not run smoothly, replace it.

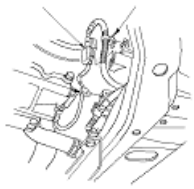


Radiator and A/C Condenser Fan, Motor, and Shroud Removal and Installation

Removal

1. Remove the right side splash shield.
2. Remove the front bumper.
3. Raise the vehicle on the lift to full height.

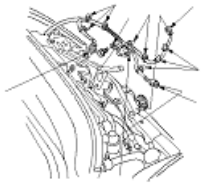
4. Remove the A/C compressor clutch connector (A) from the clamp, then remove the harness clamps (B).
5. Lower the vehicle on the lift.



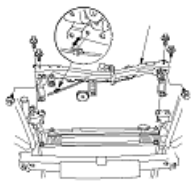
6. Disconnect the fan motor connectors (A), the hood latch switch connector (B), and the horn connector (C), then remove the ground cable (D) and the harness clamps (E).

RHD model

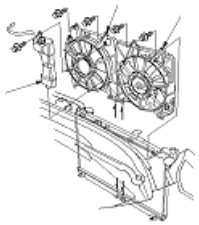
LHD model



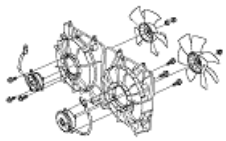
7. Remove the bulkhead mounting bolts, and remove the hood opener cable clamp (A), then remove the bulkhead (B).



8. Remove the coolant reservoir (A).
9. Remove the condenser fan shroud assembly (B), then remove the radiator fan shroud assembly (C) from condenser fan shroud side.

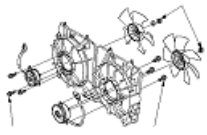


10. Disassemble the fan shrouds.

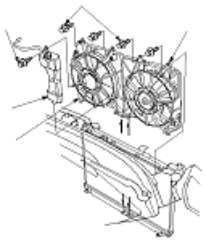


Installation

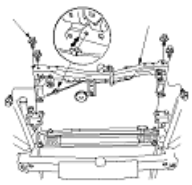
1. Assemble the fan shrouds.



2. Install the radiator fan shroud assembly (A), then install the condenser fan shroud assembly (B).
3. Install the coolant reservoir (C).



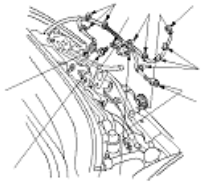
4. Install the hood opener cable clamp (A), then install the bulkhead (B).
5. Apply body paint to the bulkhead mounting bolts.



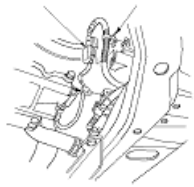
6. Connect the fan motor connectors (A), the hood latch switch connector (B), and the horn connector (C), then install the ground cable (D) and the harness clamps (E).
7. Raise the vehicle on the lift to full height.

RHD model

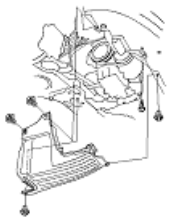
LHD model



8. Install the A/C compressor clutch connector (A) to the clamp, then install the harness clamps (B).
9. Lower the vehicle on the lift.
10. Install the front bumper.



11. Install the right side splash shield.



Thermostat Test

Replace the thermostat if it is open at room temperature.
To test a closed thermostat:

1. Suspend the thermostat (A) in a container of water. Do not let the thermometer (B) touch the bottom of the hot container.
2. Heat the water, and check the temperature with a thermometer. Check the temperature where the thermostat first opens, and where it is fully open.
3. Measure the lift height of the thermostat when it is fully open.

Standard Thermostat

Lift Height:	**Above 8.0 mm (0.31 in.)**
Starts Opening:	**76−80 °C (169−176 °F)**
Fully Open:	**90 °C (194 °F)**

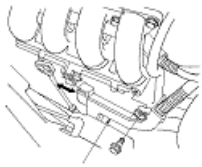
Thermostat Replacement

1. Drain the engine coolant.
2. Remove the thermostat cover (A), then remove the thermostat (B).
3. Install the new rubber seal (C) onto the thermostat, then install the thermostat with the pin (D) up, and install the thermostat cover.
4. Refill the radiator with engine coolant, then bleed the air from the cooling system.
5. Clean up any spilled engine coolant.

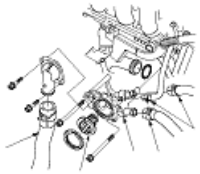
Thermostat Housing Removal and Installation

Removal

1. Drain the engine coolant.
2. Remove the coolant reservoir.

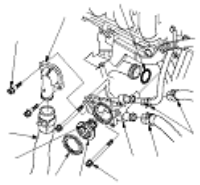


3. Remove the harness holder mounting bolt, then remove the harness holder (A) from the bracket.

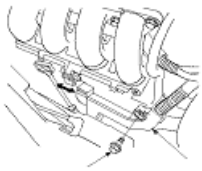


4. Disconnect the lower radiator hose (A), the heater hose (B), and the water bypass hoses (C).
5. Remove the thermostat housing assembly (D), then remove the thermostat (E).

Installation



1. Install the new rubber seal (A) onto the thermostat, then install the thermostat (B) with pin (C) up, and install the thermostat cover (D).
2. Install the thermostat housing Assembly (E) with new O-ring (F).
3. Install the lower radiator hose (G), the heater hose (H), and the water bypass hoses (I).

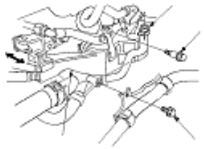


4. Install the harness holder (A).

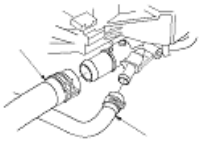
5. Install the coolant reservoir.
6. Refill the radiator with engine coolant, then bleed the air from the cooling system.
7. Clean up any spilled engine coolant.

Water Outlet Removal and Installation

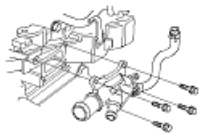
Removal



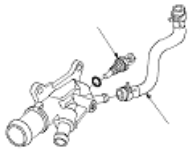
1. Drain the engine coolant.
2. Remove the air cleaner housing assembly.
3. Remove the heater hose clamp bracket mounting bolt (A) and the harness holder mounting bolt (B).
4. Disconnect the water bypass hose (C), then remove the harness holder (D) from the bracket.



5. Disconnect the upper radiator hose (A) and the water bypass hose (B).

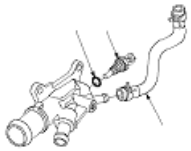


6. Disconnect the engine coolant temperature (ECT) sensor 1 connector, then remove the water outlet.

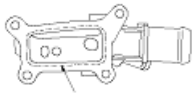


7. Remove the ECT sensor 1 (A) and the water bypass hose (B).

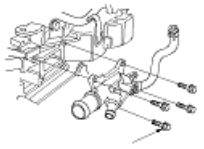
Installation



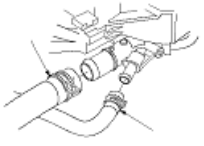
1. Install the ECT sensor 1 (A) with new O-ring (B).
2. Install the water bypass hose (C).
3. Remove the all of the old liquid gasket from the water outlet mating surfaces, the bolts, and the bolt holes.
4. Clean and dry the water outlet mating surfaces.



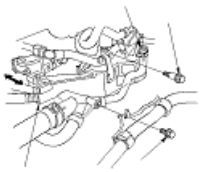
5. Apply liquid gasket (P/N 08C70-K0234M, 08C70-K0334M, or 08C70-X0331S) to the cylinder head mating surface of the water outlet and to the inner threads of the bolt holes.
   NOTE:
   - Apply liquid gasket about 2.5 mm (0.098 in.) diameter bead along the broken line (A).
   - Do not install components if 5 minutes or more have passed after applying the liquid gasket. Instead, remove the old residue and reapply the liquid gasket.



6. Install the water outlet.
   NOTE:
   - Wait at least 30 minutes before filling the engine with oil.
   - Do not run the engine for at least 3 hours after installing the chain case.



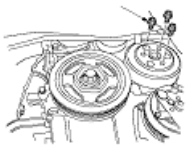
7. Install the upper radiator hose (A) and the heater hose (B).



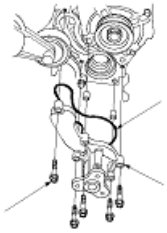
8. Install the harness holder (A), then tighten the harness holder mounting bolt (B) and the heater hose clamp bracket mounting bolt (C).
9. Install the water bypass hose (D).
10. Clean up any spilled engine coolant.
11. Install the air cleaner housing assembly.
12. Refill the radiator with engine coolant, and bleed the air from the cooling system with the heater valve open.

Water Pump Replacement

1. Drain the engine coolant.
2. Remove the right front wheel.
3. Remove the right side splash shield.
4. Loosen the water pump pulley mounting bolts.
5. Remove the drive belt.
6. Remove the water pump pulley.

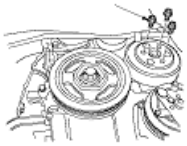


7. Remove the water pump (A) by removing the five bolts.
8. Inspect, and clean the O-ring groove and the mating surface of the engine block.
9. Install the water pump with a new O-ring (B) in the reverse order of removal.
10. Clean up any spilled engine coolant.
11. Install the water pump pulley.
12. Install the drive belt.
13. Tighten the water pump pulley mounting bolts.
14. Install the right side splash shield.
15. Install the right front wheel.
16. Refill the radiator with engine coolant, and bleed the air from the cooling system with the heater valve open.



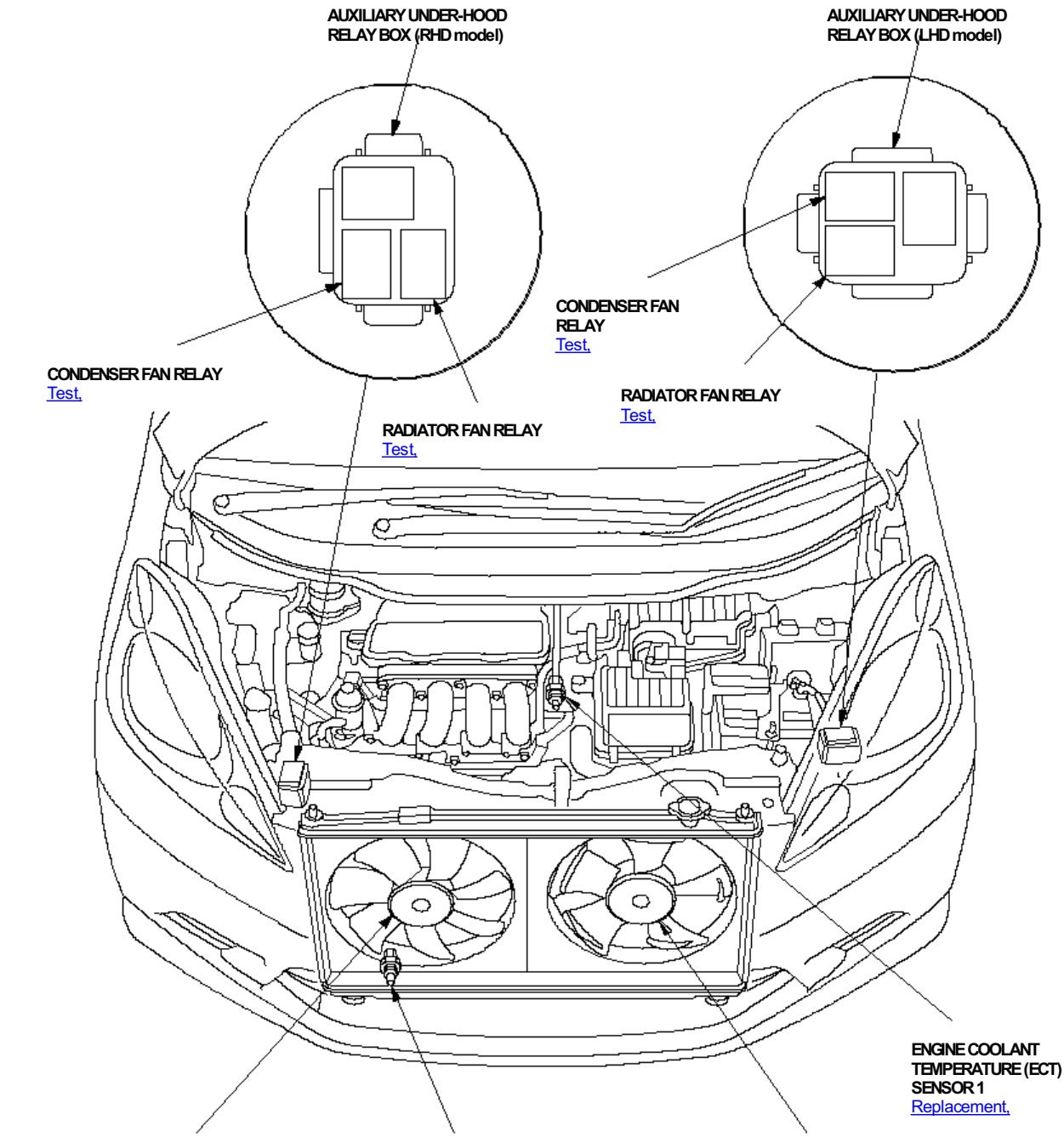
Water Pump Inspection

1. Remove the right front wheel.
2. Remove the right side splash shield.
3. Loosen the water pump pulley mounting bolts.
4. Remove the drive belt.
5. Remove the water pump pulley.

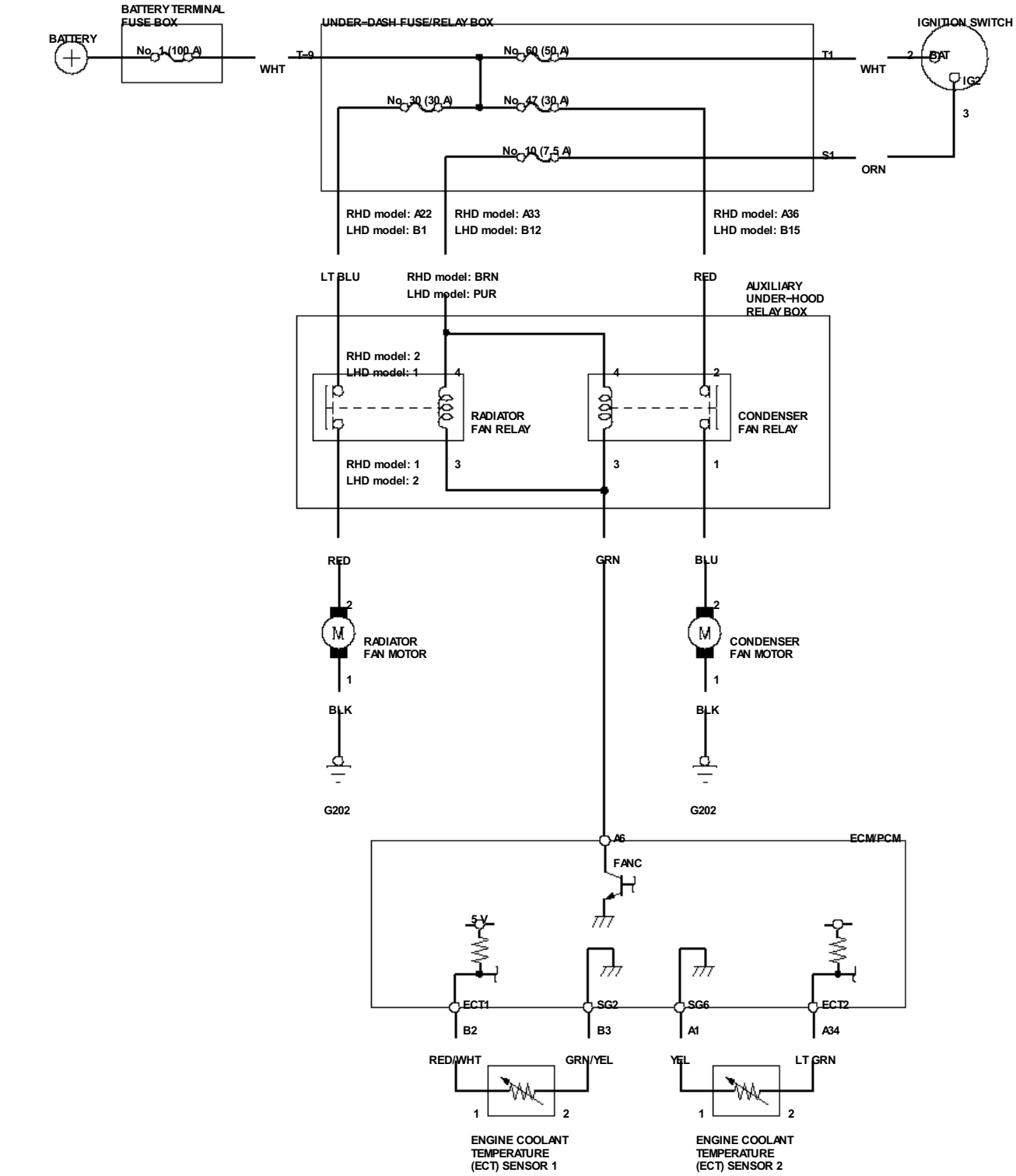


6. Turn the water pump counterclockwise, and make sure that it turns freely. If it doesn't, replace the water pump.
   NOTE: When you check the water pump, you may see a small amount of “weeping" from the bleed holes (A). This is normal.
7. Install the water pump pulley.
8. Install the drive belt.
9. Tighten the water pump pulley mounting bolts.
10. Install the right side splash shield.
11. Install the right front wheel.

Cooling Fan Controls Component Location Index



Cooling Fan Controls Circuit Diagram



Engine overheats

Diagnostic Procedure

1. Check the coolant level.
2. Check for the coolant leakage (from gaskets, hoses, O-rings, etc.).
3. Check for dirt, leaves, or insects on radiator and condenser.
4. Check for a broken drive belt.
5. Check the drive belt auto-tensioner.
6. Check for deteriorated coolant.
7. Check for damaged or deformed fan shroud.
8. Inspect the fan motors or fan relays.
9. Check the radiator cap.
10. Check the thermostat.
11. Inspect the water pump.
12. Check for plugged or deteriorated radiator hoses.
13. Check for plugged heater core of hoses.
14. Check for a damaged cylinder head gasket.

The radiator fan does not run when the engine coolant temperature is above 93 °C (199 °F)

Diagnostic Procedure

1. Radiator fan circuit troubleshooting.

Also check for

- Cleanliness and tightness of all connectors

The A/C condenser fan does not run when the engine coolant temperature is above 93 °C (199 °F)

Diagnostic Procedure

1. A/C condenser fan circuit troubleshooting.

Also check for

- Cleanliness and tightness of all connectors

Both the radiator fan and the A/C condenser fan does not run when the engine coolant temperature is above 93 °C (199 °F)

Diagnostic Procedure

1. Radiator fan and A/C condenser fan circuit troubleshooting.

Also check for

- Cleanliness and tightness of all connectors

The radiator fan run with the ignition switch to ON (II), and the engine coolant temperature below 90 °C (194 °F)

Diagnostic Procedure

1. Remove the radiator fan relay.

Also check for

- Cleanliness and tightness of all connectors

The A/C condenser fan run with the ignition switch to ON (II), and the engine coolant temperature below 90 °C (194 °F)

Diagnostic Procedure

1. Remove the condenser fan relay.

Also check for

- Cleanliness and tightness of all connectors

Both the radiator fan and the A/C condenser fan run with the ignition switch to ON (II), and the engine coolant temperature below 90 °C (194 °F)

Diagnostic Procedure

1. Check for a short in the wire between the radiator fan 4P socket terminal No. 3 and ECM/PCM connector terminal A6.

Also check for

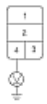
- Cleanliness and tightness of all connectors

Cooling Fan Controls Symptom Troubleshooting Index

Symptom	Diagnostic Procedure	Also check for
Engine overheats	1. Check the coolant level. 2. Check for the coolant leakage (from gaskets, hoses, O-rings, etc.). 3. Check for dirt, leaves, or insects on radiator and condenser. 4. Check for a broken drive belt. 5. Check the drive belt auto-tensioner. 6. Check for deteriorated coolant. 7. Check for damaged or deformed fan shroud. 8. Inspect the fan motors or fan relays. 9. Check the radiator cap. 10. Check the thermostat. 11. Inspect the water pump. 12. Check for plugged or deteriorated radiator hoses. 13. Check for plugged heater core of hoses. 14. Check for a damaged cylinder head gasket.	
The radiator fan does not run when the engine coolant temperature is above 93 °C (199 °F)	Radiator fan circuit troubleshooting.	Cleanliness and tightness of all connectors
The A/C condenser fan does not run when the engine coolant temperature is above 93 °C (199 °F)	A/C condenser fan circuit troubleshooting.	Cleanliness and tightness of all connectors
Both the radiator fan and the A/C condenser fan does not run when the engine coolant temperature is above 93 °C (199 °F)	Radiator fan and A/C condenser fan circuit troubleshooting.	Cleanliness and tightness of all connectors
The radiator fan run with the ignition switch to ON (II), and the engine coolant temperature below 90 °C (194 °F)	Remove the radiator fan relay.	Cleanliness and tightness of all connectors
The A/C condenser fan run with the ignition switch to ON (II), and the engine coolant temperature below 90 °C (194 °F)	Remove the condenser fan relay.	Cleanliness and tightness of all connectors
Both the radiator fan and the A/C condenser fan run with the ignition switch to ON (II), and the engine coolant temperature below 90 °C (194 °F)	Check for a short in the wire between the radiator fan 4P socket terminal No. 3 and ECM/PCM connector terminal A6.	Cleanliness and tightness of all connectors

Radiator and A/C Condenser Fan Circuit Troubleshooting

1. Check the No. 10 (7.5 A) fuse in the under-dash fuse/relay box.



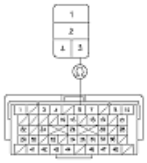
Is the fuse OK?
YES - Go to Step 2 .
NO - Replace the fuse and recheck.■

2. Remove the radiator fan relay.
3. Turn the ignition switch to ON (II).
4. Measure the voltage between the radiator fan relay 4P socket terminal No. 4 and body ground.

Is there battery voltage?
YES - Go to Step 5 .
NO - Repair open in the wire between the under-dash fuse/relay box and the radiator fan relay 4P socket terminal No. 4.■

5. Turn the ignition switch to LOCK (0).
6. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC).
7. Turn the ignition switch to ON (II).
8. Make sure the HDS communicates with the vehicle and the engine control module (ECM)/powertrain control module (PCM). If it doesn't communicate, troubleshoot the DLC circuit.
9. Jump the SCS line with the HDS, then turn the ignition switch to LOCK (0).
NOTE: This step must be done to protect the ECM/PCM from damage.
10. Disconnect ECM/PCM connector A (49P).

11. Check for continuity between the radiator fan relay 4P socket terminal No. 3 and ECM/PCM connector terminal A6.



Is there continuity?
YES - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom goes away with a known good ECM/PCM, replace the original ECM/PCM. ■
NO - Repair open in the wire between the radiator fan relay 4P socket terminal No. 3 and ECM/PCM connector terminal A6.■

Radiator Fan Circuit Troubleshooting

1. Check the No. 30 (30 A) fuse in the under-dash fuse/relay box.

Is the fuse OK?
YES - Go to Step 2 .
NO - Replace the fuse and recheck.■

2. Remove the radiator fan relay, and test the radiator fan relay.

Is the relay OK?
YES -
- RHD model: Go to Step 3 .
- LHD model: Go to Step 6 .

NO - Replace the radiator fan relay and recheck.■

3. Measure the voltage between the radiator fan relay 4P socket terminal No. 2 and body ground.

Is there battery voltage?
YES - Go to Step 4 .
NO - Repair open in the wire between the under-dash fuse/relay box and the radiator fan relay 4P socket terminal No. 2.■

4. Disconnect the radiator fan motor 2P connector.

5. Check for continuity between the radiator fan relay 4P socket terminal No. 1 and the radiator fan motor 2P connector terminal No. 2.

Is there continuity?
YES - Go to Step 9 .
NO - Repair open in the wire between the radiator fan relay 4P socket terminal No. 1 and the radiator fan motor 2P connector terminal No. 2.■

6. Measure the voltage between the radiator fan relay 4P socket terminal No. 1 and body ground.

Is there battery voltage?
YES - Go to Step 7 .
NO - Repair open in the wire between the under-dash fuse/relay box and the radiator fan relay 4P socket terminal No. 1.■

7. Disconnect the radiator fan motor 2P connector.

8. Check for continuity between the radiator fan relay 4P socket terminal No. 2 and the radiator fan motor 2P connector terminal No. 2.

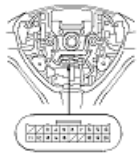
Is there continuity?
YES - Go to Step 9 .
NO - Repair open in the wire between the radiator fan relay 4P socket terminal No. 2 and the radiator fan motor 2P connector terminal No. 2.■

9. Check for continuity between the radiator fan motor 2P connector terminal No. 1 and body ground.

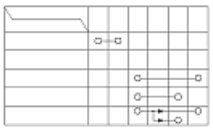
Is there continuity?
YES - Replace the radiator fan motor. ■
NO - Repair open in the wire between the radiator fan motor 2P connector terminal No. 1 and body ground. If the wire is OK, check for a poor ground at G202.■

Cruise Control Combination Switch Test

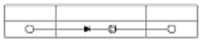
SRS components are located in this area. Review the SRS component locations, and the precautions and procedures, in the SRS before doing repairs or service.



1. Remove the driver's airbag.
2. Disconnect the 20P connector from the cable reel.



3. Check for continuity between the terminals in each switch position according to the table.
   - If there is continuity, and it matches the table, but switch failure occurred on the cruise control input test, check and repair the wire harness on the switch circuit.
   - If there is no continuity in one or more positions, replace the switch.



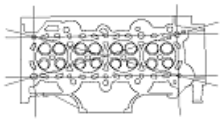
4. Check for continuity between the terminals in according to the table.
   - If there is continuity, and it matches the table, check and repair the wire harness on the switch circuit.
   - If there is no continuity in one or more positions, replace the switch.

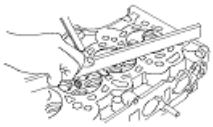
Engine Compression Inspection

NOTE: After this inspection, you must reset the engine control module (ECM)/powertrain control module (PCM), otherwise the ECM/PCM will continue to stop the injectors from functioning. Select ECM/PCM reset using the Honda Diagnostic System (HDS).

1. Warm up the engine to normal operating temperature (cooling fan comes on).
2. Turn the ignition switch to LOCK (0).
3. Connect the HDS to the data link connector (DLC).
4. Turn the ignition switch to ON (II).
5. Make sure the HDS communicates with the vehicle and the ECM/PCM. If it doesn't, troubleshoot the DLC circuit.
6. Select PGM-FI, INSPECTION, then ALL INJECTORS STOP function on the HDS.
7. Remove the four ignition coils.
8. Remove the four spark plugs.
9. Attach the compression gauge to the spark plug hole.
10. Open the throttle fully, then crank the engine with the starter motor and measure the compression.
    Compression Pressure:
    Above 980 kPa (10.0 kgf/cm ^{2}, 142 psi)
11. Measure the compression on the remaining cylinders.
    Maximum Variation:
    Within 200 kPa (2.0 kgf/cm ^{2}, 28 psi)
12. If the compression is not within specifications, check the following items, then remeasure the compression.
    - Damaged or worn valves and seats
    - Damaged cylinder head gasket
    - Damaged or worn piston rings
    - Damaged or worn piston and cylinder bore
13. Select ECM/PCM reset to cancel the ALL INJECTORS STOP function on the HDS.

Cylinder Head Inspection for Warpage





1. Remove the cylinder head.
2. Inspect the camshaft.
3. Check the cylinder head for warpage. Measure along the edges, and three ways across the center.
   Warpage

Standard (New):	**0.07 mm (0.0028 in.)**
Service Limit:	**0.08 mm (0.0031 in.)**

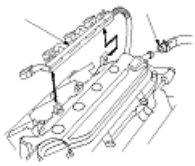
   - If warpage is less than 0.08 mm (0.003 in.) cylinder head resurfacing is not required.
   - If warpage is between 0.08 mm (0.003 in.) and 0.2 mm (0.008 in.), resurface the cylinder head.
   - Maximum resurface limit is 0.2 mm (0.008 in.) based on a height of 120 mm (4.72 in.).

   Cylinder Head Height

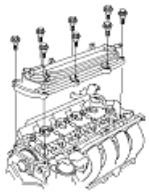
Standard (New):	**119.9−120.1 mm (4.720−4.728 in.)**

Cylinder Head Cover Removal

1. Remove the intake manifold chamber.
2. Disconnect the four ignition coil connectors.
3. Remove the harness holder (A) and the breather hose (B).

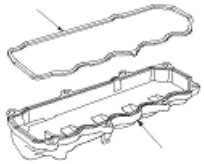


4. Remove the cylinder head cover.

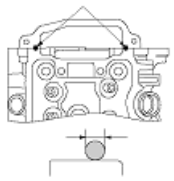


Cylinder Head Cover Installation

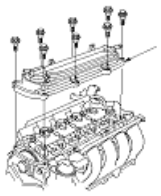
1. Thoroughly clean the head cover gasket and the groove.
2. Install the head cover gasket (A) in the groove of the cylinder head cover (B).
3. Check that the mating surfaces are clean and dry.



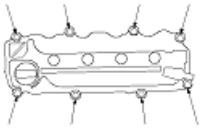
4. Apply liquid gasket (P/N 08C70-K0234M, 08C70-K0334M, or 08C70-X0331S) to the chain case contact areas (A).
   NOTE:
   - Apply liquid gasket about 2.5 mm (0.098 in.) diameter bead to the chain case contact areas.
   - Do not install components if 5 minutes or more have passed after applying the liquid gasket. Instead, remove the old residue and reapply the liquid gasket.



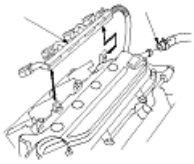
5. Place the cylinder head cover (A) on the cylinder head, then slide the cover slightly back and forth to seat the head cover gasket.



6. Tighten the bolts in three steps. In the final step tighten all bolts, in sequence, to 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft).
   NOTE:
   - Wait at least 30 minutes before filling the engine with oil.
   - Do not run the engine for at least 3 hours after installing the head cover.

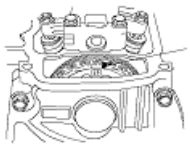


7. Install the harness holder (A) and the breather hose (B).
8. Connect the four ignition coil connectors.
9. Install the intake manifold chamber.

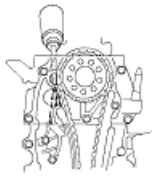


Camshaft Sprocket Removal

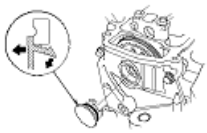
NOTE: Keep the cam chain away from magnetic fields.



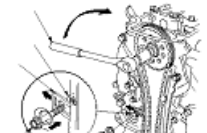
1. Remove the cylinder head cover.
2. Make a reference mark (A) across the camshaft sprocket and cam chain.



3. Apply new engine oil to the slider surface of the cam chain tensioner slider through the oil return hole in the cylinder head.



4. Remove the cylinder head plug.



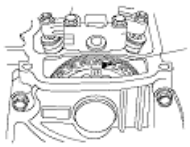
5. Hold the crankshaft pulley and set the socket wrench (A) on the camshaft sprocket bolt.
6. Remove the maintenance bolt (B), and turn the camshaft clockwise to compress the cam chain tensioner, then install the 6 x 1.0 mm bolt (C) in the bolt hole (D) on the engine block through the maintenance hole and cam chain tensioner (E).
   NOTE:
   - Turning torque should not exceed 56 N·m (5.7 kgf·m, 41 lbf·ft), when turning the camshaft.
   - Do not turn the camshaft counterclockwise.

7. Hold the camshaft with a 27 mm open-end wrench, then remove the camshaft sprocket.
   NOTE: Hang the cam chain with a wire.

Camshaft Sprocket Installation

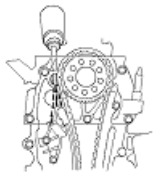
NOTE: Keep the cam chain away from magnetic fields.

1. Install the cam chain to the camshaft sprocket by alignment the reference mark (A), then install the camshaft sprocket on the camshaft.

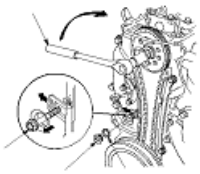


2. Hold the camshaft with a 27 mm open-end wrench, then tighten the bolt.
   Specified torque:
   56 N·m (5.7 kgf·m, 41 lbf·ft)

3. Apply new engine oil to the slider surface of the cam chain tensioner slider through the oil return hole in the cylinder head.



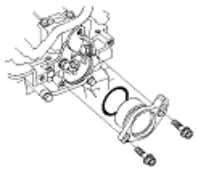
4. Hold the crankshaft pulley and set the socket wrench (A) on the camshaft sprocket bolt.
5. Turn the camshaft clockwise to compress the cam chain tensioner, then remove the 6 x 1.0 mm bolt (B).
   NOTE:
   - Turning torque should not exceed 56 N·m (5.7 kgf·m, 41 lbf·ft), when turning the camshaft.
   - Do not turn the camshaft counterclockwise.
6. Install the maintenance bolt (C) with a new washer (D).



7. Install the new cylinder head plug.
8. Install the cylinder head cover.

CMP Pulse Plate Removal and Installation

Removal

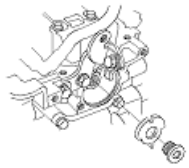


1. Remove the air cleaner housing assembly.
2. Remove the intake manifold chamber.
3. Remove the following engine wire harness connectors and wire harness clamps from the cylinder head:
   - Four injector connector
   - Engine coolant temperature (ECT) sensor 1 connector
   - Camshaft position (CMP) sensor connector
   - Air fuel ratio (A/F) sensor connector
   - Secondary heated oxygen sensor (secondary HO2S) connector
4. Remove the harness holder mounting bolt and the ground cable, then remove the harness holder from the bracket.
5. Remove the cylinder head cover.
6. Remove the camshaft thrust cover.

7. Hold the camshaft with an open-end wrench, then loosen the bolt.

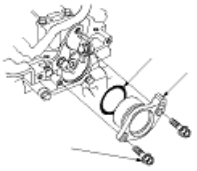
8. Remove the camshaft position (CMP) pulse plate.

Installation



1. Install the CMP pulse plate.

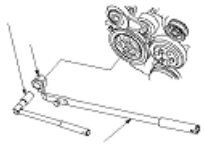
2. Hold the camshaft with an open-end wrench, then tighten the bolt.
   Specified Torque
   14 x 1.5 mm 34 N·m (3.5 kgf·m, 25 lbf·ft)



3. Install the camshaft thrust cover (A) with new O-ring (B).
4. Install the cylinder head cover.
5. Install the harness holder, then install the ground cable.
6. Install the following engine wire harness connectors and wire harness clamps from the cylinder head:
   - Four injector connector
   - Engine coolant temperature (ECT) sensor 1 connector
   - Camshaft position (CMP) sensor connector
   - Air fuel ratio (A/F) sensor connector
   - Secondary heated oxygen sensor (secondary HO2S) connector
7. Install the intake manifold chamber.
8. Install the air cleaner housing assembly.

Crankshaft Pulley Removal and Installation

Special Tools Required



Handle, 6-25-660L
07JAB-001020B

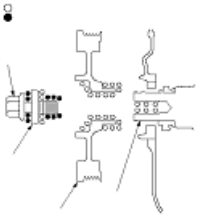
Crankshaft pulley holder, 50 offset 65
070AB-RJA0100

Socket wrench, 19 x 90L
07JAA-001020A

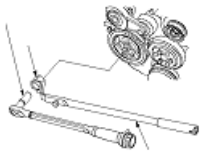
Removal

1. Remove the drive belt.
2. Hold the pulley with the handle (A) and the crankshaft pulley holder (B).
3. Remove the bolt with a 19 x 90L socket (C) and a breaker bar, then remove the crankshaft pulley.

Installation



1. Clean the crankshaft pulley (A), the crankshaft (B), the bolt (C), and the washer (D). Lubricate with new engine oil as shown.
2. Install the crankshaft pulley.



3. Tighten the crankshaft pulley bolt. Do not use an impact wrench.
   -1. Hold the pulley with the handle (A) and crankshaft pulley holder (B), then tighten the bolt to 37 N·m (3.8 kgf·m, 27 lbf·ft) with a torque wrench and a 19 x 90L socket (C). If the pulley bolt or crankshaft are new, tighten the bolt to 177 N·m (18.0 kgf·m, 130 lbf·ft), then remove the bolt and tighten it to 37 N·m (3.8 kgf·m, 27 lbf·ft).
   -2. Mark the embossed mark (D) on the bolt flange and the crankshaft pulley (E) as shown, then tighten the bolt an additional 90 ° (The mark on the bolt head should line up with the next embossed mark (F) on the bolt flange).

4. Install the drive belt.

Cam Chain Case Oil Seal Installation

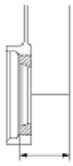
Special Tools Required

Driver handle, 15 x 135L
07749-0010000

Bearing driver attachment, 52 x 55 mm
07746-0010400

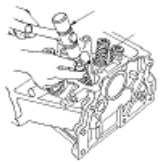
1. Use the driver handle and the bearing driver attachment to drive a new oil seal squarely into the chain case to the specified installed height.

2. Measure the distance between the chain case surface and the oil seal.
   Oil Seal Installed Height:
   30.3–31.0 mm (1.19–1.22 in.)



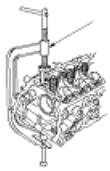
Cylinder Head Valve, Spring, and Valve Seal Removal

Special Tools Required



Valve spring compressor
07757-0010000
Identify the valves and the valve springs as they are removed so that each item can be reinstalled in its original position.

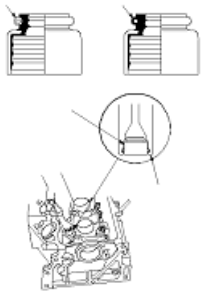
1. Remove the cylinder head.
2. Using an appropriate-sized socket (A), and a plastic mallet (B), lightly tap the spring retainer to loosen the valve cotters.



3. Install valve the spring compressor. Compress the spring, and remove the valve cotters.
4. Remove the valve spring compressor, then remove the spring retainer, the valve spring, the valve seal, and the valve spring seat.

Cylinder Head Valve, Spring, and Valve Seal Installation

Special Tools Required



Stem seal driver
07PAD-0010000

Valve spring compressor
07757-0010000

1. Coat the valve stems with new engine oil. Install the valves in the valve guides.
2. Check that the valves move up and down smoothly.
3. Install the spring seats on the cylinder head.
4. Install the new valve seals (A) using the valve guide seal installer (B).
   NOTE: The exhaust valve seal (C) has a black spring (D), and the intake valve seal (E) has a white spring (F). They are not interchangeable.
5. Install the valve spring. Place the end of the valve spring with closely wound coils toward the cylinder head.
6. Install the valve retainer.

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7. Install the valve spring compressor. Compress the spring, and install the valve cotters.

---

8. Lightly tap the end of each valve stem three times with a plastic mallet (A) to ensure proper seating of the valve and valve cotters. Tap the valve stem only along its axis so you do not bend the stem.

Cylinder Head Valve Inspection

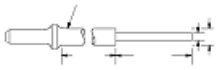
1. Remove the valves.

2. Measure the valve in these areas.

Intake Valve Dimensions	
A Standard (New):	**27.85–28.15 mm (1.096–1.108 in.)**
B Standard (New):	**118.55–119.15 mm (4.667–4.691 in.)**
C Standard (New):	**5.48–5.49 mm (0.2157–0.2161 in.)**
C Service Limit:	**5.45 mm (0.215 in.)**
Exhaust Valve Dimensions	
A Standard (New):	**22.85–23.15 mm (0.900–0.911 in.)**
B Standard (New):	**117.25–117.85 mm (4.616–4.640 in.)**
C Standard (New):	**5.45–5.46 mm (0.2146–0.2150 in.)**
C Service Limit:	**5.42 mm (0.213 in.)**

Cylinder Head Valve Guide Replacement

Special Tools Required



Valve guide driver, 5.35 x 9.7
07742-0010100

Valve guide reamer, 5.525 mm
07HAH-PJ70100

1. Inspect valve stem-to-guide clearance.
2. As illustrated below, use a commercially available air-impact valve guide driver (A) modified to fit the diameter of the valve guides. In most cases, the same procedure can be done using the valve guide driver and a conventional hammer.
3. Select the proper replacement guides, and chill them in the freezer section of a refrigerator for about an hour.

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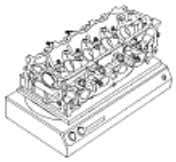
4. Use a hot plate or oven to evenly heat the cylinder head to 150 °C (300 °F). Monitor the temperature with a cooking thermometer. Do not get the head hotter than 150 °C (300 °F); excessive heat may loosen the valve seats.
5. Working from the camshaft side, use the valve guide driver and an air hammer to drive the guide about 2 mm (0.1 in.) towards the combustion chamber. This will knock off some of the carbon and make removal easier. Hold the air hammer directly in line with the valve guide to prevent damaging the driver.



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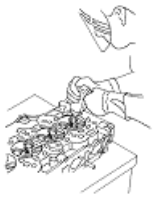
6. Turn the head over, and drive the guide out toward the camshaft side of the head.
7. If a valve guide won't move, drill it out with a 8 mm (5/16 in.) bit, then try again. Drill guides only in extreme cases; you could damage the cylinder head if the guide breaks.
8. Remove the new guide(s) from the freezer, one at a time, as you need them.



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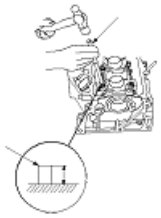
9. Apply a thin coat of new engine oil to the outside of the new valve guide. Install the guide from the camshaft side of the head; use the valve guide driver to drive the guide in to the specified installed height (A) of the guide (B). If you have all 16 guides to do, you may have to reheat the head.

   Valve Guide Installed Height:

   15.85–16.35 mm (0.624–0.644 in.)

10. Coat both reamer and valve guide with cutting oil.



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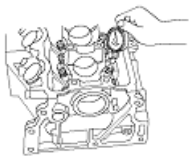
11. Rotate the reamer clockwise the full length of the valve guide bore.
12. Continue to rotate the reamer clockwise while removing it from the bore.
13. Thoroughly wash the guide in detergent and water to remove any cutting residue.
14. Check the clearances with a valve. Verify that a valve slides in the intake and exhaust valve guides without sticking.
15. Inspect the valve seat. If necessary renew the valve seat using a valve seat cutter.

Cylinder Head Valve Stem-to-Guide Clearance Inspection



1. Remove the valves.
2. Subtract the O.D. of the valve stem, measured with a micrometer, from the I.D. of the valve guide, measured with an inside micrometer or ball gauge.
   Take the measurements in three places along the valve stem and three places inside the valve guide.
   The difference between the largest guide measurement and the smallest stem measurement should not exceed the service limit.

Intake Valve Stem-to-Guide Clearance

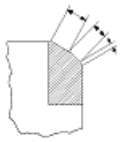
Standard (New):	**0.020−0.050 mm (0.0008−0.0020 in.)**
Service Limit:	**0.08 mm (0.003 in.)**

Exhaust Valve Stem-to-Guide Clearance

Standard (New):	**0.050−0.080 mm (0.0020−0.0031 in.)**
Service Limit:	**0.11 mm (0.004 in.)**

Cylinder Head Valve Seat Reconditioning

1. Inspect valve stem-to-guide clearance. If the valve guides are worn, replace them before cutting the valve seats.
2. Renew the valve seats in the cylinder head using a valve seat cutter.
3. Carefully cut a 45 ° seat, removing only enough material to ensure a smooth and concentric seat.

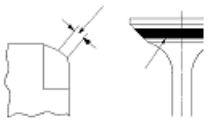


4. Bevel the upper and lower edges at the angles shown in the illustration.Check the width of the seat and adjust accordingly.
5. Make one more very light pass with the 45 ° cutter to remove any possible burrs caused by the other cutters.

Valve Seat Width

Intake:

Standard (New):	**0.850–1.150 mm (0.0335–0.0453 in.)**
Service Limit:	**1.60 mm (0.063 in.)**
Standard (New):	**1.250–1.550 mm (0.0492–0.0610 in.)**
Service Limit:	**2.00 mm (0.079 in.)**



6. After resurfacing the seat, inspect for even valve seating: Apply Prussian Blue compound (A) to the valve face. Insert the valve in its original location in the head, then lift it and snap it closed against the seat several times.
7. The actual valve seating surface (B), as shown by the blue compound, should be centered on the seat.
   - If it is too high (closer to the valve stem), you must make a second cut with the 67.5 ° cutter (intake) or 60 ° cutter (exhaust) to move it down, then one more cut with the 45 ° cutter to restore seat width.
   - If it is too low (close to the valve edge), you must make a second cut with the 30 ° cutter to move it up, then make one more cut with the 45 ° cutter to restore seat width.

   NOTE: The final cut should always be made with the 45 ° cutter.

8. Insert the intake and exhaust valves in the head, and measure valve stem installed height (A).

Intake Valve Stem Installed Height

Standard (New):	**46.1–46.5 mm (1.815–1.831 in.)**
Service Limit:	**46.8 mm (1.843 in.)**

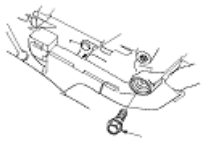
Exhaust Valve Stem Installed Height

Standard (New):	**46.2–46.6 mm (1.819–1.835 in.)**
Service Limit:	**46.9 mm (1.846 in.)**

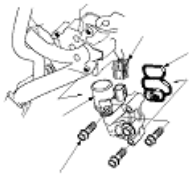
9. If valve stem installed height is over the service limit, replace the valve and recheck. If it is still over the service limit, replace the cylinder head; the valve seat in the head is too deep.

VTEC Rocker Arm Oil Control Valve Removal/Installation

1. Remove the harness holder (A).



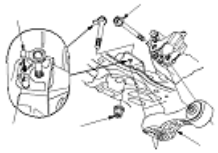
2. Disconnect the rocker arm oil control solenoid connector (A).
3. Remove the rocker arm oil control valve (B) and the rocker arm oil control valve filter (C).
4. Install the parts in the reverse order of removal with a new rocker arm oil control valve filter.



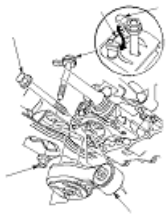
Engine Mount Torque Rod Replacement

1. Raise the vehicle on the lift to full height.
2. Support the transmission with a jack and wood block under the transmission.
3. Remove the torque rod (A).
4. Install the torque rod. Install the new bolt with the tab (B) on the bolt head aligned with the guide (C) on the front subframe, then tighten the new torque rod mounting bolt and nut in the numbered sequence shown.

M/T model

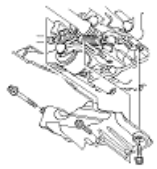


A/T model



Engine Mount Torque Rod Bracket Replacement

1. Raise the vehicle on the lift to full height.
2. A/T model: Remove the shift cable cover.
3. Support the transmission with a jack and wood block under the transmission.



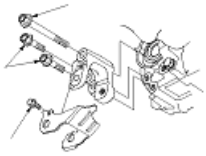
4. Remove the torque rod.

M/T model

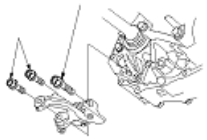
A/T model

5. Remove the torque rod bracket.
6. Install the torque rod bracket.

M/T model



A/T model

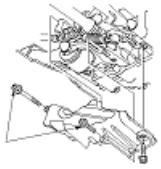


7. Install the torque rod (A). Install the new bolt with the tab (B) on the bolt head aligned with the guide (C) on the front subframe, then tighten the new torque rod mounting bolt and nut in the numbered sequence shown.

M/T model

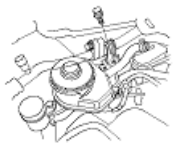
A/T model

8. A/T model: Install the shift cable cover.

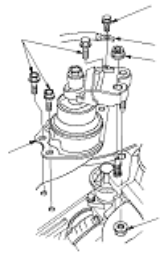


Side Engine Mount Replacement

1. Remove the A/C line bracket mounting bolt.
2. Support the engine with a jack and wood block under the oil pan.

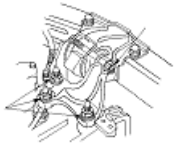


3. Remove the ground cable (A), then remove the side engine mount/bracket assembly (B).
4. Install the side engine mount/bracket assembly, then tighten the new side engine mount/bracket assembly mounting bolts (C).
5. Loosely tighten the new side engine mount/bracket assembly mounting nuts (D) and install the ground cable.
6. Remove the air cleaner housing assembly.



7. Loosen the transmission mount bracket mounting bolts and nuts (A).
8. Raise the vehicle on the lift to full height.

M/T model



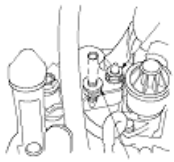
A/T model

9. Loosen the torque rod mounting bolt and nut (A).
10. Lower the vehicle on the lift.

M/T model

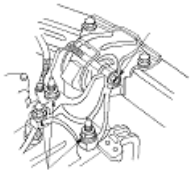
A/T model

11. Tighten the side engine mount/bracket assembly mounting nuts in the numbered sequence shown.



12. Tighten the transmission mount mounting bolts and nuts in the numbered sequence shown.
13. Raise the vehicle on the lift to full height.

M/T model

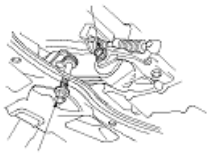


A/T model

14. Tighten the torque rod mounting bolt and nut in the numbered sequence shown.
15. Lower the vehicle on the lift.

M/T model

A/T model



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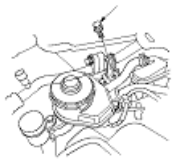
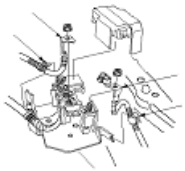
16. Install the A/C line bracket mounting bolt.
17. Install the air cleaner housing assembly.

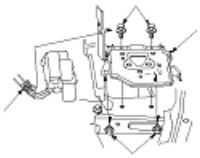


Transmission Mount Bracket Replacement

1. Remove the battery.
2. Remove the air cleaner housing assembly.
3. With M/T model: Remove the battery cables (A) from the battery terminal fuse box.
4. With M/T model: Remove the harness clamps (B).

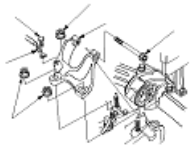


5. With M/T model: Remove the harness clamp (A). Remove the two bolts (B) and loosen the two bolts (C), then remove the battery base (D).
6. Support the transmission with a jack and wood block under the transmission.

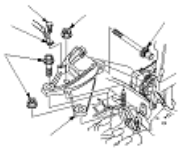


7. Remove the ground cable (A), then remove the transmission mount bracket (B).
8. Install the transmission mount bracket, and loosely tighten the new transmission mount bracket mounting bolts and nuts (C).
9. Install the ground cable.
10. Raise the vehicle on the lift to full height.

M/T model



A/T model



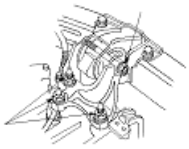
11. Loosen the torque rod mounting bolt and nut (A).

M/T model

A/T model

12. Tighten the transmission mount mounting bolts and nuts in the numbered sequence shown.
13. Raise the vehicle on the lift to full height.

M/T model

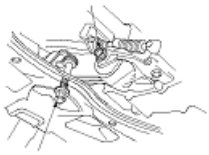


A/T model

14. Tighten the torque rod mounting bolt and nut in the numbered sequence shown.

M/T model

A/T model



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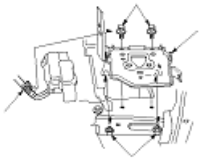
15. With M/T model: Install the battery base (A), then install the harness clamp (B).



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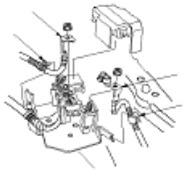
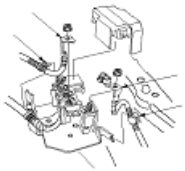
16. With M/T model: Install the battery cables (A) to the battery terminal fuse box.
17. With M/T model: Install the harness clamps (B).
18. Do the battery installation procedure.
19. Install the air cleaner housing assembly.

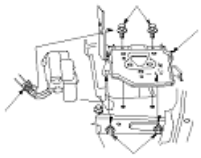


Transmission Mount Replacement

1. Remove the battery.
2. Remove the air cleaner housing assembly.
3. With M/T model: Remove the battery cables (A) from the battery terminal fuse box.
4. With M/T model: Remove the harness clamps (B).

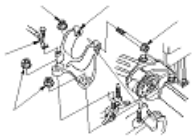


5. With M/T model: Remove the harness clamp (A). Remove the two bolts (B) and loosen the two bolts (C), then remove the battery base (D).
6. Support the transmission with a jack and wood block under the transmission.

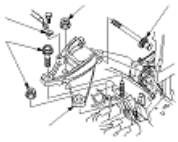


7. Remove the ground cable (A), then remove the transmission mount bracket (B).

M/T model

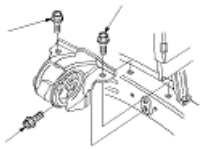


A/T model

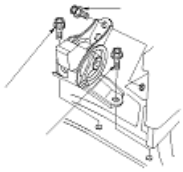


8. Remove the transmission mount.
9. Install the transmission mount and loosely tighten the new transmission mount mounting bolts, then tighten the transmission mount mounting bolts in the numbered sequence shown.

M/T model

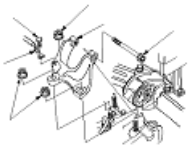


A/T model

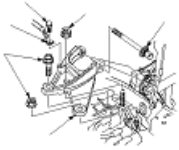


10. Install the transmission mount bracket (A), and loosely tighten the new transmission mount bracket mounting bolts and nuts (B).
11. Install the ground cable (C).
12. Raise the vehicle on the lift to full height.

M/T model



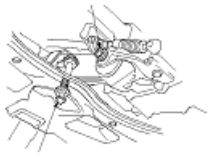
A/T model



13. Loosen the torque rod mounting bolt and nut (A).

M/T model

A/T model



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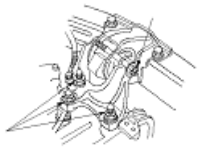
14. Tighten the transmission mount mounting bolts and nuts in the numbered sequence shown.
15. Raise the vehicle on the lift to full height.

M/T model



A/T model

---

16. Tighten the torque rod mounting bolt and nut in the numbered sequence shown.

M/T model

A/T model

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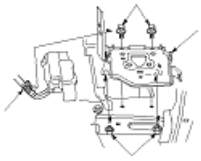
17. With M/T model: Install the battery base (A), then install the harness clamp (B).



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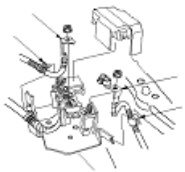
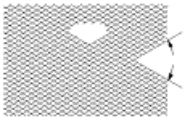
18. With M/T model: Install the battery cables (A) to the battery terminal fuse box.
19. With M/T model: Install the harness clamps (B).
20. Install the battery.
21. Install the air cleaner housing assembly.



Engine Block Cylinder Bore Honing

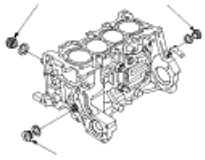


Only a scored or scratched cylinder bore must be honed.

1. Measure the cylinder bores.
   If the engine block is to be reused, hone the cylinders and remeasure the bores.
2. Hone the cylinder bores with honing oil and a fine (400 grit) stone in a 60 degree cross-hatch pattern (A). Use only a rigid hone with 400 grit or finer stone such as Sunnen, Ammco, or equivalent. Do not use stones that are worn or broken.
3. When honing is complete, thoroughly clean the engine block of all metal particles. Wash the cylinder bores with hot soapy water, then dry and oil them immediately to prevent rusting. Never use solvent, it will only redistribute the grit on the cylinder walls.
4. If scoring or scratches are still present in the cylinder bores after honing the engine block to the service limit, rebore the engine block. Some light vertical scoring and scratching is acceptable if it is not deep enough to catch your fingernail and does not run the full length of the bore.

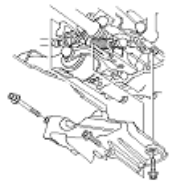
Engine Block Drain Bolt/Sealing Bolt Installation

NOTE: When installing the drain bolt and/or sealing bolt, always use new washer.



Engine Oil Pan Removal

1. If the engine is already out of the vehicle, go to Step 7 .
2. Drain the engine oil.
3. Remove the drive belt.
4. Remove the driveshaft heat shield.
5. Remove the A/C compressor without disconnecting the A/C hoses.
6. A/T model: Remove the shift cable cover.
7. M/T model: Remove the torque rod bracket.

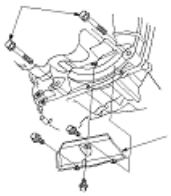


8. Remove the dipstick, then remove the dipstick tube.

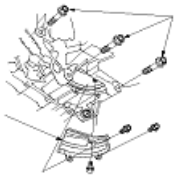
9. Remove the crankshaft position (CKP) sensor cover (A), then disconnect the CKP sensor connector (B).

10. Remove the clutch cover/torque converter cover (A), and transmission mounting bolts (B).
11. Remove the bolts securing the oil pan.

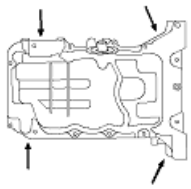
M/T model



A/T model

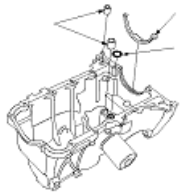


12. Using a flat blade screwdriver, separate the oil pan from the block in the places shown.
13. Remove the oil pan.

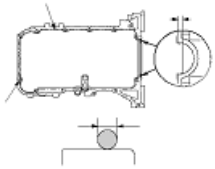


Engine Oil Pan Installation

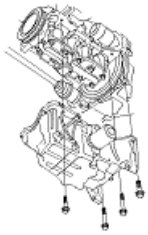
1. Remove any old liquid gasket from the oil pan mating surfaces, bolts and bolt holes.
2. Clean and dry the oil pan mating surfaces.
3. Install the new oil pan gasket (A), new O-ring (B), and dowel pins (C) on the oil pan.



4. Apply liquid gasket (P/N 08C70-K0234M, 08C70-K0334M, or 08C70-X0331S) to the engine block mating surface of the oil pan and to the inner threads of the bolt holes.
   NOTE:
   - Apply liquid gasket about 2.5 mm (0.098 in.) diameter bead along the broken line (A).
   - Apply liquid gasket about 5.0 mm (0.20 in.) diameter bead to the shaded area (B).
   - Do not install components if 5 minutes or more have passed after applying the liquid gasket. Instead, remove the old residue and reapply the liquid gasket.



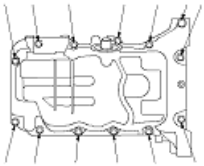
5. Install the oil pan.
   NOTE:
   - Wait at least 30 minutes before filling the engine with oil.
   - Do not run the engine for at least 3 hours after installing the oil pan.



6. Tighten the bolts in three steps. Wipe off the excess liquid gasket on the each side of crankshaft pulley and the flywheel/drive plate.

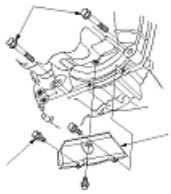
   Specified torque

   (1): 24 N·m (2.4 kgf·m, 17 lbf·ft)
   (2)–(13): 12 N·m (1.2 kgf·m, 8.8 lbf·ft)

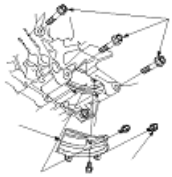


7. Install the clutch cover/torque converter cover (A), and install the transmission mounting bolts (B).

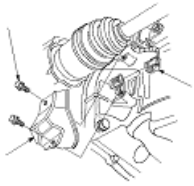
M/T model



A/T model

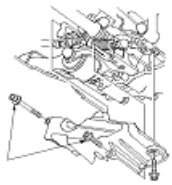


8. Connect the CKP sensor connector (A), then install the CKP sensor cover (B).



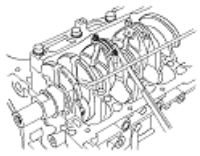
9. Install the dipstick tube (A) with new O-ring (B), then install the dipstick.
10. M/T model: Install the torque rod bracket.
11. If the engine is still in the vehicle, do Step 12 through 16.

12. A/T model: Install the shift cable cover.
13. Install the A/C compressor.
14. Install the driveshaft heat shield.
15. Install the drive belt.
16. Refill the engine with engine oil.



Connecting Rod and Crankshaft End Play Inspection

1. Remove the oil pump.



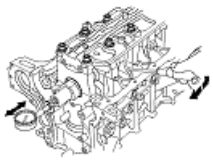
2. Measure the connecting rod end play with a feeler gauge between the connecting rod and the crankshaft.

Connecting Rod End Play

Standard (New):	**0.15–0.35 mm (0.006–0.014 in.)**
Service Limit:	**0.40 mm (0.016 in.)**

3. If the connecting rod end play is beyond the service limit, install a new connecting rod, and recheck. If it is still beyond the service limit, replace the crankshaft.

4. Push the crankshaft firmly away from the dial indicator, and zero the dial against the end of the crankshaft. Then pull the crankshaft firmly back toward the indicator; the dial reading should not exceed the service limit.

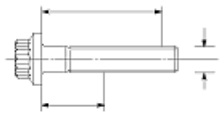


Crankshaft End Play

Standard (New):	**0.10–0.35 mm (0.004–0.014 in.)**
Service Limit:	**0.45 mm (0.018 in.)**

5. If the end play is beyond the service limit, replace the thrust washers and recheck, if it is still beyond the service limit, replace the crankshaft.

Connecting Rod Bolt Inspection



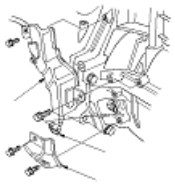
1. Measure the diameter of each connecting rod bolt at point A and point B with a micrometer.
2. Calculate the difference in diameter between point A and point B.
   Point A−Point B = Difference in Diameter

   Difference in Diameter:

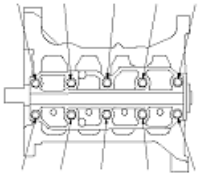
   Specification: **0−0.05 mm (0−0.002 in.)**

3. If the difference in diameter is out of specification, replace the connecting rod bolt.

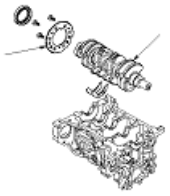
Crankshaft and Piston Removal



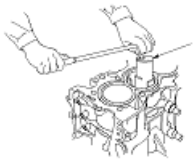
1. Remove the engine/transmission.
2. Remove the transmission:
   - Manual transmission
   - Automatic transmission
3. M/T model: Remove the pressure plate, clutch disc, and flywheel.
4. A/T model: Remove the drive plate.
5. Remove the crankshaft position (CKP) sensor cover (A), then disconnect the CKP sensor connector (B).
6. Remove the harness cover (C).
7. Remove the oil pan.
8. Remove the oil pump.
9. Remove the cylinder head.



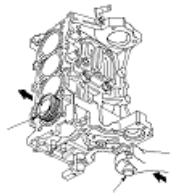
10. Remove the bearing cap bolts. To prevent warpage, unscrew the bolts in sequence 1/3 turn at a time; repeat the sequence until all bolts are loosened.
11. Remove the bearing cap bridge.
12. Remove the rod caps/bearings. Keep all caps/ bearings in order.



13. Lift crankshaft (A) out of the engine. Be careful not to damage the journals and the CKP pulse plate (B).
14. Remove the CKP pulse plate.
15. Remove the upper bearing halves from the connecting rods, and set them aside with their respective caps.



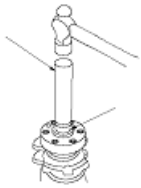
16. If you can feel a ridge of metal or hard carbon around the top of each cylinder, remove it with a ridge reamer (A). Follow the reamer manufacturer's instructions. If the ridge is not removed, it may damage the pistons as they are pushed out.



17. Use the wooden handle of a hammer (A) to drive out the piston/connecting rod assembly (B). Take care not to damage the cylinder with the connecting rod.
18. Reinstall the bearing cap bridge and bearings on the engine in the proper order.
19. Reinstall the connecting rod bearings and caps after removing each piston/connecting rod assembly.
20. Mark each piston/connecting rod assembly with its cylinder number to make sure they are reused in original order. NOTE: The existing number on the connecting rod does not indicate its position in the engine, it indicates the rod bore size.

Crankshaft/Oil Seal (Transmission End) Installation

Special Tools Required

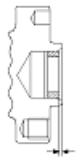


Driver handle, 15 x 135L
07749-0010000

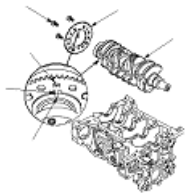
Bearing driver attachment, 28 x 30 mm
07946-1870100

Oil seal driver attachment, 96 mm
07ZAD-PNA0100

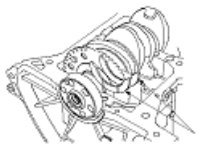
1. M/T model: Install the pilot bearing when replacing the crankshaft.
2. A/T model: Install the crankshaft end bushing when replacing the crankshaft. Using the driver handle and the bearing driver attachment, drive in the crankshaft end bushing to the specified installed height.



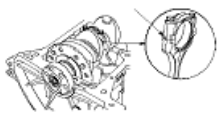
3. Measure the distance between the crankshaft surface and crankshaft end bushing.
   Oil Seal Installed Height:
   0.9–1.1 mm (0.035–0.043 in.)
4. Check the connecting rod bearing clearance with plastigage.
5. Check the main bearing clearance with plastigage.
6. Install the bearing halves in the engine block and the connecting rods.
7. Apply a coat of new engine oil to the main bearings and the rod bearings.



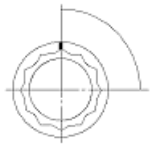
8. Install the crankshaft position (CKP) pulse plate (A) on the crankshaft (B); face the marked side (C) opposite the crankshaft, and align the tab (D) on the CKP pulse plate with the groove (E) on the crankshaft.
9. Hold the crankshaft so that rod journal No. 2 and rod journal No. 3 are straight up, and lower the crankshaft into the engine block.



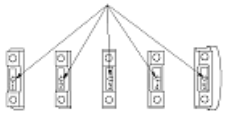
10. Apply new engine oil to the thrust washer surfaces. Install the thrust washers (A) in the No. 4 journal of the engine block.
11. Inspect the connecting rod bolts.
12. Apply new engine oil to the threads and flange of the connecting rod bolts.



13. Seat the rod journals into connecting rod No. 1 and connecting rod No. 4. Line up the mark (A) on the connecting rod and the cap, then install the caps and the bolts finger-tight.
14. Rotate the crankshaft clockwise, and seat the journals into connecting rod No. 2 and connecting rod No. 3. Line up the mark on the connecting rod and the cap, then install the caps and the bolts finger-tight.
15. Tighten the connecting rod bolts to 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft).



16. Tighten the connecting rod bolts an additional 90 °.
    NOTE: Remove the connecting rod bolt if you tightened it beyond the specified angle, and go back to step 11 of the procedure. Do not loosen it back to the specified angle.



17. With L15A7 engine: Install the bearing caps with facing the arrows (A) to the cam chain side on the bearing cap bridge.
18. Remove old liquid gasket from the bearing cap bridge/No. 5 bearing cap mating surfaces.
19. Clean and dry the bearing cap bridge/No. 5 bearing cap mating surfaces.

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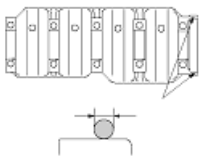
20. Apply liquid gasket (P/N 08C70-K0234M, 08C70-K0334M, or 08C70-X0331S) to the engine block mating surface of the bearing cap bridge/No. 5 bearing cap.
    NOTE:
    - Apply liquid gasket about 2.5 mm (0.098 in.) diameter bead along the broken line (A).
    - Do not install components if 5 minutes or more have passed after applying the liquid gasket. Instead, remove the old residue and reapply the liquid gasket.



21. Put the bearing cap bridge on the engine block.
22. Apply engine oil to the threads and flange of the bearing cap bolts.

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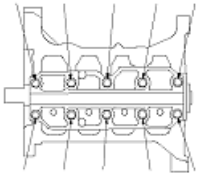
23. Tighten the bearing cap bolts is sequence to 25 N·m (2.5 kgf·m, 18 lbf·ft).



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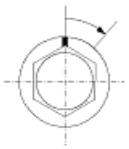
24. Tighten the bearing cap bolts an additional 40 °.
25. Clean the excess liquid gasket off the engine block.



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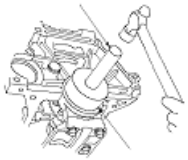
26. Use the special tools to drive a new oil seal squarely into the block to the specified installed height.



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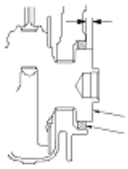
27. Measure the distance between the crankshaft (A) and oil seal (B).
    Oil Seal Installed Height:
    7–8 mm (0.28–0.31 in.)



28. Install the cylinder head.
29. Install the oil pump.
30. Install the oil pan.

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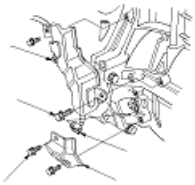
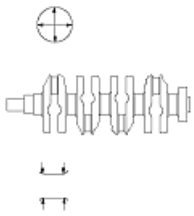
31. Connect the CKP sensor connector (A), then install the CKP sensor cover (B).
32. Install the harness cover (C).
33. M/T model: Install the flywheel, clutch disc, and pressure plate.
34. A/T model: Install the drive plate.
35. Install the transmission:
    - Manual transmission
    - Automatic transmission
36. Install the engine/transmission.
    NOTE: Whenever any crankshaft or connecting rod bearing is replaced, run the engine at idle speed until it reaches normal operating temperature, then continue to running it for about 15 minutes.



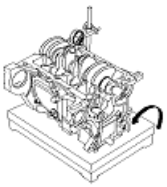
Crankshaft Inspection

Out-of-Round and Taper



1. Remove the crankshaft from the engine block.
2. Clean the crankshaft oil passages with pipe cleaners or a suitable brush.
3. Clean the keyway and threads.
4. Measure the out-of-round at the middle of each rod and the main journal in two places. The difference between measurements on each journal must not be more than the service limit.
   Journal Out-of-Round
   Standard (New): **0.005 mm (0.0002 in.) max.**
   Service Limit: **0.010 mm (0.0004 in.)**
5. Measure the taper at the edges of each rod and the main journal. The difference between measurements on each journal must not be more than the service limit.
   Journal Taper
   Standard (New): **0.005 mm (0.0002 in.) max.**
   Service Limit: **0.010 mm (0.0004 in.)**

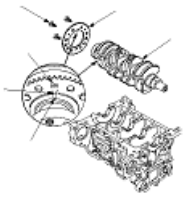
Straightness



6. Place the engine block on a flat surface, crankshaft side up.
7. Clean and install the bearings on the No. 1 and No. 5 journals of the engine block.
8. Lower the crankshaft into the engine block.
9. Measure the runout on all main journals. Rotate the crankshaft two complete revolutions. The difference between measurements on each journal must not be more than the service limit.
   Crankshaft Total Runout
   Standard (New): **0.03 mm (0.0012 in.) max.**
   Service Limit: **0.04 mm (0.0016 in.)**

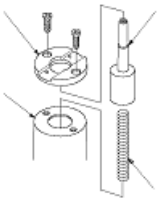
CKP Pulse Plate Replacement

1. Remove the crankshaft.
2. Remove the crankshaft position (CKP) pulse plate (A).
3. Install the CKP pulse plate on the crankshaft (B); face the marked side (C) opposite the crankshaft, and align the tab (D) on the CKP pulse plate with the groove (E) on the crankshaft.
4. Install the crankshaft.



Piston, Pin, and Connecting Rod Replacement

Special Tools Required



Piston base head
07PAF-0010400

Piston base head attachment
07PAF-0010500

Insert pin
07PAF-0010700

Piston pin pilot
070AF-PWC0110

Insert adjuster
070AF-PWC0120

Pilot collar, 18 mm
070AF-PWC0130

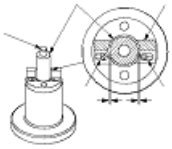
Piston base
07973-6570500

Spring
07973-6570600

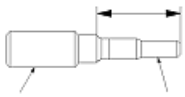
Disassembly

1. Assemble the special tool as shown.

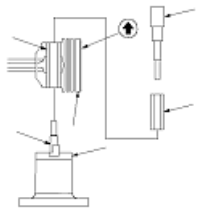
2. Temporarily install the pilot collar over the piston pin base insert (A), and adjust the piston base head inserts as shown, then tighten the screws (B). Remove the pilot collar.



3. Assemble and adjust the length of the piston pin driver head and shaft to 57 mm (2.2 in.).

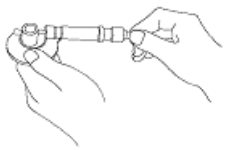


4. With the arrow on top of the piston pointing up, place the piston assembly (A) on the special tool (B).
   Be sure you position the recessed flat area of the piston against the piston base head inserts (C) as shown.
5. Press the pin (D) out with the pin driver (E), the pilot collar (F), and a hydraulic press.



Inspection

1. Measure the diameter of the piston pin.



Piston Pin Diameter

Standard (New):	**17.996–18.000 mm (0.7085–0.7087 in.)**

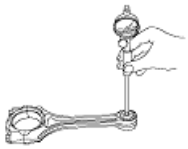
2. Zero the dial indicator to the piston pin diameter.

3. Measure the piston pin-to-piston clearance.

Piston Pin-to-Piston Clearance

Standard (New):	**0.010–0.017 mm (0.0004–0.0007 in.)**

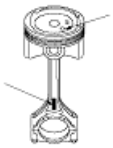
4. Check the difference between the piston pin diameter and connecting rod small end diameter.



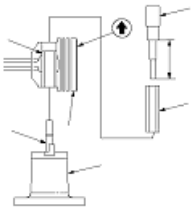
Piston Pin-to-Connecting Rod Interference

Standard (New): **0.019−0.036 mm (0.0007−0.0014 in.)**

Reassembly



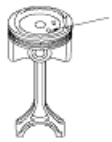
1. Assemble the piston and connecting rod with the arrow (A) and the embossed mark (B) on the same side.



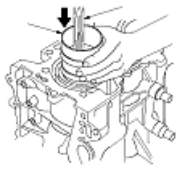
2. Insert the pilot collar (A) into the piston and the connecting rod.
3. With the arrow on top of the piston and the embossed mark on the connecting rod facing up, place the piston assembly (B) on the special tool (C). Be sure you position the recessed flat area of the piston against the piston base head inserts (D) as shown.
4. Press the pin (E) in with the pin driver (F) and a hydraulic press.

Piston Installation

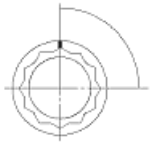
If the Crankshaft is Already Installed



1. Set the crankshaft to bottom dead center (BDC) for each cylinder as its piston is installed.
2. Remove the connecting rod caps, then install the ring compressor. Check that the bearing is securely in place.
3. Apply new engine oil to the piston, inside of the ring compressor, and the cylinder bore, then attach the ring compressor to the piston/connecting rod assembly.
4. Position the arrow (A) to face the cam chain side of the engine.



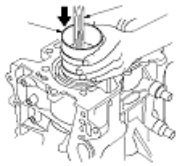
5. Position the piston in the cylinder, and tap it in using the wooden handle of a hammer (A).
   Push down on the ring compressor (B) to prevent the rings from expanding before entering the cylinder bore.
6. Stop after the ring compressor pops free, and check the connecting rod-to-crank journal alignment before pushing the piston into place.
7. Check the connecting rod bearing clearance with plastigage.
8. Inspect the connecting rod bolts.
9. Apply new engine oil to the bolt threads, then install the rod caps with bearings. Torque the bolts to 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft).



10. Tighten the connecting rod bolts an additional 90 °.
    NOTE: Remove the connecting rod bolt if you tightened it beyond the specified angle, and go back to Step 8 of the procedure. Do not loosen it back to the specified angle.

If the Crankshaft is Not Installed

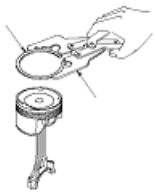
1. Remove the connecting rod caps, then install the ring compressor, and check that the bearing is securely in place.
2. Apply new engine oil to the piston, inside of the ring compressor, and the cylinder bore, then attach the ring compressor to the piston/connecting rod assembly.
3. Position the arrow (A) to face the cam chain side of the engine.



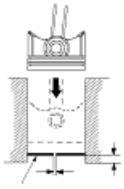
4. Position the piston in the cylinder, and tap it in using the wooden handle of a hammer (A).
   Push down on the ring compressor (B) to prevent the rings from expanding before entering the cylinder bore.
5. Position all pistons at top dead center (TDC).

Piston Ring Replacement

1. Remove the piston from the engine block.
2. Using a ring expander (A), remove the old piston rings (B).
3. Clean all the ring grooves thoroughly with a squared-off broken ring, or a ring groove cleaner with a blade to fit the piston grooves. File down the blade, if necessary. The top and second ring grooves are 1.0 mm (0.04 in.) wide, and the oil ring groove is 2.0 mm (0.08 in.) wide. Do not use a wire brush to clean the ring grooves, or cut the ring grooves deeper with the cleaning tool.
   NOTE: If the piston is to be separated from the connecting rod, do not install new rings yet.



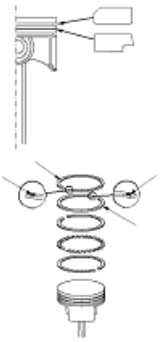
4. Using a piston, push a new ring (A) into the cylinder bore 15–20 mm (0.6–0.8 in.) from the bottom.
5. Measure the piston ring end-gap (B) with a feeler gauge:
   - If the gap is too small, check to see if you have the proper rings for your engine.
   - If the gap is too large, recheck the cylinder bore diameter against the wear limits.
     If the bore is over the service limit, the engine block must be rebored.



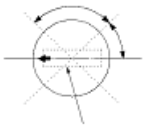
Piston Ring End-Gap

Top Ring:	
Standard (New):	**0.15–0.30 mm (0.006–0.012 in.)**
Service Limit:	**0.60 mm (0.024 in.)**
Second Ring:	
Standard (New):	**0.30–0.42 mm (0.012–0.017 in.)**
Service Limit:	**0.65 mm (0.026 in.)**
Oil Ring:	
Standard (New):	**0.20–0.70 mm (0.008–0.028 in.)**
Service Limit:	**0.80 mm (0.031 in.)**

6. Install the top ring and the second ring as shown. The top ring (A) has a R mark, and the second ring (B) has a 2R mark. The manufacturing marks (C) must be face upward.
7. Rotate the rings in their grooves to make sure they do not bind.



8. Position the ring end gaps as shown:



9. After installing a new set of rings, measure the ring-to-groove clearances:

Top Ring Clearance

Standard (New):	**0.065–0.090 mm (0.0026–0.0035 in.)**
Service Limit:	**0.15 mm (0.006 in.)**

Second Ring Clearance

Standard (New):	**0.030–0.055 mm (0.0012–0.0022 in.)**
Service Limit:	**0.12 mm (0.005 in.)**

Fuel and Emissions System Description - Electronic Control System

Electronic Control System

Fuel and Emissions System Description - Catalytic Converter System

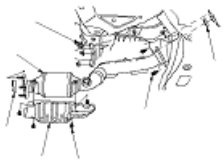
Catalytic Converter System

Tailpipe Emissions Test

1. Connect a tachometer.
2. Start the engine. Hold the engine speed at 3,000 rpm (min^{-1}) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
3. Check the idle speed.
4. Warm up and calibrate the CO meter according to the meter manufacturer's instructions.
5. Check idle CO with the headlights, heater blower, rear window defogger, cooling fan, and air conditioner off.
   Specified CO: 0.1 % maximum

   - If unable to obtain this reading; see DTC troubleshooting.
   - If unable to obtain a CO reading of specified % by this procedure, check the tune-up condition.

TWC (Under-floor) Removal/Installation



1. Lift the vehicle, and support it with jackstands.
2. Remove the secondary HO2S (Sensor 2).
3. Remove the nuts (A) and the bolts (B).
4. Remove the under-floor TWC (C).
5. Remove the cover (D).
6. Install the parts in the reverse order of removal with new gaskets (E).

Catalytic Converter Inspection

If excessive exhaust system back-pressure is suspected, remove the TWC from the vehicle.
Using a flashlight (A) and plugs (B) make a visual check for plugging, melting or cracking of the catalyst.
Replace the TWC if any of the visible area is damaged or plugged.

WU-TWC

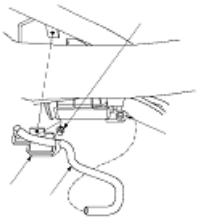
UNDER-FLOOR TWC

Fuel and Emissions System Description - EVAP Control System

[Exhaust Gas Recirculation (EGR) System]
[Evaporative Emission (EVAP) Control System]

EVAP Canister Filter Replacement

LHD model



1. Lift the vehicle, and support it with jackstands.
2. Disconnect the hose from the EVAP canister (A).
3. Remove the EVAP canister filter (B).
4. Disconnect the hose (C).
5. Install the parts in the reverse order of removal.

EVAP Canister Purge Valve Replacement

1. Disconnect the EVAP canister purge valve connector (A).
2. Disconnect the hose (B), the harness clamp (C), and the then remove the EVAP canister purge guard (D), and the canister purge valve (E).
3. Install the parts in the reverse order of removal with a new O-ring (F).

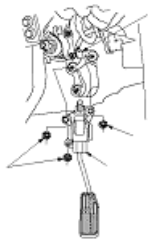
Fuel and Emissions System Description - Electronic Throttle Control System

Electronic Throttle Control System

Fuel and Emissions System Description - Electronic Throttle Control System Diagram

Electronic Throttle Control System Diagram

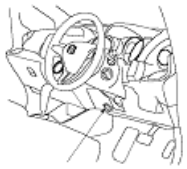
Accelerator Pedal Module Removal/Installation



1. Remove the driver's dashboard lower cover.
2. Disconnect the APP sensor 6P connector (A).
3. Remove the accelerator pedal module (B).
   NOTE: APP sensor is not available separately. Do not disassemble the accelerator pedal module.
4. Install the parts in the reverse order of removal.

Fuel Pressure Relieving

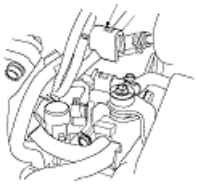
Before disconnecting fuel lines or hoses, relieve pressure from the system by disabling the fuel pump and then disconnecting the fuel tube/quick connect fitting in the engine compartment.



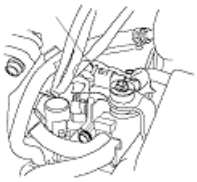
With the HDS

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the ECM/PCM. If it doesn't, go to the DLC circuit troubleshooting.
4. Turn the ignition switch to LOCK (0).
5. Remove the fuel fill cap to relieve the pressure in the fuel tank.
6. Turn the ignition switch to ON (II).
7. From the INSPECTION MENU of the HDS, select Fuel Pump OFF, then start the engine, and let it idle until it stalls.
   NOTE:
   - Do not allow the engine to idle above 1,000 rpm (min $^{-1}$) or the ECM/PCM will continue to operate the fuel pump.
   - A DTC or a Temporary DTC may be set during this procedure. Check for DTCs, and clear them as needed.
8. Turn the ignition switch to LOCK (0).
9. Do the battery terminal disconnection procedure.

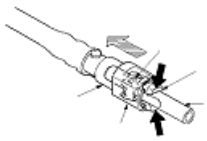
10. Remove the quick-connect fitting cover (A).
11. Check the fuel quick-connect fitting for dirt, and clean it if needed.



12. Place a rag or shop towel over the quick-connect fitting (A).



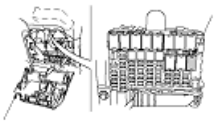
13. Disconnect the quick-connect fitting (A): Hold the connector (B) with one hand, and squeeze the retainer tabs (C) with the other hand to release them from the locking tabs (D). Pull the connector off.
    NOTE:
    - Be careful not to damage the line (E) or other parts.
    - Do not use tools.
    - If the connector does not move, keep the retainer tabs pressed down, and alternately pull and push the connector until it comes off easily.
    - Do not remove the retainer from the line; once removed, the retainer must be replaced with a new one.



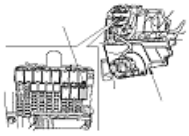
14. After disconnecting the quick-connect fitting, check it for dirt or damage.
15. Do the battery terminal reconnection procedure.

Without the HDS

RHD model

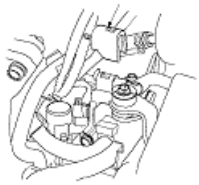


LHD model

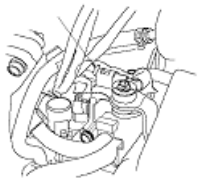


1. Open the fuse lid (A).
2. Remove the PGM-FI main relay 2 (B) from the under-dash fuse/relay box.
3. Start the engine, and let it idle until it stalls.
   NOTE: If any DTCs are stored, clear and ignore them.
4. Turn the ignition switch to LOCK (0).
5. Remove the fuel fill cap to relieve the pressure in the fuel tank.
6. Do the battery terminal disconnection procedure.

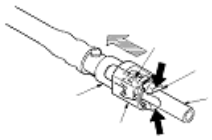
7. Remove the quick-connect fitting cover (A).
8. Check the fuel quick-connect fitting for dirt, and clean it if needed.



9. Place a rag or shop towel over the quick-connect fitting (A).



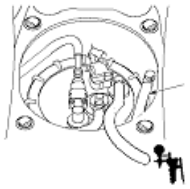
10. Disconnect the quick-connect fitting (A): Hold the connector (B) with one hand, and squeeze the retainer tabs (C) with the other hand to release them from the locking tabs (D). Pull the connector off.
    NOTE:
    - Be careful not to damage the line (E) or other parts.
    - Do not use tools.
    - If the connector does not move, keep the retainer tabs pressed down, and alternately pull and push the connector until it comes off easily.
    - Do not remove the retainer from the line; once removed, the retainer must be replaced with a new one.



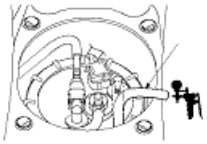
11. After disconnecting the quick-connect fitting, check it for dirt or damage.
12. Do the battery terminal reconnection procedure.

Fuel Breather Line and Suction Line Inspection

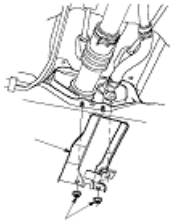
1. Remove the center console.
2. Remove the parking brake lever, then remove the access panel from the floor.
3. Disconnect the suction line (A) from the fuel tank unit, and connect a vacuum pump/gauge, 0−30 in.Hg (B) to the hose as shown.
4. Start the engine, and check the vacuum.
   - If there is vacuum, go to Step 5 .
   - If there is no vacuum, replace the fuel filter.
5. Turn the ignition switch to LOCK (0).



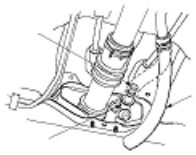
6. Connect a vacuum pump/gauge, 0−30 in.Hg (A) to the suction line (B), and apply vacuum to the line.
   - If the line holds vacuum, check for blockage in the suction line. If there is blockage, replace the suction line.
   - If the line does not hold vacuum, go to Step 6 .
7. Lift the vehicle, and support it with jackstands.



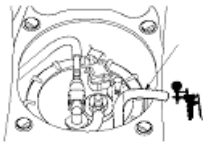
8. Remove the fill neck tube cover (A).



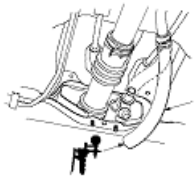
9. Disconnect the breather line (A), then plug the suction joint (B) with a rubber cap (C).



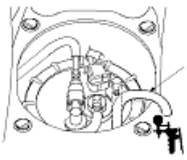
10. Connect a vacuum pump/gauge, 0−30 in.Hg (A) to the suction line (B), and apply vacuum to the line.
    - If the line holds vacuum, check for blockage in the breather line between the fuel tank and the suction joint. If there is blockage, replace the fuel tank.
    - If the line does not hold vacuum, go to Step 12 .
11. Lift the vehicle, and support it with jackstands.



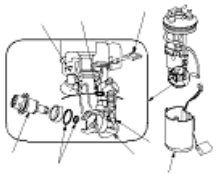
12. Connect a vacuum pump/gauge, 0−30 in.Hg (A) to the filler side of the breather line (B), and apply air pressure to the line.
    - If the air pressure holds, check for blockage between the suction line and the filler neck on the breather pipe, and replace the part that is causing the blockage.
    - If the air pressure does not hold, go to Step 13 .
13. Remove the rubber cap from the suction line, and reconnect the breather pipe to the suction line.



14. Connect a vacuum pump/gauge, 0−30 in.Hg (A) to the suction line (B), and apply pressure to the line.
    - If the air pressure holds, the breather line and the suction line are OK.
    - If the air pressure does not hold, check for a vacuum leak in the suction line, and replace the suction line if necessary.



Fuel Pressure Regulator Replacement



1. Remove the fuel tank unit.
2. Remove the reservoir (A).
3. Remove the clip (B), ground wire (C), then remove the bracket (D).
4. Remove the clip (E), then remove the fuel pressure regulator (F).
5. Install the parts in the reverse order of removal with new O-rings (G) and a new bracket. When installing the fuel tank unit, align the marks on the unit and the fuel tank.
   NOTE:
   - Coat the O-rings with clean engine oil; do not use any other oils or fluids.
   - Do not pinch the O-rings during installation.
   - Use all the new parts supplied in the pressure regulator replacement kit.

Low Fuel Indicator Test

1. Do the gauge self-diagnostic test.
   - If the low fuel indicator flashes, go to Step 2 .
   - If the low fuel indicator does not flash, replace the gauge control module.
2. Check for body electrical system DTCs.
   - If any DTCs are indicated, do the indicated DTC's troubleshooting.
   - If no DTCs are indicated, go to Step 3 .
3. Do the fuel gauge sending unit test.

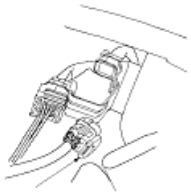
Fuel and Emissions System Description - PGM-FI System

PGM-FI System

A/F Sensor Replacement

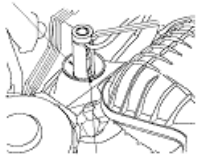
Special Tools Required

O2 sensor wrench 22 x 90
07LAA-PT50101

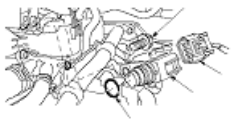


1. Remove the cowl cover and under cowl-cover panel.
2. Disconnect the A/F sensor connector (A).

3. Remove the A/F sensor (A).
4. Install the parts in the reverse order of removal.



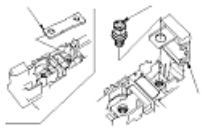
CMP Sensor Replacement



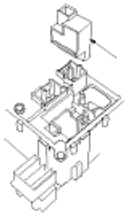
1. Remove the cowl cover and under cowl-cover panel.
2. Remove the air cleaner.
3. Disconnect the CMP sensor connector (A).
4. Remove the CMP sensor (B).
5. Install the parts in the reverse order of removal with a new O-ring (C).

ELD Replacement

1. Remove the under-dash fuse/relay box.
2. Remove the fuse (A).
3. Remove the joint bar (B).

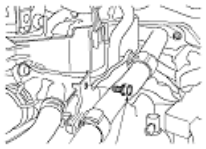


4. Turn the under-dash fuse/relay box, then remove the ELD (A).
5. Install the parts in the reverse order of removal.

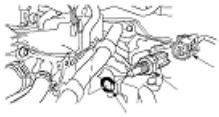


ECT Sensor 1 Replacement

1. Drain the engine coolant.
2. Remove the air cleaner.
3. Remove the hose clamp stay bolt (A).

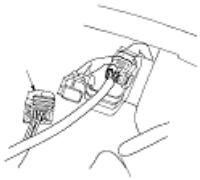


4. Disconnect the ECT sensor 1 connector (A).
5. Remove ECT sensor 1 (B).
6. Install the parts in the reverse order of removal with a new O-ring (C), then refill the radiator with engine coolant.



Secondary HO2S Replacement

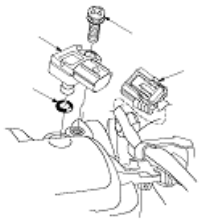
1. Remove the air cleaner.
2. Disconnect the secondary HO2S connector (A).
3. Lift the vehicle, and support it with jackstands.



4. Remove the supporters (A), then secondary HO2S (B).
5. Install the parts in the reverse order of removal.

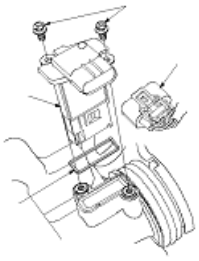
MAP Sensor Replacement

1. Disconnect the MAP sensor 3P connector (A).
2. Remove the MAP sensor (B).
3. Install the parts in the reverse order of removal with a new O-ring (C).



MAF Sensor/IAT Sensor Replacement

1. Disconnect the MAF sensor/IAT sensor 5P connector (A).
2. Remove the screws (B).
3. Remove the MAF sensor/IAT sensor (C).
4. Install the parts in the reverse order of removal with a new gasket (D).

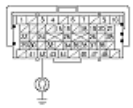


Fuel and Emissions System Description - Idle Control System/Fuel Supply System

[Idle Control System](#)
[Fuel Supply System](#)

Brake Pedal Position Switch Signal Circuit Troubleshooting

1. Turn the ignition switch to ON (II).
2. Check the BRAKE SWITCH in the DATA LIST with the HDS.



Does it indicate OFF?
YES - Go to Step 3 .
NO - Inspect the brake pedal position switch. ■

3. Press the brake pedal, and check the BRAKE SWITCH in the DATA LIST with the HDS.

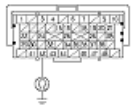
Does it change to ON?
YES - The brake pedal position switch signal circuit (BKSW line) is OK.■
NO - Go to Step 4 .

4. Turn the ignition switch to LOCK (0).
5. Jump the SCS line with the HDS.
6. Disconnect the brake pedal position switch 4P connector.
7. Disconnect ECM/PCM connector A (49P).
8. Check for continuity between ECM/PCM connector terminal A42 and body ground.

Is there continuity?
YES - Repair short in the wire between the ECM/PCM (A42) and the brake pedal position switch. Replace the No. 24 STOP, HORN (15 A) fuse.■
NO - Go to Step 9 .

9. Connect brake pedal position switch 4P connector terminal No. 2 to body ground with a jumper wire.

10. Check for continuity between ECM/PCM connector terminal A42 and body ground.

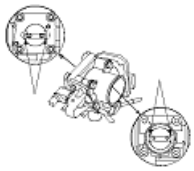


Is there continuity?
YES - Repair open in the wire between the brake pedal position switch and the No. 24 STOP, HORN (15 A) fuse. Inspect the brake pedal position switch. ■
NO - Repair open in the wire between the ECM/PCM (A42) and the brake pedal position switch.■

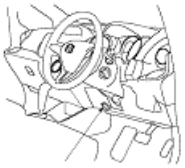
Throttle Body Cleaning

⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

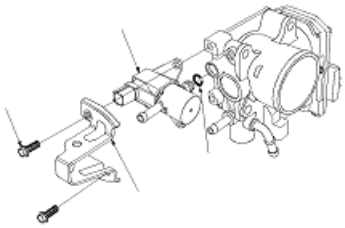


1. Make sure the ignition switch is turned OFF.
2. Check for damage to the air cleaner. If the air cleaner is damaged, replace it.
3. Remove the throttle body.
4. Clean off the carbon from the throttle valve and inside the throttle body with a paper towel soaked carburetor cleaner.
   NOTE:
   - Always remove the throttle body to clean it.
   - Be careful not to pinch your fingers.
   - To avoid removing the molybdenum coating, do not clean the bearing area of the throttle shaft (A).
   - Do not spray carburetor cleaner directly on the throttle body.
   - Use Honda genuine carburetor cleaner.
5. Install the throttle body.



6. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
7. Turn the ignition switch to ON (II).
8. Reset the ECM/PCM with the HDS.
9. Select the ETCS TEST in the INSPECTION MENU with the HDS.
10. Select TP POSITION CHECK and clear the throttle position (TP) learned value.
11. Turn the ignition switch to LOCK (0).
12. Turn the ignition switch to ON (II), and wait 2 seconds without pressing the accelerator pedal.
13. Do the ECM/PCM idle learn procedure.

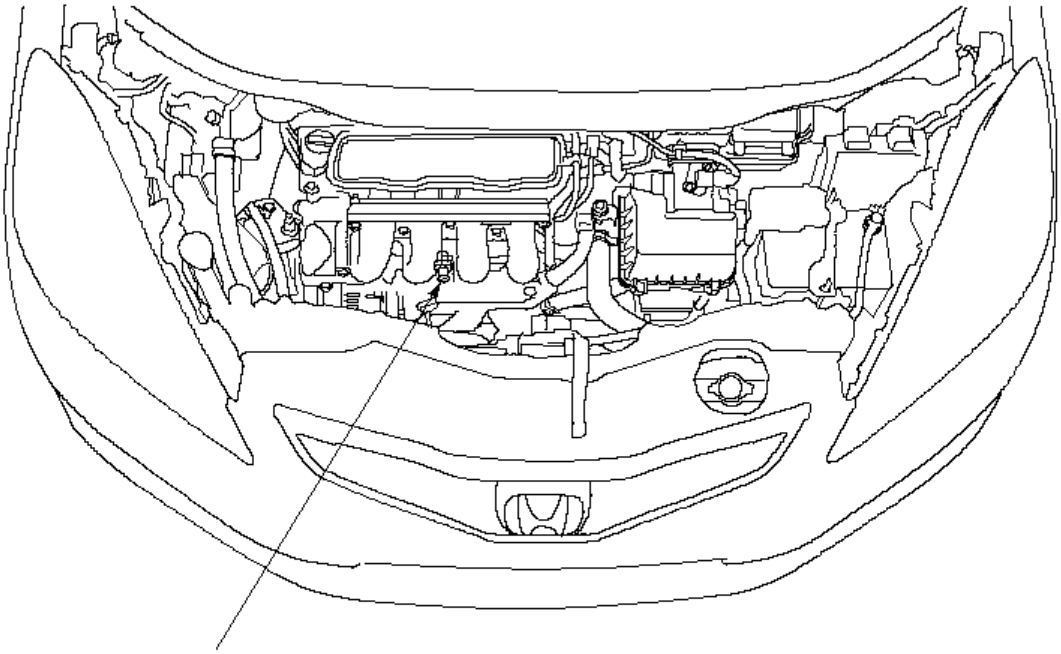
Throttle Body Disassembly/Reassembly



Fuel and Emissions System Description - PCV System

Positive Crankcase Ventilation (PCV) System

PCV System Component Location Index

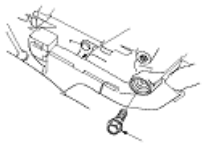


PCV VALVE
Inspection,
Replacement,

*: This illustration shows RHD model.

PCV Valve Replacement

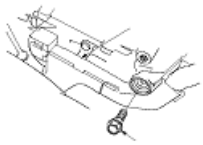
1. Remove the harness holder (A).



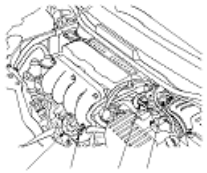
2. Remove the PCV valve (A).
3. Disconnenct the hose (B).
4. Install the parts in the reverse order of removal.
   NOTE: Make sure the clamp (C) is positioned as shown.

PCV Valve Inspection

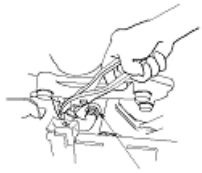
1. Remove the harness holder (A).



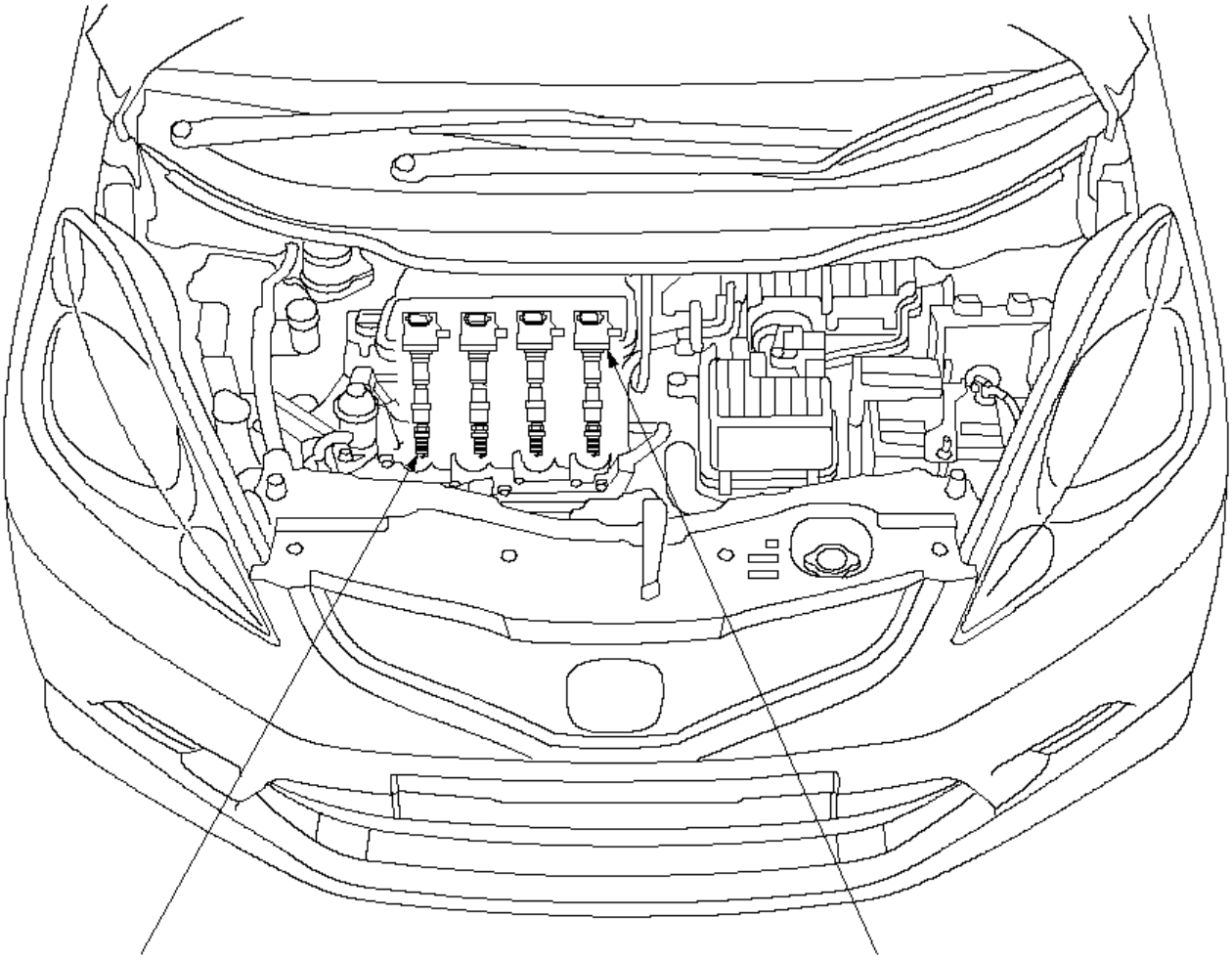
2. Check the PCV valve (A), hoses (B), pipe (C), and connections for leaks or restrictions.



3. At idle, make sure there is a clicking sound from the PCV valve when the hose between the PCV valve and intake manifold is lightly pinched (A) with your fingers or pliers.
   If there is no clicking sound, check the PCV valve washer for cracks or damage. If the washer is OK, replace the PCV valve and recheck.



Ignition System Component Location Index

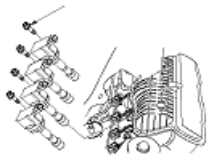


SPARK PLUG
Inspection.

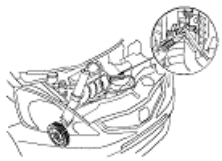
IGNITION COIL
Ignition Timing Inspection.
Removal/Installation.

Ignition Coil Replacement

1. Remove the under-cowl panel.
2. Disconnect the ignition coil connectors, then remove the ignition coils.
3. Install the ignition coils in the reverse order of removal.



Ignition Timing Inspection



1. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC).
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the engine control module (ECM)/powertrain control module (PCM). If it doesn't communicate, troubleshoot the DLC circuit.
4. Start the engine. Hold the engine speed at 3,000 rpm (min^{-1}) with no load (in the P or N) (A/T model) or neutral (M/T model) until the radiator fan comes on, then let it idle.
5. Check the idle speed.
6. Jump the SCS line with the HDS.
7. Connect the timing light to the service loop (white tape).

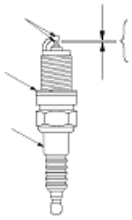
8. Aim the light toward the pointer (A) on the cam chain case. Check the ignition timing under a no load condition (headlights, blower fan, rear window defogger, and air conditioner are turned off).
   Ignition Timing

M/T model:	**0 °±2 ° BTDC (WHITE mark (B)) at idle in neutral**
A/T model:	**0 °±2 ° BTDC (WHITE mark (B)) at idle in N or P**

9. If the ignition timing differs from the specification, check the cam timing. If the cam timing is OK, update the ECM/PCM, if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the system works properly, and the ECM/PCM was substituted, replace the original ECM/PCM.
10. Disconnect the HDS and the timing light.

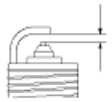
Spark Plug Inspection

1. Remove the spark plugs and inspect the electrodes and ceramic insulator.
   - Burned or worn electrodes may be caused by these conditions:
     - Advanced ignition timing
     - Loose spark plug
     - Plug heat range too hot
     - Insufficient cooling
   - Fouled plugs may be caused by these conditions:
     - Retarded ignition timing
     - Oil in combustion chamber
     - Incorrect spark plug gap
     - Plug heat range too cold
     - Excessive idling/low speed running
     - Clogged air cleaner element
     - Deteriorated ignition coils



2. If the spark plug electrode is dirty or contaminated, clean the electrode with a plug cleaner.
   NOTE:
   - Do not use a wire brush or scrape the iridium electrode since this will damage the electrode.
   - When using a sand blaster spark plug cleaner, do not clean for more than 20 seconds to avoid damaging the electrode.

3. Do not adjust the gap (A) of iridium tip plugs; replace the spark plug if the gap is out of specification.
   Electrode Gap
   Standard (New): 1.2−1.3 mm (0.047−0.051 in.)



4. Replace the plug at the specified interval or when the center electrode is rounded (A). Use only the listed spark plugs.
   Spark Plugs
   NGK: IZFR6K13
   DENSO: SKJ20DR-M13

5. Apply a small amount of anti-seize compound to the plug threads, and screw the plugs into the cylinder head, finger-tight. Then torque them to 18 N·m (1.8 kgf·m, 13 lbf·ft).

Engine Oil Pressure Test

Special Tools Required

Oil pressure gauge attachment PT 1/8
07406-0030000

Oil pressure gauge set
07506-3000001

NOTE: If the low oil pressure indicator stays on with the engine running, check the engine oil level. If the oil level is correct:

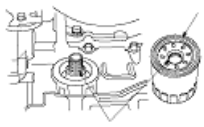
1. Remove the engine oil pressure switch, then install the special tools.
2. Start the engine. Shut it off immediately if the gauge registers no oil pressure. Repair the problem before continuing.
3. Allow the engine to reach operating temperature (fan comes on at least twice). The pressure should be:

Engine Oil Temperature:	**80 °C (176 °F)**
Engine Oil Pressure:	
At Idle:	**70 kPa (0.7 kgf/cm ^{2}, 10 psi) min.**
At 3,000 rpm (min $^{-1}$):	**340 kPa (3.5 kgf/cm ^{2}, 50 psi) min.**

4. If oil pressure is out of specifications, inspect these items:
   - Replace the oil filter.
   - Inspect the oil pressure relief valve.
   - Check the oil screen for clogging.
   - Inspect the oil pump.

Engine Oil Filter Replacement

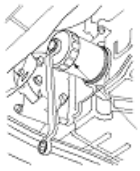
Special Tools Required



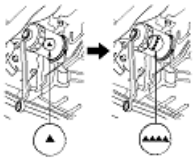
Oil filter wrench
07HAA-PJ70101

1. Drain the engine oil.
2. Remove the oil filter with the oil filter wrench.
3. Inspect the filter to make sure the rubber seal is not stuck to the oil filter seating surface of the engine.
4. Inspect the threads (A) and the rubber seal (B) on the new filter. Clean the seat on the oil pan, then apply a light coat of new engine oil to the filter rubber seal. Use only filters with a built-in bypass system.
5. Install the oil filter by hand.

6. After the rubber seal seats, tighten the oil filter clockwise with the oil filter wrench.
   Tighten: 3/4 Turn Clockwise
   Tightening Torque: 12 N·m (1.2 kgf·m, 8.8 lbf·ft)



7. If four numbers or marks (1 to 4 or ▼ to ▼▼▼▼) are printed around the outside of the filter, you can use the following procedure to tighten the filter.
   - Spin the filter on until its seal lightly seats against the oil pan, and note which number or mark is at the bottom.
   - Tighten the filter by turning it clockwise three numbers or marks from the one you noted. For example, if mark ▼ is at the bottom when the seal is lightly seated, tighten the filter until the mark ▼▼▼▼ comes around to the bottom.

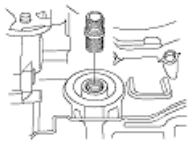


Number or Mark when rubber seal is seated	1 or ▼	2 or ▼▼	3 or ▼▼▼	4 or ▼▼▼▼
Number or Mark after tightening	4 or ▼▼▼▼	1 or ▼	2 or ▼▼	3 or ▼▼▼

8. Refill the new engine oil, run the engine for more than 3 minutes, then check for oil leakage.

Engine Oil Filter Feed Pipe Replacement

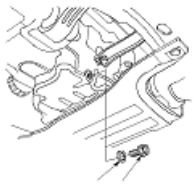
1. Remove the filter.
2. Remove the oil filter feed pipe.



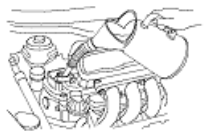
3. Install two 20 x 1.5 mm nuts (A) onto the new oil filter feed pipe. Hold one nut with a wrench, then use a second wrench to tighten the other nut.
4. Tighten the oil filter feed pipe to 39 N·m (4.0 kgf·m, 29 lbf·ft), then remove the nuts from the oil filter feed pipe.
5. Install the oil filter.

Engine Oil Replacement

1. Warm up the engine.
2. Remove the drain bolt (A), and drain the engine oil.
3. Reinstall the drain bolt with a new washer (B).



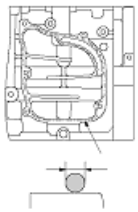
4. Refill the engine with the recommended oil.
   Capacity
   At Oil Change:
   3.4 L (3.6 US qt, 3.0 Imp qt)
   At Oil Change Including Filter:
   3.6 L (3.8 US qt, 3.2 Imp qt)
   After Engine Overhaul:
   4.2 L (4.4 US qt, 3.7 Imp qt)



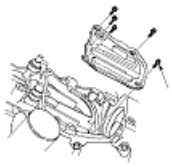
5. Run the engine for more than 3 minutes, then check oil level and oil leakage.

Engine Oil/Air Separator Installation

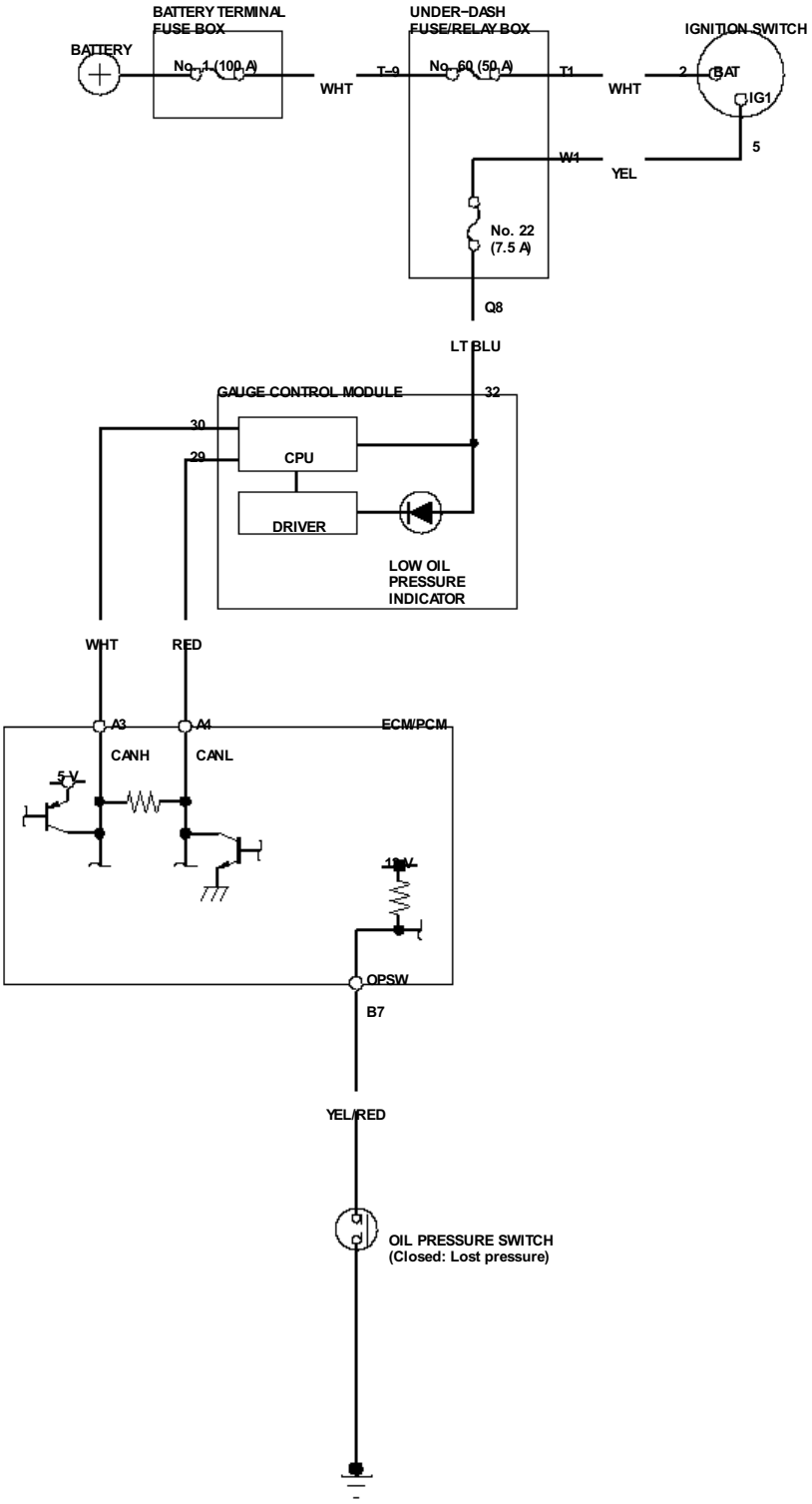
1. Remove the all of the old liquid gasket from the oil/air separator mating surfaces, the bolts, and the bolt holes.
2. Clean and dry the oil/air separator mating surfaces.
3. Apply liquid gasket (P/N 08C70-K0234M, 08C70-K0334M, or 08C70-X0331S) to the engine block mating surface of the oil/air separator and to the inner threads of the bolt holes.
   NOTE:
   - Apply liquid gasket about 1.5 mm (0.06 in.) diameter bead along the broken line (A).
   - Do not install components if 5 minutes or more have passed after applying the liquid gasket. Instead, remove the old residue and reapply the liquid gasket.



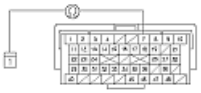
4. Install the oil/air separator.
   NOTE:
   - Wait at least 30 minutes before filling the engine with oil.
   - Do not run the engine for at least 3 hours after installing the chain case.



Low Oil Pressure Indicator Circuit Diagram



Low Oil Pressure Indicator Circuit Troubleshooting (Open)



1. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC).
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the engine control module (ECM)/powertrain control module (PCM). If it doesn't, troubleshoot the DLC circuit.
4. Check for DTCs. If a DTC is present, diagnose, and repair the cause before continuing with this test.
5. Turn the ignition switch to ON (II), select PGM-FI, and check the OIL PRESSURE SWITCH in the DATA LIST with the HDS.

   Is ON indicated?
   YES - Replace the gauge control module. ■
   NO - Go to Step 6 .
6. Turn the ignition switch to LOCK (0).
7. Check the oil pressure switch.

   Is the oil pressure switch OK?
   YES - Go to Step 8 .
   NO - Replace the oil pressure switch. ■
8. Turn the ignition switch to ON (II), and jump the SCS line with the HDS, then turn the ignition switch to LOCK (0).
   NOTE: This step must be done to protect the ECM/PCM from damage.
9. Disconnect ECM/PCM connector B (49P) and the oil pressure switch connector.
10. Check for continuity between ECM/PCM connector terminal B7 and the oil pressure switch connector.

    Is there continuity?
    YES - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■
    NO - Repair open in the wire between the oil pressure switch and the ECM/PCM.■

Low Oil Pressure Indicator Circuit Troubleshooting (Short)

1. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC).
2. Turn the ignition switch to ON (II).

3. Make sure the HDS communicates with the vehicle and the engine control module (ECM)/powertrain control module (PCM). If it doesn't, troubleshoot the DLC circuit.
4. Check for DTCs. If a DTC is present, diagnose, and repair the cause before continuing with this test.
5. Start the engine, select PGM-FI, and check the OIL PRESSURE SWITCH in the DATA LIST with the HDS.

   Is OFF indicated?
   YES - Replace the gauge control module. ■
   NO - Go to Step 6 .
6. Turn the ignition switch to LOCK (0).
7. Disconnect the oil pressure switch connector.
8. Start the engine, and check the OIL PRESSURE SWITCH in the DATA LIST with the HDS.

   Is OFF indicated?
   YES - Go to Step 9 .
   NO - Go to Step 10 .
9. Check the oil pressure switch.

   Is the oil pressure switch OK?
   YES - Do the oil pressure test.
   NO - Replace the oil pressure switch. ■
10. Turn the ignition switch to ON (II), and jump the SCS line with the HDS, then turn the ignition switch to LOCK (0).
    NOTE: This step must be done to protect the ECM/PCM from damage.
11. Disconnect ECM/PCM connector B (49P) and the oil pressure switch connector.
12. Check for continuity between the oil pressure switch connector and body ground.

    Is there continuity?
    YES - Repair short in the wire between the oil pressure switch and the ECM/PCM.■
    NO - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM . ■

Engine Oil Pressure Switch Test

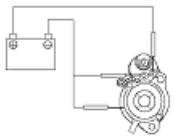
1. Disconnect the oil pressure switch connector (A) from the engine oil pressure switch (B).
2. Check for continuity between the oil pressure switch terminal and the engine (ground). There should be continuity with the engine stopped. There should be no continuity with the engine running.

Engine Oil Pressure Switch Replacement

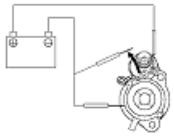
1. Disconnect the oil pressure switch connector (A), then remove the oil pressure switch (B).
2. Remove any old liquid gasket from the switch and switch mounting hole.
3. Apply a very small amount of liquid gasket to the oil pressure switch threads, then install the oil pressure switch. NOTE: Using too much liquid gasket may cause liquid gasket to enter the oil passage or the end of the new oil pressure switch.

Starter Performance Test

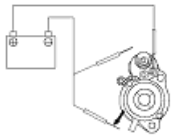
1. Remove the starter.
2. Disconnect the wires from the M terminal.
3. Make a connection for this test using the thickest (gauge) wire possible (preferably the same gauge as used on the vehicle).
   NOTE: To avoid damaging the starter, never leave the battery connected for more than 10 seconds.
4. Connect the battery as shown. Make sure you disconnect the starter motor wire from the solenoid. If the starter pinion moves out, it is working properly.



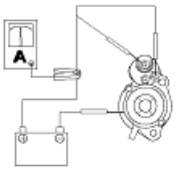
5. Disconnect the battery from the M terminal. If the pinion does not retract, the hold-in coil of the solenoid is working properly.



6. Disconnect the battery from the starter body. If the pinion retracts immediately, it is working properly.
7. Firmly clamp the starter in a vise.
8. Reconnect the wire to the M terminal.



9. Connect the starter to the battery as shown, and confirm that the motor runs.
10. If the electric current meets the specification when the battery voltage is at 11.5 V, the starter is working properly.
    Specification
    Electric Current: **50 A or less**

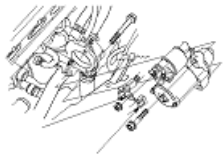


Starter Removal and Installation

Removal

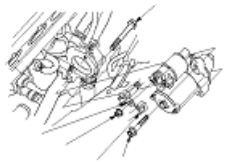
1. Do the battery terminal disconnection procedure.
2. Remove the coolant reservoir.
3. Remove the intake manifold.

4. Remove the dipstick, then remove the dipstick tube (A).
5. Disconnect the oil pressure switch connector (B).



6. Disconnect the starter cable (A) from the B terminal and disconnect the connector (B) from the S terminal, then remove the starter.
7. Remove the two bolts securing the starter, then remove the starter.

Installation



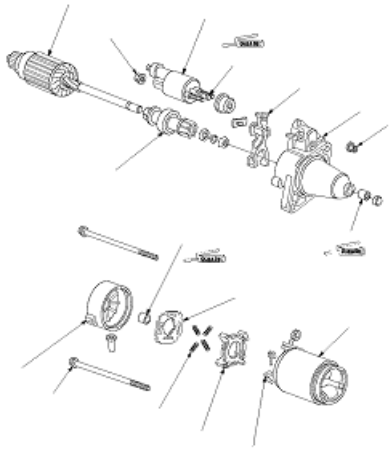
1. Install the starter to the engine. Connect the starter cable (A) and connector (B). Make sure the starter cable crimped side of the ring terminal faces away from the starter when you connect it.

2. Install the dipstick tube (A) with new O-ring (B).
3. Connect the oil pressure switch connector (C).

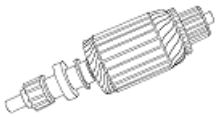
4. Install the coolant reservoir.
5. Installation the intake manifold.
6. Do the battery terminal reconnection procedure.
7. Start the engine to make sure the starter works properly.

Starter Overhaul

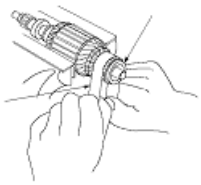
Disassembly/Reassembly



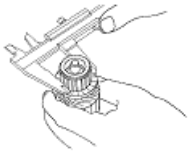
Armature Inspection and Test



1. Remove the starter.
2. Disassemble the starter as shown in the Exploded View.
3. Inspect the armature for wear or damage from contact with the magnet. If there is wear or damage, replace the armature.



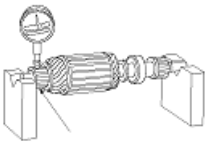
4. Check the commutator (A) surface. If the surface is dirty or burnt, resurface it with an emery cloth or a lathe to the specifications in Step 5 , or recondition with #500 or #600 sandpaper (B).



5. Check the commutator diameter. If the diameter is below the service limit, replace the armature.

Commutator Diameter

Standard (New):	**27.9–28.0 mm (1.098–1.102 in.)**
Service Limit:	**27.0 mm (1.06 in.)**



6. Measure the commutator (A) runout.
   - If the commutator runout is within the service limit, check the commutator for carbon dust or brass chips between the segments.
   - If the commutator runout is not within the service limit, replace the armature.

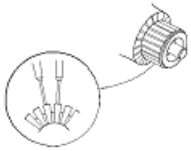
Commutator Runout

Standard (New):	**0.05 mm (0.002 in.) max.**
Service Limit:	**0.4 mm (0.02 in.)**

7. Check the mica depth (A). If the mica is too high (B), undercut the mica with a hacksaw blade to the proper depth. Cut away all the mica (C) between the commutator segments. The undercut should not be too shallow, too narrow, or V-shaped (D).

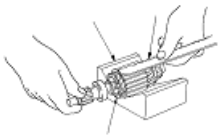
Commutator Mica Depth

Standard (New):	**0.45–0.75 mm (0.018–0.030 in.)**
Service Limit:	**0.2 mm (0.008 in.)**

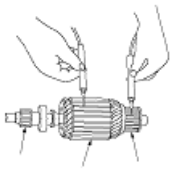


8. Check for continuity between the segments of the commutator. If there is an open circuit between any of the segments, replace the armature.

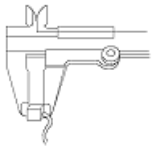
9. Place the armature (A) on an armature tester (B). Hold a hacksaw blade (C) on the armature core. If the blade is attracted to the core or vibrates while the core is turned, the armature is shorted. Replace the armature.



10. Use an ohmmeter to check for continuity between the commutator (A) and the armature coil core (B), and between the commutator and the armature shaft (C). If there is continuity, replace the armature.



Starter Brush Inspection



11. Measure the brush length. If it is not within the service limit, replace the armature housing assembly.

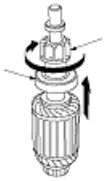
Brush Length

Standard (New):	**9.7−10.3 mm (0.38−0.41 in.)**
Service Limit:	**6 mm (0.2 in.)**

Starter Field Winding Test

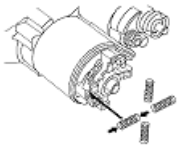
12. Check for continuity between the (+) brushes (A) and motor wire (B), and between the (−) brushes (C) and armature housing (D). If there is no continuity, replace the armature housing.
13. Check for continuity between the (+) brushes and (−) brushes, and between the (+) brushes and armature housing. If there is continuity, replace the armature housing.

Overrunning Clutch Inspection

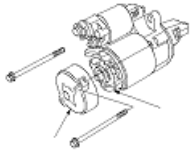


14. Slide the overrunning clutch (A) along the shaft.
Replace it, if it does not slide smoothly.
15. Hold the drive gear (B), and turn the overrunning clutch in the direction shown to make sure it turns freely. Also make sure the overrunning clutch locks in the opposite direction. If it does not lock in either direction or it locks in both directions, replace it.
16. If the starter drive gear is worn or damaged, replace the overrunning clutch assembly; the gear is not available separately. Check the condition of the flywheel or torque converter ring gear. Replace it if the starter drive gear teeth are damaged
17. Install the armature in the housing, and install the brush holder, then install the each brush in the holder.
NOTE: To seat new brushes, slip a strip of #500 or #600 sandpaper, with the grit side up, between the commutator and each brush, and smoothly rotate the armature. The contact surface of the brushes will be sanded to the same contour as the commutator.

18. Compress the spring, and install it in the brush holder.



19. Install the brush holder insulator (A) and end cover (B).



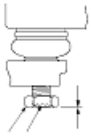
20. Do the starter performance test.

Starter Solenoid Test

1. Do the battery terminal disconnection procedure.
2. Remove the starter cable (A) and motor cable (B), then disconnect the connector (C).
3. Check the hold-in coil for continuity between the S terminal and the armature housing (ground). There should be continuity.
   - If there is continuity, go to Step 4 .
   - If there is no continuity, replace the solenoid.
4. Check the pull-in coil for continuity between the S terminal and M terminal. There should be continuity.
   - If there is continuity, the solenoid is OK.
   - If there is no continuity, replace the solenoid.
5. Install in the reverse order of removal.
6. Do the battery terminal reconnecting procedure.

Ball Joint Removal

Special Tools Required



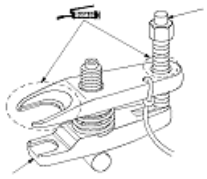
Ball joint remover, 28 mm
07MAC-SL00201

NOTICE

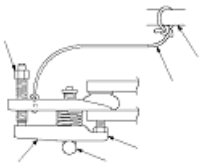
Always use a ball joint remover to disconnect a ball joint. Do not strike the housing or any other part of the ball joint connection to disconnect it.

1. Install a hex nut (A) onto the threads of the ball joint (B). Make sure the nut is flush with the ball joint pin end to prevent damage to the threaded end of the ball joint pin.

2. Apply grease to the ball joint remover on the areas shown (A). This will ease installation of the tool and prevent damage to the pressure bolt (B) threads.



3. Loosen the pressure bolt (A), and install the ball joint remover as shown. Insert the jaws carefully, making sure not to damage the ball joint boot. Adjust the jaw spacing by turning the adjusting bolt (B).
   NOTE: Fasten the safety tie (C) securely to a suspension arm or the subframe (D). Do not fasten it to a brake line or wire harness.



4. After adjusting the adjusting bolt, make sure the head of the adjusting bolt is in the position shown to allow the jaw (E) to pivot.

5. With a wrench, tighten the pressure bolt until the ball joint pin pops loose from the ball joint connecting hole. If necessary, apply penetrating type lubricant to loosen the ball joint pin.
   NOTE: Do not use pneumatic or electric tools on the pressure bolt.

6. Remove the ball joint remover, then remove the nut from the end of the ball joint pin, and pull the ball joint out of the ball joint connecting hole. Inspect the ball joint boot, and replace it if damaged.

Front Lower Arm Ball Joint Inspection

NOTICE

When inspecting the ball joint, the vehicle will be shake strongly. Make sure support the front jacking bracket correctly with the suitable jack.

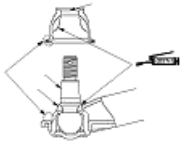
1. Raise the vehicle, and support it with safety stands in the proper locations.
2. Remove the front wheel.
3. Check all bolts, nuts, and bushings on the suspension components, and make sure that there are not looseness, deterioration, and damage.
4. Hold the outside of lower arm (A) with your hands, and move it up and down to check for abnormal noise or wobbling.
   NOTE:
   - If the ball joint is abnormal, replace the lower arm.
   - A problem on the ball joint may be caused by an abnormal clearance (B).

5. Check the ball joint boot (A) for weakness, damage, cracks, and inner boot grease leaks.
   NOTE:
   - If the ball joint boot is damaged with grease leaks, replace the lower arm.
   - If the ball joint boot is weakness and cracks without grease leaks, replace the ball joint boot.

6. Install the front wheel.
   NOTE: Before installing the wheel, clean the mating surfaces of the brake disc and the inside of the wheel.

Ball Joint Boot Inspection/Replacement

Special Tools Required



Inner bearing driver attachment, 40 mm
07GAF-SE00200

1. Check the ball joint boot for weakness, damage, cracks, and inner boot grease leaks.
   NOTE:
   - If the ball joint boot is damaged with grease leaks, replace the lower arm.
   - If the ball joint boot is weakness and cracks without grease leaks, go to Step 2 . Replace the ball joint boot.
2. Remove the lower arm.
3. Remove the boot.
4. Pack the interior and lip (A) of a new boot with grease. Keep the grease off of the boot-to-lower arm mating surfaces (B).
5. Wipe the grease off the tapered portion of the ball joint pin (C), and pack fresh grease into the base (D). Do not let dirt or other foreign materials get into the boot.
6. Install the boot on the ball joint, then squeeze it gently to force out any air.

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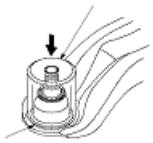
7. Press the boot with the inner bearing driver attachment until the bottom seats (A) on the lower arm all the way around.



8. After installing a boot, wipe any grease off the exposed portion of the ball joint pin.
9. Install the lower arm.

Damper Disposal

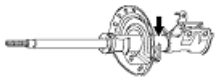
⚠WARNING

The dampers contain nitrogen gas and oil under pressure.
The pressure must be relieved before disposal to prevent explosion and possible injury when scrapping.

⚠WARNING

Always wear eye protection to avoid getting metal shavings in your eyes when the damper pressure is relieved.

Front damper



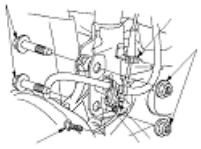
Rear damper

Place the damper on a level surface with its shaft extended and drill a hole of 2−3 mm (0.078−0.118 in.) diameter in the body to release the gas.

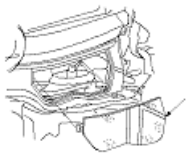
Front Damper/Spring Removal/Installation

1. Raise the front of the vehicle, and support it with safety stands in the proper locations.
2. Remove the front wheel.
3. Remove the wheel speed sensor (A) from the knuckle. Do not disconnect the wheel speed sensor connector.
4. Disconnect the stabilizer link from the damper.

5. Remove the wheel speed sensor clip (A), the wheel speed sensor stay (B), and the brake hose bracket (C) form the damper. Do not disconnect the wheel speed sensor connector.
6. Remove the damper pinch bolts (D) and the self-locking nuts (E) from the damper.
   NOTE:
   - Do not allow the knuckle to rotate too far outward. This may allow the driveshaft inboard joint come apart.
   - During installation, install new damper pinch bolts and new self-locking nuts, then tighten the damper pinch bolts to the specified torque value.

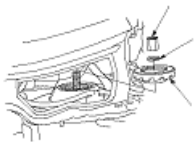


7. Remove the lid (A).

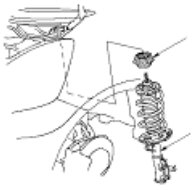


8. Remove the damper cap (A) from the top of the damper.
9. Hold the damper shaft (B) using a hex wrench (C), and loosen the damper mounting nut (D).

10. Remove the damper mounting nut (A) and the wave washer (B), then remove the damper mounting base (C) from the top of the damper.

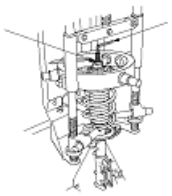


11. Remove the damper/spring (A) and the damper mounting rubber (B).
    NOTE: Be careful not to damage the body.
12. Install all of the removed parts in the reverse order of removal, and note these items:
    - First install all the components, and lightly tighten the bolts and the nuts, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torque values. Do not place the jack against the ball joint of the lower arm.
    - Before installing the wheel, clean the mating surfaces of the brake disc and the inside of the wheel.
13. Check the wheel alignment, and adjust it if necessary.



Front Damper/Spring Disassembly, Inspection, and Reassembly

Exploded View

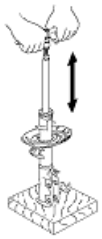


NOTE: When compressing the damper spring, use a commercially available strut spring compressor (Branick MST-580A or Model 7200, or equivalent) according to the manufacturer's instructions.

Disassembly

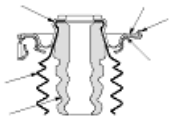
1. Compress the damper spring, then remove the nut (A) while holding the damper shaft with a hex wrench (B). Do not compress the damper spring more than necessary to remove the nut.
2. Release the pressure from the strut spring compressor, then disassemble the damper as shown in the Exploded View.

Inspection

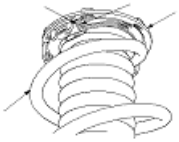


1. Install the nut on the damper shaft end, and set the socket wrench and T-handle on the nut.
2. Compress the damper assembly by hand, and check for smooth operation through a full stroke, both compression and extension. The damper should extend smoothly and constantly when compression is released. If it does not, the gas is leaking and the damper should be replaced.
3. Check for oil leaks, abnormal noises, and binding during these tests.

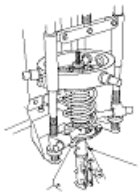
Reassembly



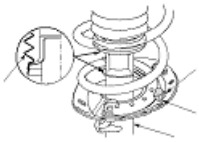
1. Install the upper spring seat (A) to the upper spring seat clip (B).
   NOTE: Make sure to securely set the upper spring seat to the hook (C) on the spring seat clip.
2. Install the bump stop rubber (D) and the dust cover (E) to the upper spring seat.
   NOTE: Push the bump stop rubber and the dust cover into the dent (F) of the upper spring seat securely.



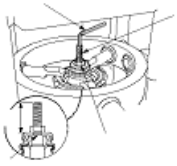
3. Install the damper spring (A) on the upper spring seat clip (B) by aligning the upper end (C) of the damper spring with the ledge portion (D) of the upper spring seat clip.
4. Install the spring seat rubber on the damper spring.
5. Compress the damper spring.



6. Install all the parts except the nut and the damper bearing onto the damper unit (A) by referring to the Exploded View.

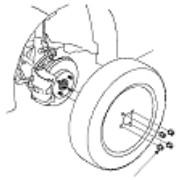


7. Align the raised portion (A) of the spring seat rubber and the hole (B) of the lower spring seat on the damper unit (C).
   NOTE: After reassemble the damper/spring, install the dust cover (D) into the damper unit as shown.
8. Install the damper bearing onto the damper shaft.



9. Compress the damper spring until the position (A) of the damper shaft (B) comes in contact with the damper bearing. Do not excessively compress the damper spring.
   NOTE: Make sure the distance of the rod is 44 mm (1.73 in.) from the upper surface of the bearing.
10. Install the nut (C).
11. Hold the damper shaft with a hex wench (D), and tighten the nut to the specified torque value.
12. Remove the damper/spring from the strut spring compressor.

Front Knuckle/Hub/Wheel Bearing Replacement



Exploded View

Special Tools Required

Ball joint remover, 28 mm
07MAC-SL00201

Hub dis/assembly tool, 34 mm
07965-SA70100

Driver handle, 15 x 135L
07749-0010000

Bearing driver attachment, 52 x 55 mm
07746-0010400

Support base, 73 x 78/82.6 mm
07965-SD90100

Knuckle/Hub Replacement

1. Raise the front of the vehicle, and support it with safety stands in the proper locations.
2. Remove the wheel nuts (A) and the front wheel.

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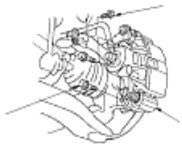
3. Remove the brake hose mounting bolt (A) from the damper bracket.
4. Remove the brake caliper bracket mounting bolts (B), and remove the caliper assembly (C) from the knuckle. To prevent damage to the caliper assembly or the brake hose, use a short piece of wire to hang the caliper assembly from the undercarriage. Do not twist the brake hose excessively.



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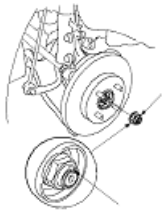
5. Raise the stake (A), then remove the spindle nut (B).
6. Remove the front brake disc.
7. Check the front hub for damage and cracks.



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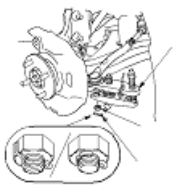
8. Remove the wheel speed sensor (A) from the knuckle (B). Do not disconnect the wheel speed sensor connector.

---

9. Remove the cotter pin (A) from the tie-rod end ball joint, then remove the nut (B).
   NOTE: During installation, install the new cotter pin after tightening the nut, and bend its end as shown.
10. Disconnect the tie-rod end ball joint from the knuckle using the ball joint remover.



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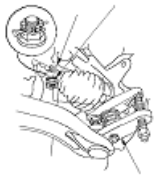
11. Remove the lock pin (A) from the lower arm ball joint, then remove the castle nut (B).
    NOTE: During installation, install the lock pin as shown after tightening the new castle nut.
12. Disconnect the lower ball joint from the knuckle using the ball joint remover.
    NOTE:
    - Be careful not to damage the ball joint boot when installing the remover.
    - Do not force or hammer on the lower arm, or pry between the lower arm and the knuckle. You could damage the ball joint.



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13. Remove the damper pinch bolts (A) and the self-locking nuts (B) from the damper.
NOTE: Use new damper pinch bolts and new self-locking nuts during reassembly.

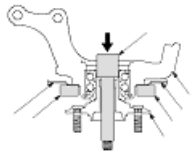
14. Remove the driveshaft outboard joint (C) from the knuckle (D) by tapping the driveshaft end (E) with a soft face hammer while drawing the hub outward, then remove the knuckle/hub.
NOTE:
    - Do not pull the driveshaft end outward. The driveshaft inboard joint may come apart.
    - During installation, apply grease to the mating surfaces of the wheel bearing and the driveshaft outboard joint.

15. Install the knuckle/hub in the reverse order of removal, and note these items:
    - First install all the components, and lightly tighten the bolts and the nuts, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torque values. Do not place the jack against the ball joint of the lower arm.
    - Be careful not to damage the ball joint boot when connecting the knuckle.
    - Before connecting the ball joint, degrease the threaded section and the tapered portion of the ball joint pin, the ball joint connecting hole, and the threaded section and the mating surfaces of the castle nut.
    - Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole. Do not align the castle nut by loosening it.
    - Use a new spindle nut on reassembly.
    - Before installing the spindle nut, apply a small amount of engine oil to the seating surface of the nut. After tightening, use a drift to stake the spindle nut shoulder against the driveshaft.
    - Before installing the brake disc, clean the mating surfaces of the front hub and the inside of the brake disc.
    - Before installing the wheel, clean the mating surfaces of the brake disc and the inside of the wheel.

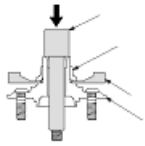
16. Check the wheel alignment, and adjust it if necessary.

Wheel Bearing Replacement

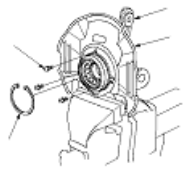
1. Separate the hub (A) from the knuckle (B) using the hub dis/assembly tool and a hydraulic press. Hold the knuckle with the attachment (C) of the hydraulic press or equivalent tool. Be careful not to damage or deform the splash guard (D). Hold onto the hub to keep it from falling when pressed clear.



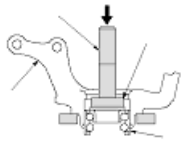
2. Press the wheel bearing inner race (A) off of the hub (B) using the hub dis/assembly tool, a commercially available bearing separator (C), and a press.



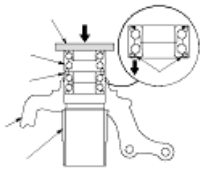
3. Remove the splash guard (A) and the snap ring (B) from the knuckle (C).



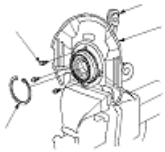
4. Press the wheel bearing (A) out of the knuckle (B) using the bearing driver attachment, the driver handle, and a press.
5. Wash the knuckle and the hub thoroughly in high flash point solvent before reassembly.



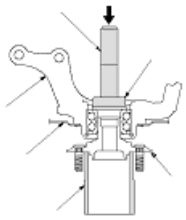
6. Press a new wheel bearing (A) into the knuckle (B) using the old bearing (C), a steel plate (D), the support base, and a press.
NOTE:
    - Install the wheel bearing with the wheel speed sensor magnetic encoder (E) (brown color), toward the inside of the knuckle.
    - Remove any oil, grease, dust, metal debris, and other foreign material from the encoder surface.
    - Keep any magnetic tools away from the encoder surface.
    - Be careful not to damage the encoder surface when you insert the wheel bearing.



7. Install the snap ring (A) securely in the knuckle (B).
8. Install the splash guard (C), and tighten the screws (D) to the specified torque value.

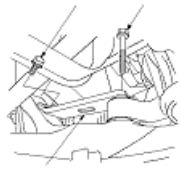


9. Install the hub (A) onto the knuckle (B) using the bearing driver attachment, the driver handle, the support base, and a hydraulic press. Be careful not to damage the splash guard (C).



Front Stabilizer Bar Replacement

NOTE: The illustrations show only the LHD model of the vehicle except where the procedure is different for the RHD model.



Removal

1. Raise the vehicle, and support it with safety stands in the proper locations.
2. Remove the front wheels.
3. Remove the steering wheel.
4. Disconnect the steering joint from the pinion shaft.
5. Disconnect the tie-rod end ball joint from the knuckle.
6. Disconnect both sides of the stabilizer link from the stabilizer bar.
7. LHD model: Remove the secondary HO2S wire clamp on the steering gearbox.
8. Remove the steering gearbox mounting bolt (A) and the stiffener mounting bolt (B), and remove the gearbox stay (C) of the driver's side.

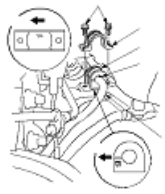
9. Remove the steering gearbox mounting bolt (A) and the stiffener mounting bolt (B), and remove the gearbox stay (C) of the passenger's side.

10. Remove the steering gearbox mounting bolt (A) and the washer (B) from the rear side of the steering gearbox.

11. Remove the flange bolts (A) and the bushing holders (B), then remove the bushings (C).
12. Move the steering gearbox toward the upper side, and remove the stabilizer bar (D) from the driver's side.
    NOTE: Be careful not to damage the steering gearbox.

Installation

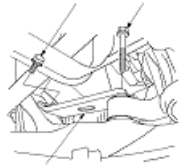
1. Move the steering gearbox toward the upper side, and install the stabilizer bar (A) from the driver's side.
   NOTE:
   - Be careful not no damage the steering gearbox.
   - Note the right and left direction of the stabilizer bar.
   - Note the direction of installation for the bushings (B) and the bushing holders (C).
   - Align the stabilizer band or the paint marks (D) on the stabilizer bar with the side of the bushings.



2. Loosely tighten the new steering gearbox mounting bolt (A) and the washer (B) from the rear side of the steering gearbox.

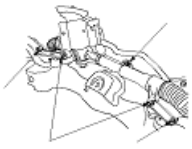
3. Loosely tighten the new steering gearbox mounting bolt (A) and the new stiffener mounting bolt (B) to the gearbox stay (C) of the passenger's side.

4. Loosely tighten the new steering gearbox mounting bolt (A) and the new stiffener mounting bolt (B) to the gearbox stay (C) of the driver's side.

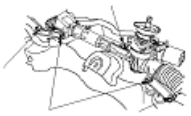


5. Tighten the steering gearbox mounting bolts (A) and the stiffener mounting bolts (B) to the specified torque values as shown order.
6. LHD model: Install the secondary HO2S wire clamp to the steering gearbox.
7. Connect both sides of the stabilizer link to the stabilizer bar.
8. Connect the tie-rod end ball joint to the knuckle.
9. Connect the steering joint.
10. Install the steering wheel.
11. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheels.
12. Check the wheel alignment, and adjust it if necessary.

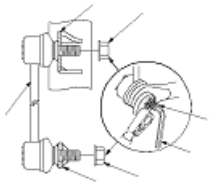
RHD model



LHD model



Front Stabilizer Link Removal/Installation

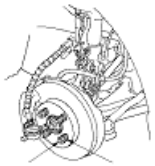


1. Raise the front of the vehicle, and support it with safety stands in the proper locations.
2. Remove the front wheel.
3. Remove the self-locking nut (A) and the flange nut (B) while holding the respective joint pin (C) with a hex wrench (D), then remove the stabilizer link (E).
4. Install the stabilizer link on the stabilizer bar (F) and the damper (G) with the joint pins set at the center of their range of movement.
5. Install the new self-locking nut and the new flange nut, and tighten them to the specified torque values while holding the respective joint pin with a hex wrench.
6. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheel.
7. Test-drive the vehicle.
8. After 5 minutes of driving, tighten the self-locking nut again to the specified torque value.

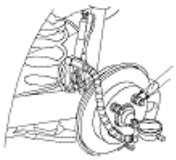
Wheel Bearing End Play Inspection

1. Raise the vehicle, and support it with safety stands in the proper locations.
2. Remove the wheels.
3. Install suitable flat washers (A) and the wheel nuts. Tighten the nuts to the specified torque to hold the brake disc securely against the hub.
4. Attach the dial gauge. Place the dial gauge against the hub flange.
5. Measure the bearing end play while moving the brake disc inward and outward.
   Wheel bearing end play:
   Front/Rear: 0−0.05 mm (0−0.002 in.)
6. If the bearing end play measurement is more than the standard, replace the wheel bearing or the hub bearing unit.

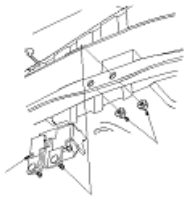
Front



Rear



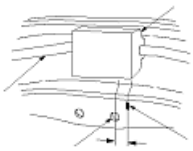
Rear Suspension Dynamic Damper Replacement



1. Raise the vehicle, and support it with safety stands in the proper locations.
2. Remove the dynamic damper (A) from the axle beam.
   NOTE: Use new self-looking nuts (B) during reassembly.
3. Install the new dynamic damper in the reverse order of removal.

Rear Stabilizer Rubber Replacement

1. Raise the vehicle, and support it with safety stands in the proper locations.
2. Remove the dynamic damper from the axle beam.
3. Remove the stabilizer rubber (A) from the axle beam.
4. Apply osmosis preservation lubricant to the new stabilizer rubber. This will ease installation of the rubber into the stabilizer and the axle beam.

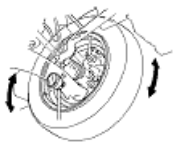


5. Make a mark (A) near the hole (B) of the axle beam as shown. Install the stabilizer rubber (C) into the axle beam by aligning the end face of the stabilizer rubber to the plant mark.
   NOTE: Make sure the stabilizer rubber is installed into the stabilizer (D).
6. Install the dynamic damper to the axle beam.

Wheel Runout Inspection

NOTE: When measuring the front wheel runout, turn the back side of the wheel slowly by hand.

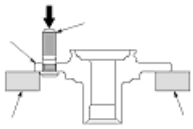
1. Raise the vehicle, and support it with safety stands in the proper locations.
2. Check for bent or deformed wheel.
3. Set up the dial gauge as shown, and measure the axial runout by turning the wheel.
   Front and rear wheel axial runout:
   Standard:
   Steel wheel: **0–1.0 mm (0–0.04 in.)**
   Aluminum wheel: **0–0.7 mm (0–0.03 in.)**
   Service limit: **2.0 mm (0.08 in.)**



4. Reset the dial gauge to the position shown, and measure the radial runout.
   Front and rear wheel radial runout:
   Standard:
   Steel wheel: **0–1.0 mm (0–0.04 in.)**
   Aluminum wheel: **0–0.7 mm (0–0.03 in.)**
   Service limit: **1.5 mm (0.06 in.)**
5. If the wheel runout is not within the specification, check the wheel bearing end play, and make sure the mating surfaces on the brake disc and the inside of the wheel are clean.
6. If the bearing end play is within the specification but the wheel runout is more than the service limit, replace the wheel.

Wheel Bolt Replacement

NOTICE



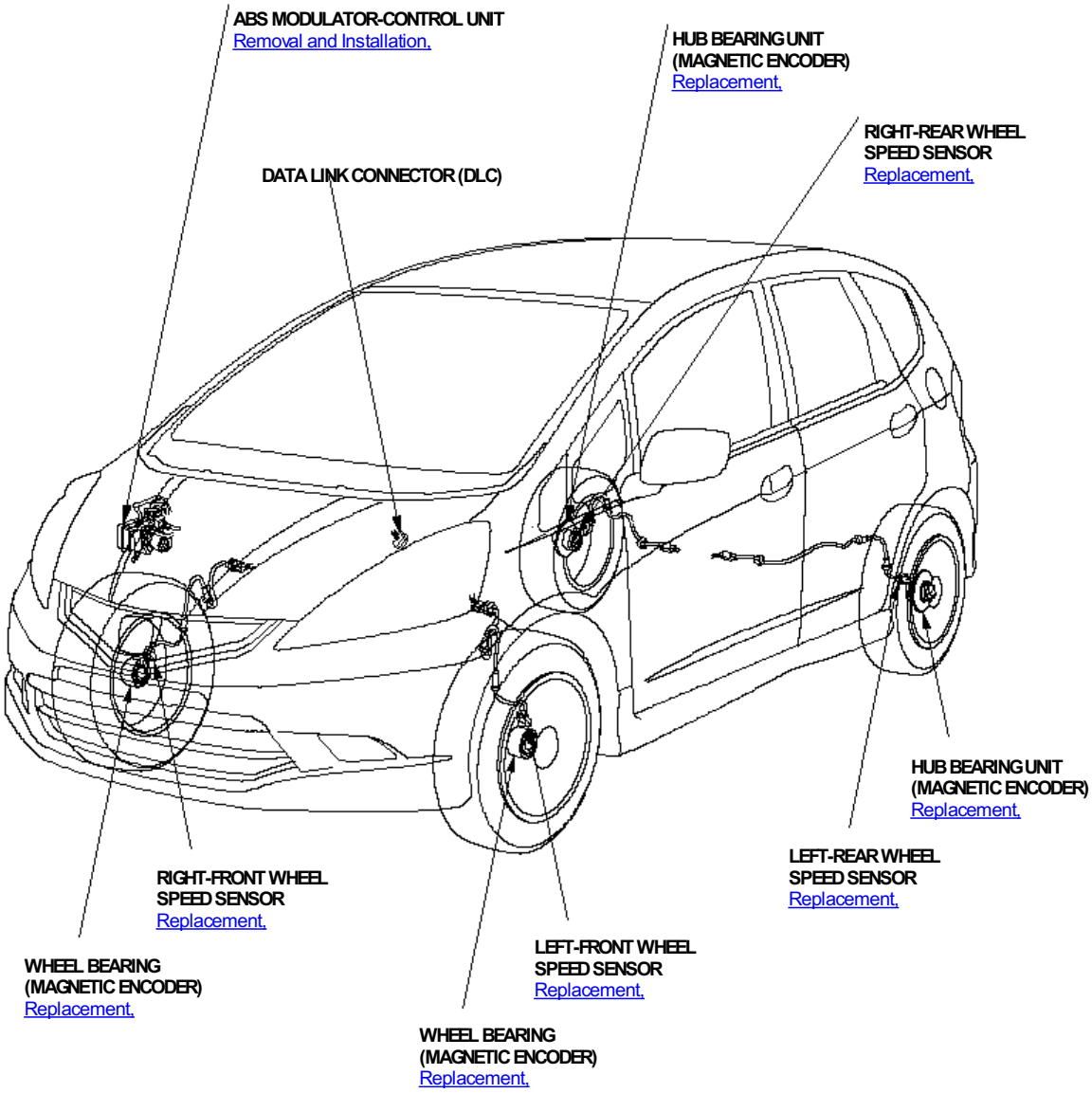
- Do not use a hammer or air or electric impact tools to remove and install the wheel bolts.
- Be careful not to damage the threads of the wheel bolts.

1. Remove the front hub or the rear hub bearing unit: front , rear.
2. Separate the wheel bolt (A) from the hub (B) using a hydraulic press. Support the hub with hydraulic press attachments (C) or equivalent tools.
   NOTE:
   - Before installing the new wheel bolt, clean the mating surfaces on the bolt and the hub.
   - The illustration shows a front hub.
3. Insert the new wheel bolt into the hub while aligning the splined surfaces on the hub hole with the wheel bolt.
   NOTE:
   - Degrease all around the wheel bolt.
   - Make sure the wheel bolt is installed vertically in relation to the hub disc surface.
4. Install the wheel bolt using a hydraulic press until the wheel bolt shoulder is fully seated.
5. Install the front hub or the rear hub bearing unit: front , rear.
   NOTE: If you cannot tighten the wheel nut to the specified torque value when installing the wheel, replace the front hub or the rear hub bearing unit as an assembly.

ABS System Description

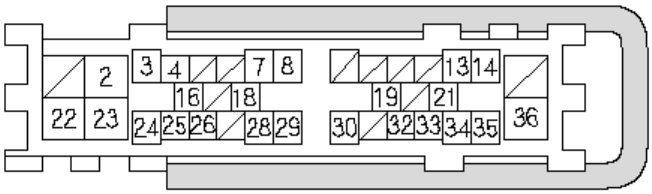
ABS Modulator-Control Unit Inputs and Outputs for 25P Connector
System Outline
ABS Features
EBD Features
Modulator Unit

ABS Component Location Index

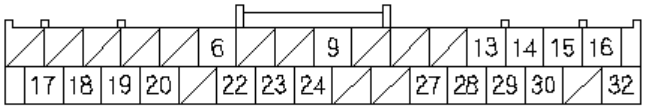


ABS Circuit Diagram

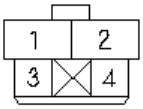
UNDER-DASH FUSE/RELAY BOX CONNECTOR A (36P)



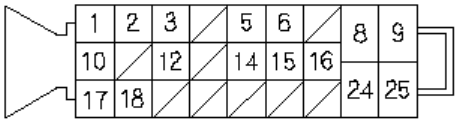
GAUGE CONTROL MODULE 32P CONNECTOR



BRAKE PEDAL POSITION SWITCH 4P CONNECTOR



ABS MODULATOR-CONTROL UNIT 25P CONNECTOR

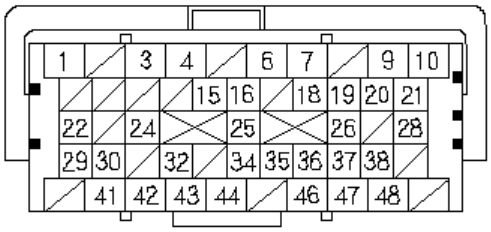


PARKING BRAKE SWITCH 1P CONNECTOR

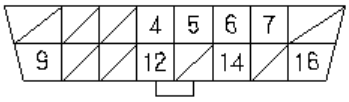
BRAKE FLUID LEVEL SWITCH 2P CONNECTOR

Wire side of female terminals

ECM/PCM CONNECTOR A (49P)



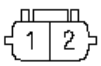
DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

WHEEL SPEED SENSOR 2P CONNECTOR

FRONT

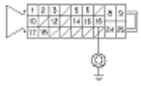


Wire side of female terminals

REAR

Terminal side of male terminals

ABS indicator and brake system indicator do not go off at the same time

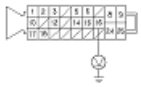


1. Turn the ignition switch to LOCK (0).
2. Check the No. 11 (7.5 A) fuse in the under-dash fuse/relay box.

   Is the fuse blown?
   YES - Go to Step 3 .
   NO - Reinstall the checked fuse, then go to Step 8 .
3. Disconnect the ABS modulator-control unit 25P connector.
4. Check for continuity between ABS modulator-control unit 25P connector terminal No. 16 and body ground.

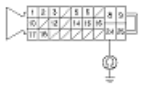
   Is there continuity?
   YES - Repair short to body ground in the wire between the No. 11 (7.5 A) fuse in the under-dash fuse/relay box and the ABS modulator-control unit.■
   NO - Install the new No. 11 (7.5 A) fuse in the under-dash fuse/relay box, then go to Step 5 .
5. Reconnect the ABS modulator-control unit 25P connector.
6. Turn the ignition switch to ON (II).
7. Check the ABS indicator and brake system indicator for several seconds when the ignition switch is turned to ON (II).

   Do the indicators come on then go off?
   YES - Replace the ABS modulator-control unit. ■
   NO - The system is OK at this time.■
8. Disconnect the ABS modulator-control unit 25P connector.
9. Turn the ignition switch to ON (II).



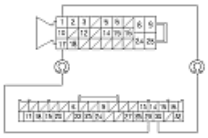
10. Measure the voltage between ABS modulator-control unit 25P connector terminal No. 16 and body ground.

    Is there battery voltage?
    YES - Go to Step 11 .
    NO - Repair open in the wire between the No. 11 (7.5 A) fuse in the under-dash fuse/relay box and the ABS modulator-control unit.■
11. Turn the ignition switch to LOCK (0).



12. Check for continuity between ABS modulator-control unit 25P connector terminal No. 24 and body ground.

    Is there continuity?
    YES - Go to Step 13 .
    NO -
    - RHD model: Repair open in the wire between the ABS modulator-control unit and body ground (G203).■
    - LHD model: Repair open in the wire between the ABS modulator-control unit and body ground (G402).■
13. Disconnect the gauge control module 32P connector.



14. Check for continuity between the ABS modulator-control unit 25P connector terminal and gauge control module 32P connector terminal (see table).

Sign	ABS Modulator-control Unit 25P Connector Terminal	Gauge Control Module 32P Connector Terminal
CAN-L	No. 17	No. 29
CAN-H	No. 1	No. 30

    Is there continuity?
    YES - Check for loose terminals in the ABS modulator-control unit 25P connector. Clean terminal: G203 (RHD model), G402 (LHD model) and recheck. If necessary, substitute a known-good ABS modulator-control unit, and reset.■
    NO - Repair open in the wire between the gauge control module and the ABS modulator-control unit.■

HDS does not communicate with the ABS modulator-control unit or the vehicle

Diagnostic procedure

1. Troubleshoot the DLC circuit.

ABS indicator and brake system indicator do not come on at the same time

Diagnostic procedure

1. Do the gauge control module troubleshooting.
2. Substitute a known-good ABS modulator-control unit, then retest. If it is OK, replace the original ABS modulator-control unit.

ABS indicator and brake system indicator do not go off at the same time

Diagnostic procedure

1. Check for F-CAN DTCs, and troubleshoot and repair those first.
2. Symptom Troubleshooting.
3. Do the gauge control module troubleshooting.

ABS Symptom Troubleshooting Index

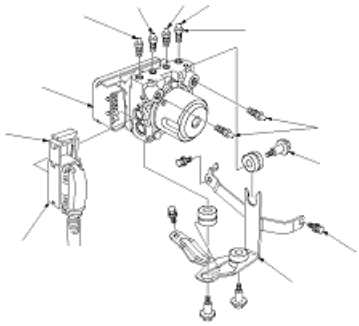
When the vehicle has one of these symptoms, check for a diagnostic trouble code (DTC) with the HDS. If there is no DTC, do the diagnostic procedure for the symptom, in the sequence listed, until you find the cause.

Symptom	Diagnostic procedure
HDS does not communicate with the ABS modulator-control unit or the vehicle	Troubleshoot the DLC circuit.
ABS indicator and brake system indicator do not come on at the same time	1.Do the gauge control module troubleshooting. 2.Substitute a known-good ABS modulator-control unit, then retest. If it is OK, replace the original ABS modulator-control unit.
ABS indicator and brake system indicator do not go off at the same time	1.Check for F-CAN DTCs, and troubleshoot and repair those first. 2.Symptom Troubleshooting. 3.Do the gauge control module troubleshooting.

ABS Modulator-control Unit Removal and Installation

NOTE:

- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
- Be careful not to damage or deform the brake lines during removal and installation.
- To prevent the brake fluid from dripping, plug and cover the hose ends and joints with a shop towel.



Removal

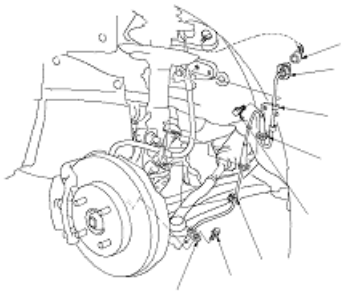
1. Turn the ignition switch to LOCK (0).
2. Disconnect the ABS modulator-control unit 25P connector (A) by pulling up the lock (B); the connector disconnects itself.
3. Disconnect the six brake lines from the ABS modulator-control unit.
   NOTE: Brake lines are connected to the master cylinder (C) and to the right-front (D), the left-rear (E), the right-rear (F), and the left-front (G) brake systems.
4. Remove the ABS modulator-control unit (H) with the bracket (I) from the body.
5. Remove the ABS modulator-control unit from the bracket.

Installation

1. Install the ABS modulator-control unit on the bracket.
2. Install the bracket with the ABS modulator-control unit to the body.
3. Reconnect the six brake lines, then tighten the flare nuts to the specified torque.
4. Align the connecting surface of the ABS modulator-control unit 25P connector to the ABS modulator-control unit.
5. Lower the lock of the ABS modulator-control unit 25P connector, then confirm the connector is fully seated.
6. Bleed the brake system.
7. Start the engine, and check that the ABS indicator goes off.
8. Test-drive the vehicle, and make sure the ABS indicator does not come on.
   NOTE: If the brake pedal is spongy, there may be air trapped in the modulator which could then be induced into the normal brake system during modulation. Bleed the brake system again.

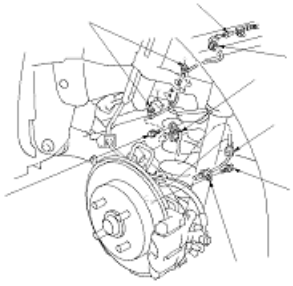
Wheel Speed Sensor Replacement

Front



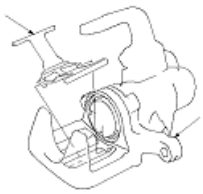
1. Turn the ignition switch to LOCK (0).
2. Remove the grommet (A), then disconnect the wheel speed sensor connector (B).
3. Remove the bracket (C), the clip (D), and the stay (E).
4. Remove the bolt and the wheel speed sensor (F).
5. Install the wheel speed sensor in the reverse order of removal, and note these items:
   - Install the sensor carefully to avoid twisting the wires.
   - If the wheel speed sensor comes in contact with the wheel bearing, it is faulty.
   - Make sure the grommet is installed properly.
6. Start the engine, and make sure the ABS indicator go off.
7. Test-drive the vehicle, and make sure the ABS indicator do not come on.

Rear



1. Turn the ignition switch to LOCK (0).
2. Pull back the carpet under the rear seat, then disconnect the wheel speed sensor connector (A).
3. Remove the grommet (B), the bracket (C), the clips (D), and the stay (E).
4. Remove the bolt and the wheel speed sensor (F).
5. Install the wheel speed sensor in the reverse order of removal, and note these items:
   - Install the sensor carefully to avoid twisting the wires.
   - If the wheel speed sensor comes in contact with the hub bearing unit, it is faulty.
   - Make sure the grommet is installed properly.
6. Start the engine, and make sure the ABS indicator go off.
7. Test-drive the vehicle, and make sure the ABS indicator do not come on.

Rear Brake Caliper Overhaul



Exploded View

Special Tools Required

Locknut wrench, 5.5 x 30 mm
07916-6390001

Rear caliper spring compressor
07HAE-SG00100

Snap ring pliers
07914-SA50001

⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.

- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an appropriate vacuum cleaner.

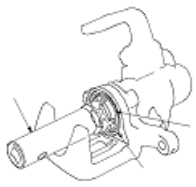
NOTE: Make sure that the caliper pins are installed correctly. Upper caliper pin B and lower caliper pin A are different. If these caliper pins are installed in the wrong location, it will cause vibration, uneven or rapid pad wear, and possibly uneven tyre wear.

- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
- To prevent dripping brake fluid, cover disconnected hose joints with rags or shop towels.
- Clean all parts in brake fluid and air dry; blow out all passages with compressed air.
- Before reassembling, check that all parts are free of dirt and other foreign particles.
- Replace parts with new ones as specified in the illustration.
- Make sure no dirt or other foreign matter gets in the brake fluid.
- Make sure no grease or oil gets on the brake discs or the brake pads.
- When reusing brake pads, always reinstall them in their original positions to prevent loss of braking efficiency.
- Do not reuse drained brake fluid. Use only clean genuine Honda DOT 3 or DOT 4 Brake Fluid from an unopened container. Using a non-Honda brake fluid can cause corrosion and shorten the life of the system.
- Coat the piston, the piston seal groove, and the caliper bore with clean brake fluid.
- Use recommended greases in the rear caliper set.
- After installing the caliper, check the brake hose and line for leaks, interference, and twisting.
- When you apply the silicone grease, make sure not to adhere to the terminal part of connectors and surrounding switches. Also do not touch the switches and the terminal part of connector by hands or glove that adheres the silicone grease.

Disassembly

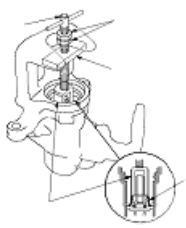
1. Remove the caliper body.
2. Remove the pad spring (A) from the caliper body (B).

3. Rotate the piston (A) counterclockwise by using the locknut wrench (B), and remove the piston and piston boot (C).
   NOTE: Be careful not to damage the piston.

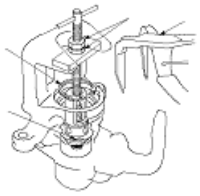


4. Remove the piston seal (A) from the caliper body (B).
   NOTE: Be careful not to damage the inner surface of the cylinder wall with the tool.

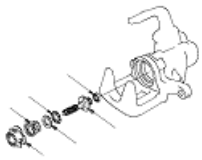
5. Install the rear caliper spring compressor (A) on the spring guide (B) inside of the caliper body.
6. Locate a locknut (C) on the top of the shaft (D) and turn the shaft clockwise until a plate (E) touches the caliper body.



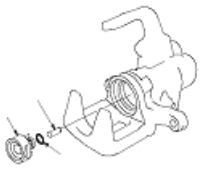
7. Turn the locknut (A) and put it on the plate. Turn the shaft for 1/4 to 1/2 clockwise and compress the adjusting spring B.
8. Remove the circlip (C) with the snap ring pliers (D).
9. Depress the lower side of the locknut, tighten the upper side of the locknut and fix the position.
   NOTE: Do not displace the position of the locknut until reassembling the circlip.



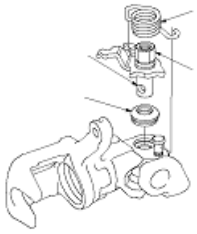
10. Remove the rear caliper spring compressor, then remove the spring guide (C), adjusting spring B, spacer (D), bearing A, adjusting bolt (E) and the cup (F).



11. Remove the sleeve piston (A), then remove the rod (B) and the O-ring (C) from the shaft.

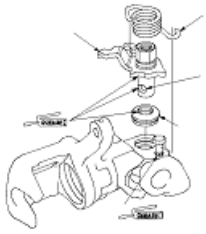


12. Remove the return spring (A), then remove the lever/shaft (B) from the caliper.
    NOTE: Do not loosen a parking nut (C), with the shaft attached to the caliper. When disassembling the lever and the shaft, fix the lever to the vice and loosen the nut.
13. Remove the shaft cover (D).



Reassembly

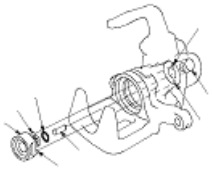
NOTE: When disassembling the lever and the shaft, assemble them according to the following procedure, referring to the exploded view beforehand, then install them to the caliper.



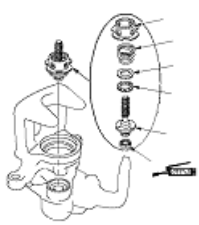
- Install the lever and a spring washer to the shaft.
- Apply new sealant (Loctite 569) to the threads of the parking nut and install it.
- Fix the lever to the vice and tighten the nut.

1. Apply silicone grease to a needle roller bearing (A) of the caliper body.
   NOTE: Check if notch of the needle roller bearing faces to the cylinder.
2. Apply silicone grease to the seal of a new shaft cover (B), then install it to the caliper body.
3. Apply silicone grease to the hole (C) of the shaft. Turn the hole toward the caliper, then install the lever/shaft (D) to the caliper body.
   NOTE:
   - Rotate the shaft slowly when inserting so as not to damage the seal of the shaft cover.
   - Fix the lip of the shaft cover to the groove portion of the shaft completely.
4. Install the return spring (E).

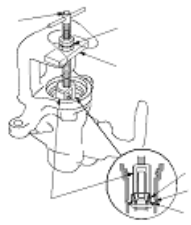
5. Install the rod (A) to the shaft (B) so that it turns toward the center.
6. Install the new O-ring (C) to the sleeve piston (D).
7. Install two pins (E) of the sleeve piston to the two holes (F) of the caliper body, so that the rod is inserted in the hole of the bottom side of the sleeve piston.



8. Apply rubber grease to the new cup (C) and assemble to the adjusting bolt (D). Assemble the bearing A, spacer (E), adjusting spring B, and the spring guide (F), then install them into the caliper body.
   NOTE: Install the cup with the groove facing toward the bearing A.



9. Install the rear caliper spring compressor (A) on the spring guide (B) in the caliper body and turn the shaft (C) clockwise until the plate (D) touches the locknut (E).
10. Check that the bottom (F) of the spring guide is lower than the circlip installation groove (G) of the caliper body.



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11. Install the circlip (A) with the snap ring pliers (B).
    NOTE: Make sure the circlip securely fits in the groove of the caliper body.

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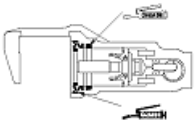
12. Apply a thin coat of silicone grease to the new piston seal (A), then install it into the groove in the caliper body.
13. Apply a thin coat of rubber grease to the new piston boot (B), then install it into the groove in the caliper body.
14. Apply brake fluid to the outer surface of the piston, then set the piston in place on the caliper body.



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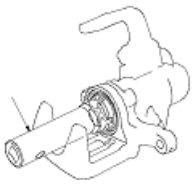
15. Rotate the piston clockwise by using the locknut wrench (A) to install it. Make sure that the piston boot is properly positioned into the groove of the piston.
    NOTE: Be careful not to damage the piston boot when rotate the piston.



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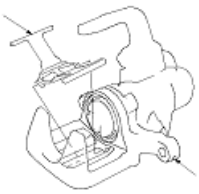
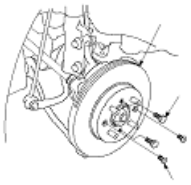
16. Install the pad spring (A) to the caliper body (B).
17. Install the caliper body.
18. Bleed the brake system.



Front Brake Disc Replacement

NOTE: Keep any grease off the brake disc and brake pads.

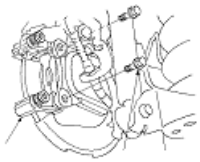
1. Raise the front of the vehicle, and support it with safety stands in the proper locations.
2. Remove the front wheel.
3. Remove the brake hose mounting bolts (A).
4. Remove the brake caliper bracket mounting bolts (B), then remove the caliper assembly (C) from the knuckle. To prevent damage to the caliper assembly or brake hose, use a short piece of wire to hang the caliper assembly from the undercarriage. Do not twist the brake hose excessively.



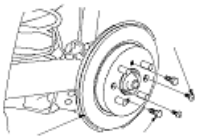
5. Remove the brake disc flat screws (A).
6. Remove the brake disc (B) from the front hub.
   NOTE: If the brake disc is stuck to the front hub, thread two 8 x 1.25 mm bolts (C) into the brake disc to push it away from the front hub. Turn each bolt 90 degrees at a time to prevent the brake disc from binding.
7. Install the brake disc in the reverse order of removal.
   NOTE: Before installing the brake disc, clean the mating surfaces of the front hub and the inside of the brake disc.
8. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheel.

Rear Brake Disc Replacement

NOTE: Keep any grease off the brake disc and brake pads.



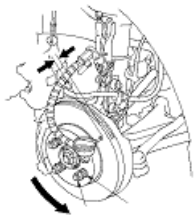
1. Raise the rear of the vehicle, and support it with safety stands in the proper locations.
2. Remove the rear wheel.
3. Release the parking brake lever fully.
4. Remove the caliper body and the brake pads from the caliper bracket.
5. Remove the caliper bracket (A) from the knuckle.



6. Remove the brake disc flat screws (A).
7. Remove the brake disc (B) from the hub bearing unit.
   NOTE: If the brake disc is stuck to the hub bearing unit, thread two 8 x 1.25 mm bolts (C) into the brake disc to push it away from the hub bearing unit. Turn each bolt 90 degrees at a time to prevent the brake disc from binding.
8. Install the brake disc in the reverse order of removal, and note these items:
   - Adjust the parking brake.
   - Before installing the brake disc, clean the mating surfaces of the hub bearing unit and the inside of the brake disc.
9. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the rear wheel.

Front Brake Disc Inspection

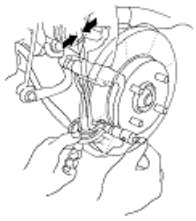
Runout



1. Raise the front of the vehicle, and support it with safety stands in the proper locations.
2. Remove the front wheels.
3. Remove the brake pads.
4. Inspect the brake disc surface for damage and cracks. Clean the brake disc thoroughly, and remove all rust.
5. Install suitable flat washers (A) and the wheel nuts (B), and tighten the wheel nuts to the specified torque to hold the brake disc securely against the hub.
6. Set up the dial gauge against the brake disc as shown, and measure the runout at 10 mm (0.39 in.) from the outer edge of the brake disc.
   Brake disc runout:
   Service limit: 0.04 mm (0.0016 in.)
7. If the brake disc is beyond the service limit, refinish the brake disc with a commercially available on-car brake lathe.
   Max. refinishing limit: 19.0 mm (0.75 in.)

   NOTE:
   - If the brake disc is beyond the service limit for refinishing, replace it.
   - A new brake disc should be refinished if its runout is greater than 0.04 mm (0.0016 in.).
8. Install the brake pads.
9. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheels.

Thickness and Parallelism

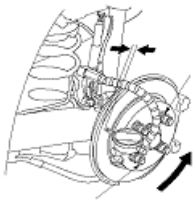


1. Raise the front of the vehicle, and support it with safety stands in the proper locations.
2. Remove the front wheels.
3. Remove the brake pads.
4. Using a micrometer, measure the brake disc thickness at eight points, about 45 ° apart and 10 mm (0.39 in.) in from the outer edge of the brake disc. Replace the brake disc if the smallest measurement is less than the max. refinishing limit.
   Brake disc thickness:
   Standard: 20.9–21.1 mm (0.82–0.83 in.)
   Max. refinishing limit: 19.0 mm (0.75 in.)
   Brake disc parallelism: 0.015 mm (0.0006 in.) max.

   NOTE: This is the maximum allowable difference between the thickness measurements.
5. If the brake disc is beyond the service limit for parallelism, refinish the brake disc with a commercially available on-car brake lathe.
   NOTE: If the brake disc is beyond the service limit for refinishing, replace it.
6. Install the brake pads.
7. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheels.

Rear Brake Disc Inspection

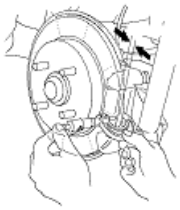
Runout



1. Raise the rear of the vehicle, and support it with safety stands in the proper locations.
2. Remove the rear wheels.
3. Remove the brake pads.
4. Inspect the brake disc surface for damage and cracks. Clean the brake disc thoroughly, and remove all rust.
5. Install suitable flat washers (A) and the wheel nuts (B), and tighten the wheel nuts to the specified torque to hold the brake disc securely against the hub.
6. Set up the dial gauge against the brake disc as shown, and measure the runout at 10 mm (0.39 in.) from the outer edge of the brake disc.
   Brake disc runout:
   Service limit: 0.04 mm (0.0016 in.)
7. If the brake disc is beyond the service limit, refinish the brake disc with a commercially available on-car brake lathe.
   Max. refinishing limit: 8.0 mm (0.31 in.)

   NOTE:
   - If the brake disc is beyond the service limit for refinishing, replace it.
   - A new brake disc should be refinished if its runout is greater than 0.04 mm (0.0016 in.).
8. Install the brake pads.
9. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the rear wheels.

Thickness and Parallelism



1. Raise the rear of the vehicle, and support it with safety stands in the proper locations.
2. Remove the rear wheels.
3. Remove the brake pads.
4. Using a micrometer, measure the brake disc thickness at eight points, about 45 ° apart and 10 mm (0.39 in.) in from the outer edge of the brake disc. Replace the brake disc if the smallest measurement is less than the max. refinishing limit.
   Brake disc thickness:
   Standard: 8.9–9.1 mm (0.35–0.36 in.)
   Max. refinishing limit: 8.0 mm (0.31 in.)
   Brake disc parallelism: 0.015 mm (0.0006 in.) max.

   NOTE: This is the maximum allowable difference between the thickness measurements.
5. If the brake disc is beyond the service limit for parallelism, refinish the brake disc with a commercially available on-car brake lathe.
   NOTE: If the brake disc is beyond the service limit for refinishing, replace it.
6. Install the brake pads.
7. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the rear wheels.

Brake Hose Replacement

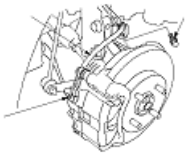
NOTE:

- Before reassembling, check that all parts are free of dirt and other foreign particles.
- Replace parts with new ones whenever specified to do so.
- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
- Plug the end of a hose and joints to prevent spilling brake fluid.

Front

1. Remove the front wheel.
2. Disconnect the brake line (A) from the brake hose (B), then remove the brake hose bracket (C).

3. Remove the banjo bolt (A), and disconnect the brake hose (B) from the caliper.
4. Remove the brake hose mounting bolt (C), then remove the brake hose.



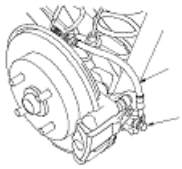
5. Install the brake hose (A) with the mounting bolt (B).
6. Connect the brake hose to the caliper with the banjo bolt (C) and new sealing washers (D).

7. Install the brake hose bracket (A) to the body, then connect the brake line (B). Do not twist the brake hose.
8. After installing the brake hose, bleed the brake system.
9. Do the following checks:
   - Check the brake hose and line joint for leaks, and tighten if necessary.
   - Check the brake hoses for interference and twisting.
10. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheel.

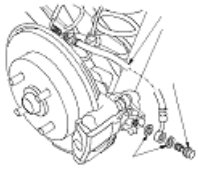
Rear

1. Remove the rear wheel.
2. Disconnect the brake line (A) from the brake hose (B), then remove the brake hose clip (C).

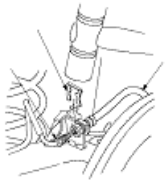
3. Remove the banjo bolt (A), and disconnect the brake hose (B) from the caliper.



4. Connect the brake hose (A) to the caliper with the banjo bolt (B) and new sealing washers (C).

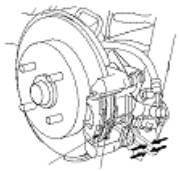


5. Install a new brake hose clip (A) to the brake hose (B) on the bracket, then connect the brake line (C). Do not twist the brake hose.
6. After installing the brake hoses, bleed the brake system.
7. Do the following checks:
   - Check the brake hose and line joint for leaks, and tighten if necessary.
   - Check the brake hose for interference and twisting.
8. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the rear wheel.



Rear Brake Pad Inspection and Replacement

Special Tools Required



Locknut wrench, 5.5 x 30 mm
07916-6390001

⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.

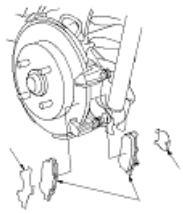
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an appropriate vacuum cleaner.

Inspection

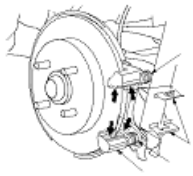
1. Raise the rear of the vehicle, and support it with safety stands in the proper locations.
2. Remove the rear wheels.
3. Check the thickness (A) of the inner pad (B) and outer pad (C). Do not include the thickness of the backing plate.
   Brake pad thickness:
   Standard: **6.8–7.5 mm (0.27–0.30 in.)**
   Service limit: **1.6 mm (0.06 in.)**
4. If the brake pad thickness of any of the pads is less than the service limit, replace the rear brake pads as a set.
5. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the rear wheels.

Replacement

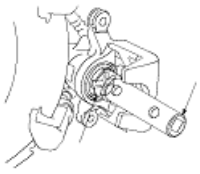
1. Remove some brake fluid from the master cylinder.
2. Raise the rear of the vehicle, and support it with safety stands in the proper locations.
3. Remove the rear wheels.
4. Remove the parking brake cable mounting nut (A).
5. Remove the flange bolts (B) while holding respective caliper pins (C) with a wrench. Be careful not to damage the pin boot, and remove the caliper (D). Check the hose, the pin boots, and the parking brake cable boots for damage and deterioration.
   NOTE: Do not twist the brake hose and the parking brake cable to prevent damage.



6. Remove the pad shims (A) and the brake pads (B).



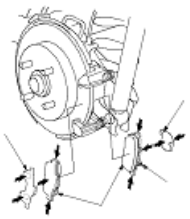
7. Remove the pad retainers (A).
8. Clean the caliper bracket (B) thoroughly; remove any rust, and check for grooves and cracks.
   Verify that the caliper pins (C) move in and out smoothly. Clean and lube if needed.
9. Inspect the brake disc, and check for damage and cracks.
10. Apply Molykote M77 grease to the retainers on their mating surfaces (indicated by the arrows) against the caliper bracket.
11. Install the pad retainers. Wipe excess grease off the retainers. Keep the grease off the brake disc and the brake pads.



12. Rotate the caliper piston (A) clockwise into the cylinder by using the locknut wrench.
    NOTE: Be careful when moving the piston back in the caliper; brake fluid might overflow from the master cylinder's reservoir.

13. Apply Molykote M77 grease to the pad side of the shims (A), the back of the brake pads (B), and the other areas indicated by the arrows. Wipe excess grease off the pad shims and the brake pads. Keep grease off the brake discs and the brake pads. Contaminated brake discs or brake pads reduce stopping ability.

14. Install the brake pads and pad shims correctly. Install the brake pad with the wear indicator (C) on the bottom inside. If you are reusing the brake pads, always reinstall the brake pads in their original positions to prevent a momentary loss of braking efficiency.



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15. Align the cutout (A) in the piston (B) with the tab (C) on the inner pad. Lubricate the boot with rubber grease to avoid twisting the piston boot. If the piston boot is twisted, back it out so it is positioned properly.

16. Install the caliper. Install the flange bolts (D), and tighten it to the specified torque while holding the respective caliper pins (E) with a wrench, being careful not to damage the pin boots and parking brake cable boots.

17. Install the parking brake cable mounting nut (F).

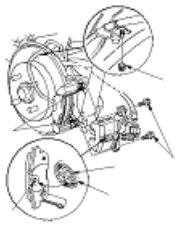
18. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the rear wheels.

19. Press the brake pedal several times to make sure the brakes work.
NOTE: Engagement may require a greater pedal stroke immediately after the brake pads have been replaced as a set. Several applications of the brake pedal will restore the normal pedal stroke.

20. Add brake fluid as needed.

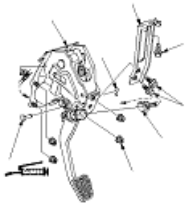
21. After installation, check for leaks at hose and line joints or connections, and retighten if necessary. Test-drive the vehicle, then recheck for leaks.

22. Adjust the parking brake.



Brake Pedal Replacement

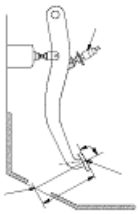
NOTE: The illustration shows RHD model.



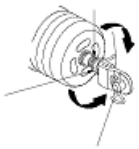
1. Remove the driver's dashboard undercover.
2. Disconnect the brake pedal position switch connector (A).
3. Remove the lock pin (B) and joint pin (C).
4. RHD model: Remove the brake pedal support member (D).
5. Remove the brake booster mounting nuts (E).
6. Remove the brake pedal with bracket (F).
7. Install the brake pedal in the reverse order of removal.
8. Adjust the brake pedal and the brake pedal position switch.

Brake Pedal and Brake Pedal Position Switch Adjustment

Pedal Height

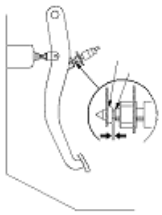


1. Remove the driver's dashboard undercover.
2. Turn the brake pedal position switch (A) counterclockwise, and pull it back until it is no longer touching the brake pedal.
3. Pull back the carpet and find the cutout (B) in the insulation. Measure the pedal height (C) at the center of the pedal pad (D) to the floor without the insulation.
   Standard pedal height (with carpet removed):
   M/T: 139 mm (5.5 in.)
   A/T: 138 mm (5.4 in.)



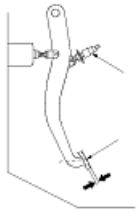
4. Loosen the pushrod locknut (A), and screw the pushrod (B) in or out with pliers until the standard pedal height from the floor is reached. After adjustment, tighten the locknut firmly. Do not adjust the pedal height with the pushrod pressed.

Brake Pedal Position Switch Clearance



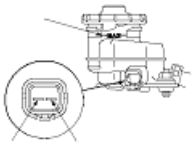
5. Lift up on the brake pedal by hand. Push in the brake pedal position switch until its plunger is fully pressed (threaded end (A) touching the pad (B) on the pedal arm). Turn the switch 45 ° clockwise to lock it. The gap between the brake pedal position switch and the pad is automatically adjusted to 0.7 mm (0.028 in.) by locking the switch. Make sure the brake lights go off when the pedal is released.
6. Install the all removed parts in the reverse order of removal.
7. Check the brake pedal free play.

Pedal Free Play



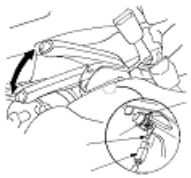
1. With the ignition switch in LOCK (0), inspect the play (A) at the brake pedal pad (B) by pushing the brake pedal by hand. If the brake pedal free play is out of specification, adjust the brake pedal position switch (C). If the brake pedal free play is insufficient, it may result in brake drag.
   Free play: 1−5 mm (0.04−0.20 in.)

Brake Fluid Level Switch Test



1. Disconnect the brake fluid level switch connector.
2. Check for continuity between the terminals (1) and (2) with the float in the down position and in the up position.
   NOTE:
   - Remove the brake fluid completely from the reservoir. With the float down, there should be continuity.
   - Fill the reservoir with brake fluid to the MAX (upper) level (A). With the float up, there should be no continuity.
   - If both the ABS indicator and the brake system indicator come on at the same time, check the ABS system first.
   - If the parking brake switch and brake fluid level switch are OK, but the brake system indicator does not function, do the gauge control module self-diagnostic function.
3. Reconnect the brake fluid level switch connector.

Parking Brake Switch Test



NOTE: If both the ABS indicator and the brake system indicator come on at the same time, check the ABS system first.

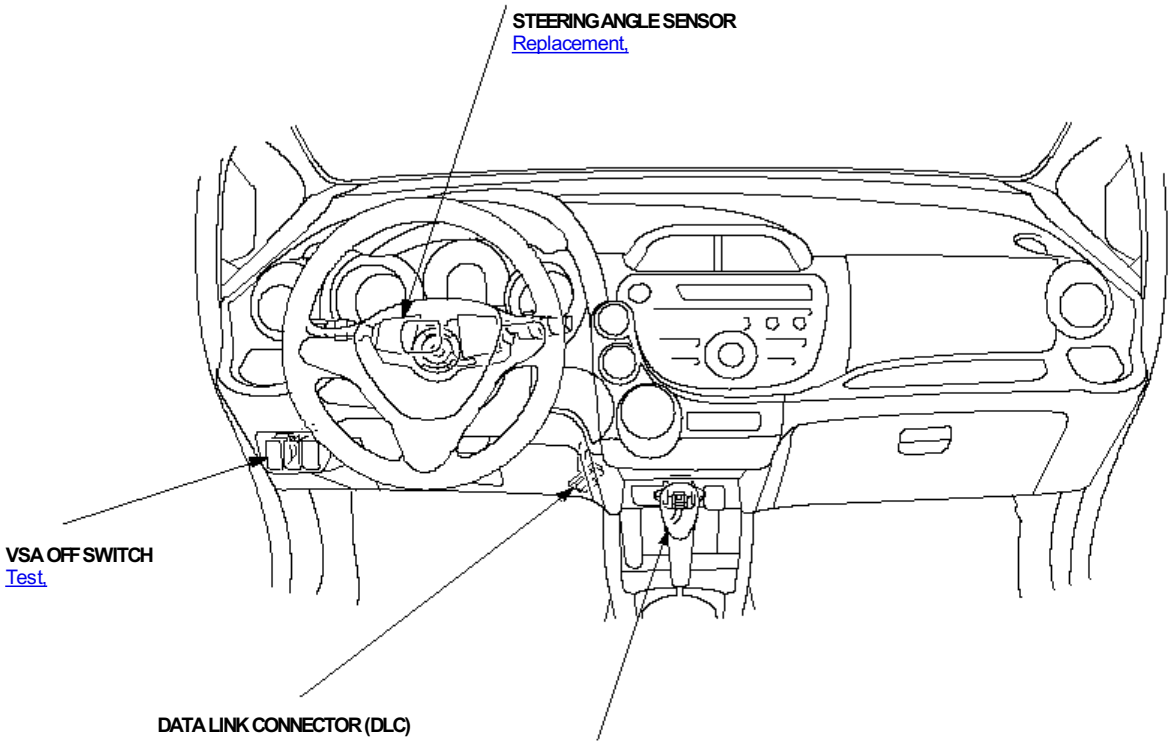
1. Remove the center console.
2. Disconnect the parking brake switch connector (A) from the parking brake switch (B).
3. Check for continuity between the switch terminal (C) and body ground.
   - With the parking brake lever pulled, there should be continuity.
   - With the parking brake lever released, there should be no continuity.

   NOTE: If the parking brake switch and the brake fluid level switch are OK, but the brake system indicator does not function, do the gauge control module self-diagnostic function.
4. Reconnect the parking brake switch connector.
5. Install the center console.

VSA System Description

VSA Modulator-control Unit Inputs and Outputs for 36P Connector
System Outline
ABS Features
EBD Features
TCS Features
VSA System Features
Brake Assist Features
Modulator Unit
HSA (Hill Start Assist) Features

VSA System Component Location Index



*: The illustration shows LHD model, RHD model is similar.

RIGHT-FRONT WHEEL SPEED SENSOR
Replacement,

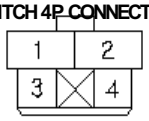
WHEEL BEARING (MAGNETIC ENCODER)
Replacement,
in the Shop Manual, P/N 62TF000B

LEFT-FRONT WHEEL SPEED SENSOR
Replacement,

WHEEL BEARING (MAGNETIC ENCODER)
Replacement,
in the Shop Manual, P/N 62TF000B

VSA System Circuit Diagram

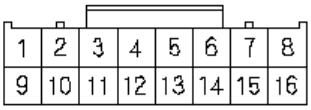
BRAKE PEDAL POSITION SWITCH 4P CONNECTOR



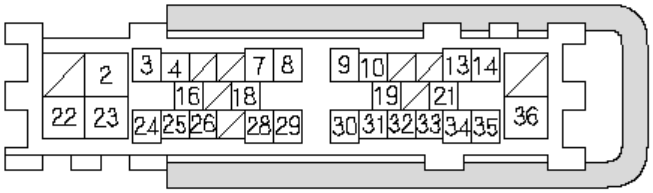
BRAKE FLUID LEVEL SWITCH 2P CONNECTOR

PARKING BRAKE SWITCH 1P CONNECTOR

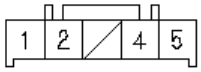
UNDER-DASH FUSE/RELAY BOX CONNECTOR Q



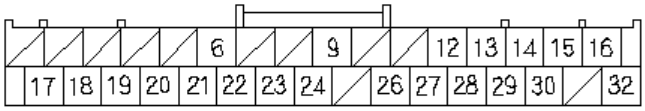
UNDER-DASH FUSE/RELAY BOX CONNECTOR A



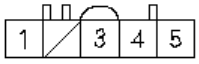
VSA OFF SWITCH 5P CONNECTOR



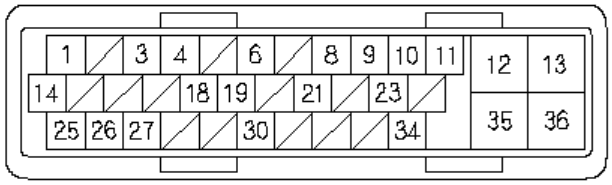
GAUGE CONTROL MODULE 32P CONNECTOR



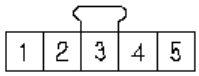
YAW RATE-LATERAL/ LONGITUDINAL ACCELERATION SENSOR 5P CONNECTOR



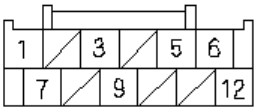
VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



STEERING ANGLE SENSOR 5P CONNECTOR

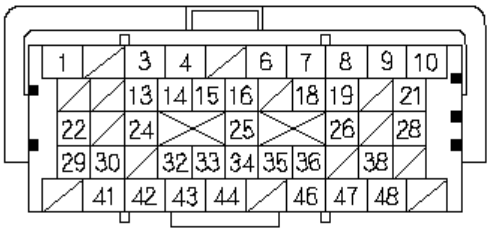


GEAR SHIFT CONTROL MODULE

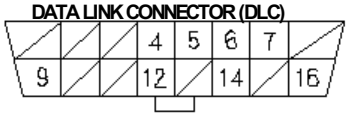


Wire side of female terminals

ECM/PCM CONNECTOR A (49P)



DATA LINK CONNECTOR (DLC)



WHEEL SPEED SENSOR 2P CONNECTOR

FRONT

Wire side of female terminals

REAR

Terminal side of male terminals

Terminal side of female terminals

VSA activation indicator does not go off, and no DTCs are stored

1. Turn the ignition switch to ON (II).
2. Check the VSA activation indicator for several seconds when the ignition switch is turned to ON (II).

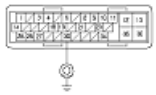
   Does the indicator come on then go off?
   YES - The system is OK at this time.■
   NO - Go to Step 3 .
3. Turn the ignition switch to LOCK (0).
4. Disconnect the VSA OFF switch 5P connector.
5. Check the VSA OFF switch.

   Is the VSA OFF switch OK?
   YES - Go to Step 6 .
   NO - Replace the VSA OFF switch. ■
6. Disconnect the gauge control module 32P connector.
7. Check for continuity between VSA OFF switch 5P connector terminal No. 2 and body ground.

   Is there continuity?
   YES - Repair short to body ground between the gauge control module and the VSA OFF switch.■
   NO - Substitute a known-good gauge control module, then go to Step 1 and recheck. If it is OK, replace the original gauge control module. ■

VSA System Symptom Troubleshooting - ABS indicator, brake system indicator, and VSA indicator do not go off at the same time

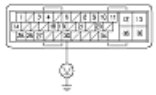
ABS indicator, brake system indicator, and VSA indicator do not go off at the same time



1. Turn the ignition switch to LOCK (0).
2. Check the No. 11 (7.5 A) fuse in the driver's under-dash fuse/relay box.

   Is the fuse blown?
   YES - Go to Step 3 .
   NO - Reinstall the checked fuse, then go to Step 6 .
3. Disconnect the VSA modulator-control unit 36P connector.
4. Disconnect the yaw rate-lateral/longitudinal acceleration sensor 5P connector.
5. Check for continuity between VSA modulator-control unit 36P connector terminal No. 30 and body ground.

   Is there continuity?
   YES - Repair short to body ground in the wire between the No. 11 (7.5 A) fuse in the driver's under-dash fuse/relay box and the VSA modulator-control unit or the yaw rate-lateral/longitudinal acceleration sensor.■
   NO - Install the new No. 11 (7.5 A) fuse in the driver's under-dash fuse/relay box, then go to Step 7 .
6. Disconnect the VSA modulator-control unit 36P connector.
7. Turn the ignition switch to ON (II).



8. Measure the voltage between VSA modulator-control unit 36P connector terminal No. 30 and body ground.

   Is there battery voltage?
   YES - Go to Step 9 .
   NO - Repair open in the wire between the No. 11 (7.5 A) fuse in the driver's under-dash fuse/relay box and the VSA modulator-control unit.■
9. Turn the ignition switch to LOCK (0).

---

10. Check for continuity between VSA modulator-control unit 36P connector terminal No. 35 and body ground.

    Is there continuity?
    YES - Go to Step 11 .
    NO - Repair open in the wire between the VSA modulator-control unit and body ground (G402 *1 , G203 *2).■
    *1: LHD model
    *2: RHD model

---

11. Measure the voltage between VSA modulator-control unit 36P connector terminal No. 12 and body ground.

    Is there battery voltage?
    YES - Go to Step 12 .
    NO - Repair open in the wire between the No. 37 (30 A) fuse in the under-hood fuse/relay box and the VSA modulator-control unit.■
12. Disconnect the gauge control module 32P connector.

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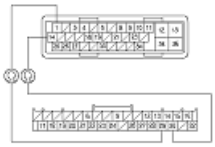
13. Check for continuity between the VSA modulator-control unit 36P connector terminal and gauge control module 32P connector terminal (see table).



Sign	VSA Modulator-control Unit 36P Connector Terminal	Gauge Control Module 32P Connector Terminal
CAN-L	No. 1	No. 29
CAN-H	No. 14	No. 30

Is there continuity?

YES - Go to Step 14 .

NO - Repair open in the wire between the gauge control module and the VSA modulator-control unit.■

14. Reconnect all connectors.

15. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.

16. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.

17. Check the ABS indicator, brake system indicator and the VSA indicator for several seconds when the ignition switch is turned to ON (II).

Do the indicators come on then go off?

YES - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. ■

NO - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .

HDS does not communicate with the VSA modulator-control unit or the vehicle

Diagnostic procedure

1. Troubleshoot the DLC circuit.

VSA activation indicator does not come on at start-up (bulb check)

Diagnostic procedure

1. Do the gauge control module troubleshooting.
2. Update the VSA modulator-control unit if it does not have the latest software, or substitute a known-good VSA modulator-control unit, then retest. If it is OK, the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit.

VSA activation indicator does not go off, and no DTCs are stored

Diagnostic procedure

1. Symptom troubleshooting.
2. Update the VSA modulator-control unit if it does not have the latest software, or substitute a known-good VSA modulator-control unit, then retest. If it is OK, the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit.

ABS indicator, brake system indicator, and VSA indicator do not come on at the same time

Diagnostic procedure

1. Do the gauge control module troubleshooting.
2. Update the VSA modulator-control unit if it does not have the latest software, or substitute a known-good VSA modulator-control unit, then retest. If it is OK, the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit.

ABS indicator, brake system indicator, and VSA indicator do not go off at the same time

Diagnostic procedure

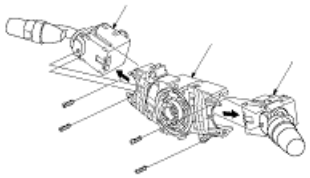
1. Check for F-CAN DTCs, and troubleshoot and repair those first.
2. Symptom troubleshooting.
3. Do the gauge control module troubleshooting.

VSA System Symptom Troubleshooting Index

When the vehicle has one of these symptoms, check for a diagnostic trouble code (DTC) with the HDS. If there is no DTC, do the diagnostic procedure for the symptom, in the sequence listed, until you find the cause.

Symptom	Diagnostic procedure
HDS does not communicate with the VSA modulator-control unit or the vehicle	Troubleshoot the DLC circuit.
VSA activation indicator does not come on at start-up (bulb check)	1. Do the gauge control module troubleshooting. 2. Update the VSA modulator-control unit if it does not have the latest software, or substitute a known-good VSA modulator-control unit, then retest. If it is OK, the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit.
VSA activation indicator does not go off, and no DTCs are stored	1. Symptom troubleshooting. 2. Update the VSA modulator-control unit if it does not have the latest software, or substitute a known-good VSA modulator-control unit, then retest. If it is OK, the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit.
ABS indicator, brake system indicator, and VSA indicator do not come on at the same time	1. Do the gauge control module troubleshooting. 2. Update the VSA modulator-control unit if it does not have the latest software, or substitute a known-good VSA modulator-control unit, then retest. If it is OK, the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit.
ABS indicator, brake system indicator, and VSA indicator do not go off at the same time	1. Check for F-CAN DTCs, and troubleshoot and repair those first. 2. Symptom troubleshooting. 3. Do the gauge control module troubleshooting.

Steering Angle Sensor Replacement



NOTE:

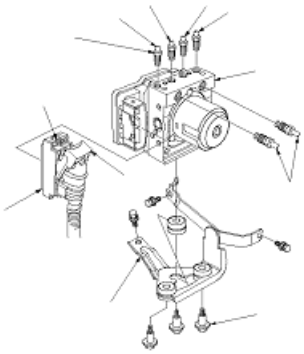
- Do not damage or drop the combination switch as the steering angle sensor is sensitive to shock and vibration.
- The illustration shows LHD model, RHD model is symmetrical.

1. Remove the steering wheel.
2. Remove the steering column covers and the cable reel.
3. Remove the combination switch assembly.
4. Remove the combination light switch (A) and the wiper/washer switch (B) from the combination switch body assembly (C).
5. Install the combination switch body assembly in the reverse order of removal.
   NOTE:
   - Do not remove the steering angle sensor from the combination switch body.
   - When installing the cable reel, set the turn signal canceling sleeve position.
   - Note that the tightening order is specified for combination switch mounting screws.

VSA Modulator-control Unit Removal and Installation

NOTE:

- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
- Be careful not to damage or deform the brake lines during removal and installation.
- Plug the end of a hose and joints to prevent spilling brake fluid.



Removal

1. Turn the ignition switch to LOCK (0).
2. Disconnect the VSA modulator-control unit 36P connector (A) by pushing the lock (B) and pulling down the lever (C); the connector disconnects itself.
3. Disconnect the six brake lines from the VSA modulator-control unit.
   NOTE: Brake lines are connected to the master cylinder (D) and to the left-front (E), the right-front (F), the left-rear (G), and the right-rear (H) brake systems.
4. Remove the VSA modulator-control unit (I) with the bracket (J) from the body.
5. Remove the VSA modulator-control unit from the bracket.

Installation

1. Install the VSA modulator-control unit onto the bracket.
2. Install the bracket with the VSA modulator-control unit to the body.
3. Reconnect the six brake lines, then tighten the flare nuts to the specified torque.
4. Align the connecting surface of the VSA modulator-control unit 36P connector to the VSA modulator-control unit.
5. Pull up the lever of the VSA modulator-control unit 36P connector, then confirm the connector is fully seated.
6. Bleed the brake system.
7. Do the VSA sensor neutral position memorization procedure.
8. Start the engine, and check that the ABS and the VSA indicators go off.
9. Test-drive the vehicle, and make sure that the ABS and the VSA indicators do not come on.
   NOTE: If the brake pedal is spongy, there may be air trapped in the modulator which could then be induced into the normal brake system during modulation. Bleed the brake system again.

VSA Modulator-Control Unit Update

Special Tools Required

- Honda diagnostic system (HDS)
- Honda interface module (HIM)
- HDS pocket tester

NOTE:

- Use this procedure when you need to update the VSA modulator-control unit during troubleshooting procedures.
- Make sure the HDS/HIM has the latest software version.
- Before you update the VSA modulator-control unit, make sure the battery in the vehicle is fully charged, and connect a jumper battery (not a battery charger) to maintain system voltage.
- Never turn the ignition switch to LOCK (0) during the update. If there is a problem with the update, leave the ignition switch to ON (II).
- To prevent VSA modulator-control unit damage, do not operate anything electrical (headlights, audio system, brakes, A/C, power windows, door locks, etc.) during the update.
- To ensure the latest program is installed, do a VSA modulator-control unit update whenever the VSA modulator-control unit is substituted or replaced.
- You cannot update a VSA modulator-control unit with a program it already has. It will only accept a new program.
- If you need to diagnose the Honda interface module (HIM) because the HIM's red (#3) light came on or was flashed during the update, leave the ignition switch in ON (II) when you disconnect the HIM from the data link connector (DLC). This will prevent VSA modulator-control unit damage.
- DTCs stored in memory are cleared when the VSA modulator-control unit is updated.

1. Turn the ignition switch to ON (II), but do not start the engine.
2. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
3. Make sure the HDS communicates with the vehicle and the VSA modulator-control unit. If it doesn't, troubleshooting the DLC circuit.
4. Select the update mode, and follow the screen prompts to update the VSA modulator-control unit.
5. If the software in the VSA modulator-control unit is the latest, disconnect the HDS/HIM from the DLC. If the software in the VSA modulator-control unit is not the latest, follow the instructions on the screen.
6. Do the VSA sensor neutral position memorization procedure.

VSA Sensor Neutral Position Memorization

NOTE: Make sure to connect and disconnect the HDS to the 16P data link connector (DLC) with the ignition switch in LOCK (0).

1. Start the engine, let it idle.
2. Slowly drive the vehicle straight without operating the steering wheel for 3 m (10 ft) or more, then park the vehicle on a flat surface while holding the steering wheel in the straight ahead position.
3. With the ignition switch in LOCK (0), connect the HDS to the 16P data link connector (DLC) (A) under the driver's side of the dashboard.
4. Turn the ignition switch to ON (II).
5. Do the VSA sensor neutral position memorization with the HDS.
   NOTE:
   - Do not press the brake pedal during this procedure.
   - Make sure the HDS communicates with the vehicle and the VSA modulator-control unit. If it doesn't troubleshoot the DLC circuit.
6. Turn the ignition switch to LOCK (0).

VSA OFF Switch Test

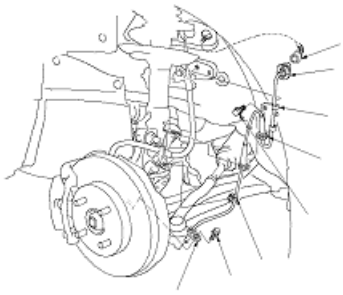
1. Turn the ignition switch to LOCK (0).
2. Pull the fuse lid panel (A).
3. Push out the VSA OFF switch (A) from the back of the fuse lid panel.
4. Disconnect the VSA OFF switch 5P connector (B).

5. Check for continuity between the VSA OFF switch 5P connector terminals No. 1 and No. 2. There should be continuity when the switch is pressed, and no continuity when the switch is released.

6. Check for continuity between VSA OFF switch 5P connector terminals No. 4 and No. 5. There should be continuity at all times.
7. Install the VSA OFF switch in the reverse order of removal.

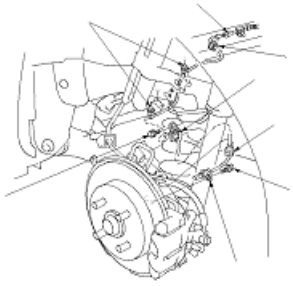
Wheel Speed Sensor Replacement

Front



1. Turn the ignition switch to LOCK (0).
2. Remove the grommet (A), then disconnect the wheel speed sensor connector (B).
3. Remove the bracket (C), the clip (D), and the stay (E).
4. Remove the bolt and the wheel speed sensor (F).
5. Install the wheel speed sensor in the reverse order of removal, and note these items:
   - Install the sensor carefully to avoid twisting the wires.
   - If the wheel speed sensor comes in contact with the wheel bearing, it is faulty.
   - Make sure the grommet is installed properly.
6. Start the engine, and make sure the ABS and the VSA indicator go off.
7. Test-drive the vehicle, and make sure the ABS and the VSA indicator do not come on.

Rear

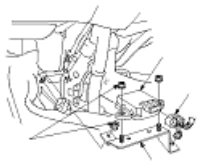


1. Turn the ignition switch to LOCK (0).
2. Pull back the carpet under the rear seat, then disconnect the wheel speed sensor connector (A).
3. Remove the grommet (B), the bracket (C), the clips (D), and the stay (E).
4. Remove the bolt and the wheel speed sensor (F).
5. Install the wheel speed sensor in the reverse order of removal, and note these items:
   - Install the sensor carefully to avoid twisting the wires.
   - If the wheel speed sensor comes in contact with the hub bearing unit, it is faulty.
   - Make sure the grommet is installed properly.
6. Start the engine, and make sure the ABS and the VSA indicator go off.
7. Test-drive the vehicle, and make sure the ABS and the VSA indicator do not come on.

Yaw Rate-Lateral/Longitudinal Acceleration Sensor Replacement

NOTE:

- Do not damage or drop the sensor as it is sensitive.
- Do not use power tools.



1. Turn the ignition switch to LOCK (0).
2. Remove the center console.
3. Remove the yaw rate-lateral/longitudinal acceleration sensor (A) mounting nuts.
4. Disconnect the yaw rate-lateral/longitudinal acceleration sensor 4P connector (B).
5. Check for deformation in the bracket (C). If necessary replace it.
6. Install the yaw rate-lateral/longitudinal acceleration sensor in the reverse order of removal.
7. Do the VSA sensor neutral position memorization.

Driveshaft Disassembly

Special Tools Required

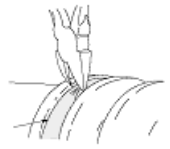
Threaded adapter, 22 x 1.5 mm
07XAC-0010100

Sliding hammer set
07936-5790002

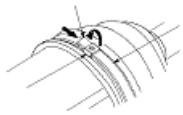
Boot band pincers
, commercially available

Puller
, commercially available

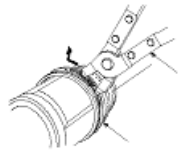
Welded type



Double loop type



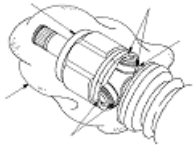
Low profile type



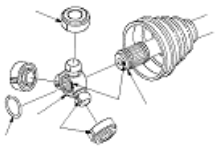
Inboard Joint Side

1. Remove the boot bands. Be careful not to damage the boot.
   - If the boot band is welded type (A), cut the boot band.
   - If the boot band is a double loop type (B), lift up the band end (C), and push it into the clip (D).
   - If the boot band is a low profile type (E), pinch the boot band using the commercially available boot band pincers (F).

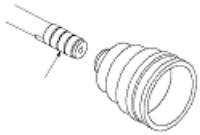
2. Make marks (A) on each roller (B) and the inboard joint (C) to identify the locations of rollers to the grooves in the inboard joint. Then remove the inboard joint on a clean shop towel (D). Be careful not to drop the rollers when separating them from the inboard joint.
   NOTE: Do not engrave or scribe any marks on the rolling surface.



3. Make marks (A) on the rollers (B) and spider (C) to identify the locations of the rollers on the spider, then remove the rollers.
   NOTE: Do not engrave or scribe any marks on the rolling surface.
4. Remove the circlip (D).
5. Make marks (E) on the spider and driveshaft (F) to identify the position of the spider on the shaft.
6. Remove the spider.
   NOTE: If necessary, use a commercially available puller.

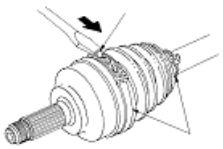


7. Wrap the splines on the driveshaft with vinyl tape (A) to prevent damaging the boot.
8. Remove the inboard boot. Be careful not to damage the boot.
9. Remove the vinyl tape.

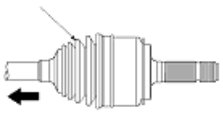


Outboard Joint Side

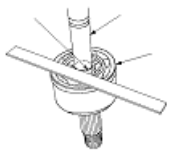
1. Remove the boot bands (A). Lift up the three tabs (B) with a screwdriver. Be careful not to damage the boot.



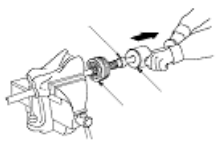
2. Slide the outboard boot (A) partially to the inboard joint side. Be careful not to damage the boot.
3. Wipe off the grease to expose the driveshaft and the outboard joint inner race.



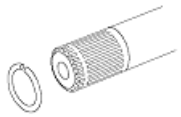
4. Make a mark (A) on the driveshaft (B) at the same level as the outboard joint rim (C).
5. Securely clamp the driveshaft in a bench vise with a shop towel.



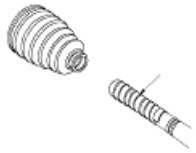
6. Remove the outboard joint (A) using the 22 x 1.5 mm threaded adapter (B) and the sliding hammer set (C).
7. Remove the driveshaft from the bench vise.



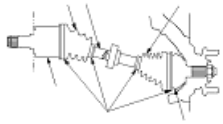
8. Remove the stop ring from the driveshaft.



9. Wrap the splines on the driveshaft with vinyl tape (A) to prevent damaging the boot.
10. Remove the outboard boot. Be careful not to damage the boot.
11. Remove the vinyl tape.



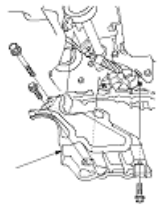
Driveshaft Inspection



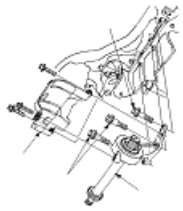
1. Check the inboard boot (A) and the outboard boot (B) on the driveshaft (C) for cracks, damage, leaking grease, and loose boot bands (D). If any damage is found, replace the boot and boot bands.
2. Check the driveshaft for cracks and damage. If any damage is found, replace the driveshaft.
3. Check the inboard joint (E) and the outboard joint (F) for cracks and damage. If any damage is found, replace the inboard joint or the outboard joint as an assembly.
4. Hold the inboard joint and turn the front wheel by hand, then make sure the joint is not excessively loose. If necessary, replace the inboard joint or the outboard joint as an assembly.

Intermediate Shaft Removal

1. Drain the transmission fluid. Reinstall the drain using a new sealing washer.
2. Remove the right driveshaft.
3. Remove the control cable cover (A).

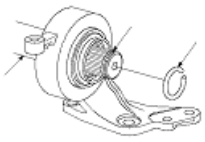


4. Remove the heat cover (A).
5. Remove the two dowel bolts (B) and the flange bolt (C).
6. Remove the intermediate shaft (D) from the differential. Hold the intermediate shaft horizontal until it is clear of the differential to prevent damaging the oil seal.

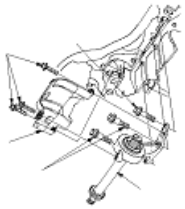


Intermediate Shaft Installation

1. Clean the areas where the intermediate shaft contacts the differential thoroughly with solvent or brake cleaner, and dry with compressed air.
   NOTE: Do not wash the rubber parts with solvent.
2. Install a new set ring (A) onto the set ring groove (B) of the intermediate shaft (C).



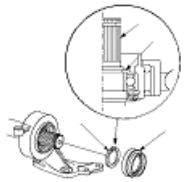
3. Insert the intermediate shaft (A) into the differential correctly.
   NOTE: Insert the intermediate shaft carefully to prevent damaging the oil seal.
4. Install the flange bolt (B) and the two dowel bolts (C).
5. Install the heat cover (D).



6. Install the control cable cover (A).
7. Install the right driveshaft.
8. Refill the transmission with the recommended transmission fluid.
9. Check the wheel alignment, and adjust it if necessary.
10. Test-drive the vehicle.

Intermediate Shaft Disassembly

Special Tools Required

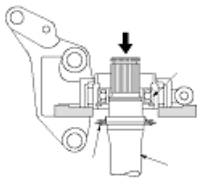


Half shaft base
07NAF-SR30101

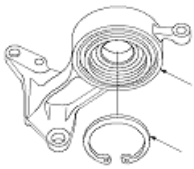
Oil seal driver, 44.5 mm
07947-SB00100

1. Remove the outer seal (A), and the external snap ring (B) from the intermediate shaft (C).

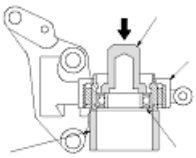
2. Press the intermediate shaft (A) out of the intermediate shaft bearing (B) using a press. Be careful not to damage the bearing support ring (C) on the intermediate shaft during disassembly.



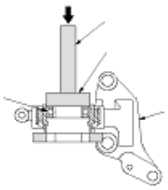
3. Remove the internal snap ring (A) from the bearing support (B).



4. Press intermediate shaft bearing (A) out of the bearing support (B) using the 44.5 mm oil seal driver (C), the half shaft base (D) and a press.



Intermediate Shaft Reassembly



Exploded View

Special Tools Required

Oil seal driver, 65 mm
07JAD-PL90100

Bearing driver attachment, 52 x 55 mm
07746-0010400

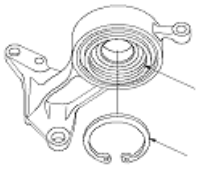
Inner bearing driver attachment, 35 mm
07746-0030400

Driver handle, 15 x 135L
07749-0010000

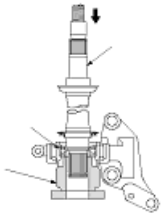
NOTE: Refer to the Exploded View, as needed, during this procedure.

1. Clean the disassembled parts with solvent, and dry them with compressed air.
   NOTE: Do not wash the rubber parts with solvent.
2. Press a new intermediate shaft bearing (A) into the bearing support (B) using the 52 x 55 mm bearing driver attachment (C), the 15 x 135L driver handle (D), and a press.

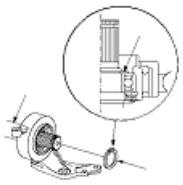
3. Install the internal snap ring (A) into the groove (B) of the bearing support.



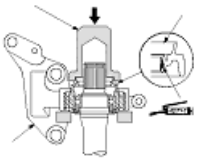
4. Press the intermediate shaft (A) into the new shaft bearing (B) using the 35 mm inner bearing driver attachment (C) and a press.



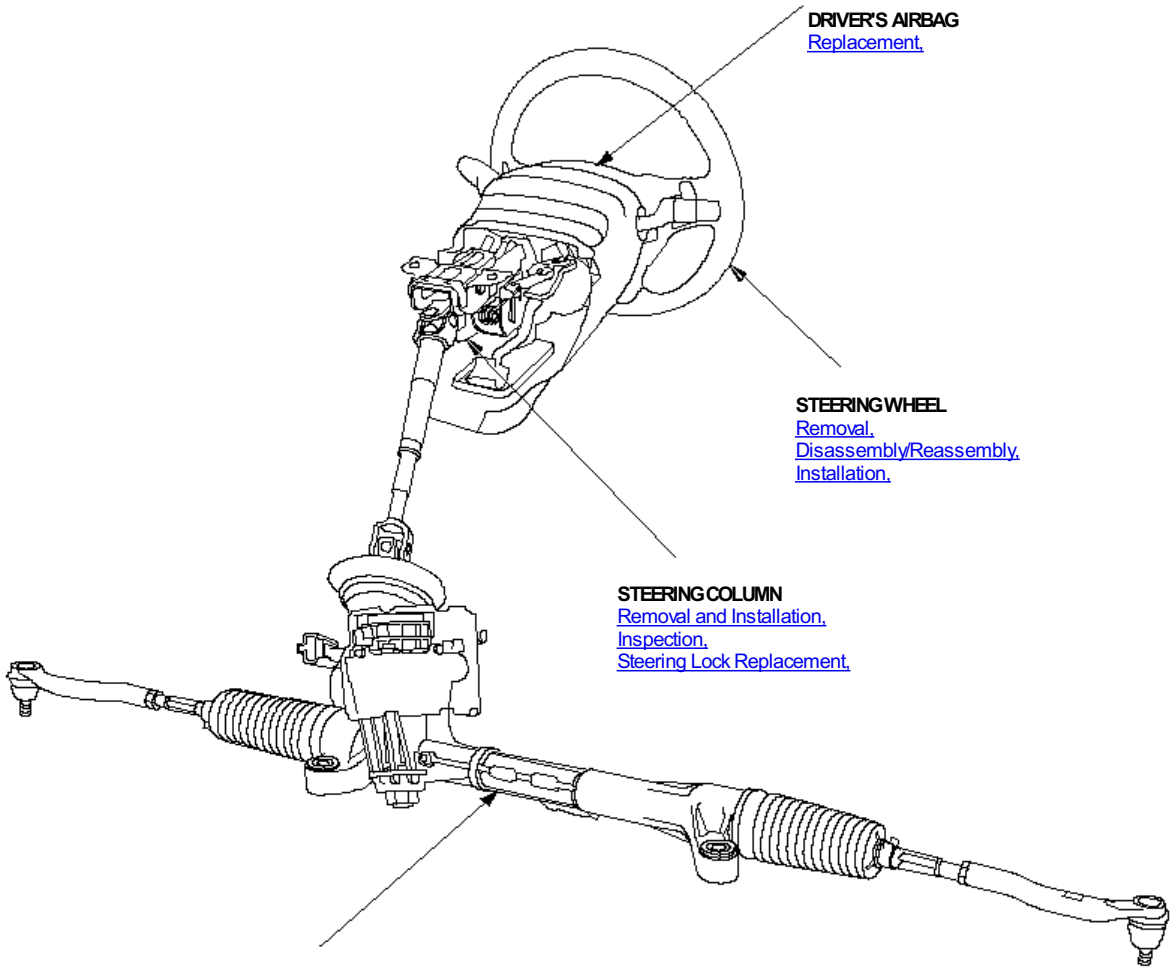
5. Install the external snap ring (A) in the groove of the intermediate shaft (B).



6. Install a new outer seal (A) into the bearing support (B) using the 65 mm oil seal driver (C), and a press. Press the seal until it is 0±0.2 mm (0±0.08 in.) below the surface of the bearing support end.



Steering Component Location Index

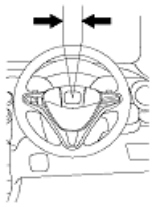


The illustration shows RHD model, LHD model is similar.

Steering Wheel Rotational Play Check

1. Turn the front wheels to the straight ahead position.
2. Measure how far you can turn the steering wheel left and right without moving the front wheels.
   - If the play is within the limit, the steering gearbox and the linkage are OK.
   - If the play exceeds the limit, adjust the rack guide. If the play is still excessive after rack guide adjustment, inspect the steering linkage and steering gearbox.

   Rotational play: **0–10 mm (0–0.39 in.)**



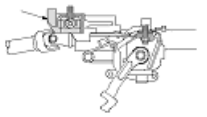
Power Steering Assist Check

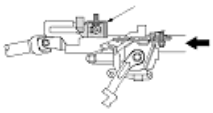
NOTE: This test should be done with original equipment tyres and wheels at the correct tyre pressure.

1. Start the engine, and let it idle.
2. Attach a commercially available spring scale to the steering wheel. With the engine idling and the vehicle on a clean, dry floor, pull the scale as shown, and read it as soon as the tyres begin to turn.
3. If the scale reads no more than 29 N (3.0 kgf, 6.6 lbf), the power assist is OK. If it reads more, check these items:
   - Steering linkage
   - Rack guide adjustment
   - EPS system

Steering Column Removal and Installation

SRS components are located in this area. Review the SRS component locations, and the precautions and procedures before doing repairs or service.



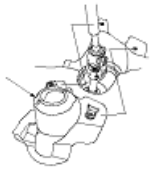


Removal

NOTICE

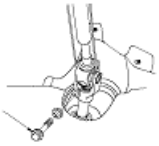
Be careful not to pull the bracket (A) on the front side of steering column out of its normal position.
If the bracket accidentally comes out, replace the steering column as an assembly.

1. Do the battery terminal disconnection procedure.
2. Release the lock lever, and adjust the steering column to the full tilt up position, and to the full telescopic in position.
3. Tighten the lock lever.
4. Remove the driver's airbag and the steering wheel.
5. Remove the driver's dashboard undercover.
6. Remove the steering joint cover (A).

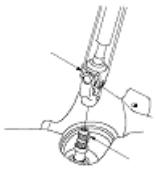


7. Hold the lower slide shaft (A) on the column with a piece of wire (B) between the joint yoke (C) of the lower slide shaft and joint yoke (D) of the upper shaft to prevent the lower slide shaft from pulling out.
8. Release the lock lever, and adjust the steering column to the full telescopic out position, then tighten the lock lever.
   NOTE: Do not release lock lever when removing the steering column from the frame.

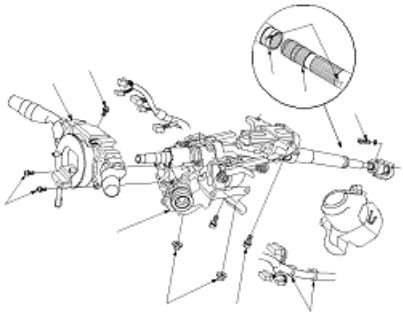
9. Remove the steering joint bolt (A).



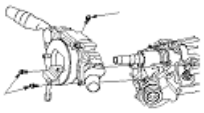
10. Disconnect the steering joint (A) by moving the steering joint toward the column.
    NOTE:
    - If the center guide (B) is in place and has not moved, leave it in place.
    - If the center guide has moved or been removed, discard it.
11. Remove the column covers.



12. Disconnect the connectors from the ignition switch, and release the wire harness clips (A) from the steering column.
13. Disconnect the wire harness connectors from the combination switch assembly/cable reel (B).
14. Remove the combination switch assembly from the steering column shaft by removing the three screws (C).
15. Remove the steering column (D) by removing the attaching nuts and bolts. If the lower slide shaft (E) is removed, slip it into the upper shaft (F) by aligning the paint or stamped marks (G).

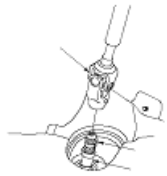


Installation



1. Install the steering column in the reverse order of removal, and note these items:
   - Tighten the steering column mounting nuts and bolts to the specified torque in the following order; bolts, then nuts.
   - Make sure the wires are not caught or pinched by any parts.
   - Take care not to let the sliding capsules fall out of position during column installation.
   - Tighten the three screws (A) to the sequence shown.
2. Center the steering rack within its stroke.
3. With the rack in the straight ahead driving position, then cut the wire.

4. Slip the lower end of the steering joint (A) onto the pinion shaft (B).
   NOTE:
   - Pinion shaft with center guide; install the steering joint by aligning the center guide (C).
   - Pinion shaft without center guide; position the steering column by aligning the gap (D) with the angle.
5. Release the lock lever, and adjust the steering column to the full tilt down position, and to the full telescopic out position, then tighten the lock lever.



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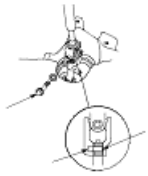
6. Align the bolt hole (A) on the steering joint with the groove (B) around the pinion shaft, then loosely install the lower steering joint bolt (C). Be sure that the joint bolt is securely in the groove in the pinion shaft.
7. Pull on the steering joint to make sure that the steering joint is fully seated, then tighten the lower joint bolt to the specified torque.



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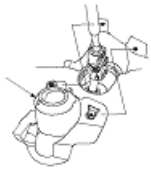
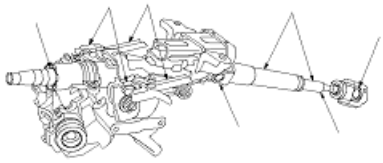
8. Install the steering joint cover (A).
9. Install the steering wheel and the driver's airbag.
10. Do the battery terminal reconnection procedure, and do these tasks:
    - Turn the ignition switch to ON (II) and check that the SRS indicator should come on for about 6 seconds and then go off.
    - Make sure the horn and turn signal switches work properly.
    - Make sure the steering wheel switches work properly.
11. After installation, do these checks:
    - Check the steering wheel spoke angle. If the steering spoke angles to the right and left are not equal (steering wheel and rack are not centered), correct the engagement of the joint/pinion shaft splines.
    - Set the steering column to the center tilt position, and to the center telescopic position, then do the front toe inspection.



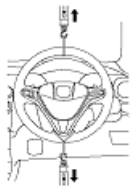
Steering Column Inspection

Inspection



1. Remove the steering column.
2. Do these checks:
   - Check the steering column ball bearing (A) and the steering joint bearings (B) for play and proper movement. If any bearing is noisy or has excessive play, replace the steering column as an assembly.
   - Check the absorbing plates (C) and sliding capsules (D) for distortion or breakage. If there is distortion or breakage, replace the steering column as an assembly.
   - Check the tilt mechanism and telescopic mechanism for movement and damage.
   - Check the lower slide shaft (E) for smooth movement in and out. If the lower slide shaft is removed, slip it into the upper shaft by aligning the paint or stamped marks (F). If it sticks or binds, replace the steering column as an assembly.
3. Install the steering column.

Check of Tilting Force



1. Set the steering wheel in the straight driving position, and loosen the lock lever fully.
2. Attach the spring scale to the highest point of the steering wheel, and tilt the steering column to the lowest position.
3. Pull the spring scale straight up, and read the force required to move the steering column.
4. Attach the spring scale to the lowest point of the steering wheel.
5. Pull the spring scale straight down, and read the force required to move the steering column.
   Tilting force (upward/downward):
   Standard: 69 N (7.0 kgf, 15 lbf) max.
6. If the measurement is higher than the specified, replace the steering column as an assembly.

Check of Telescoping Force

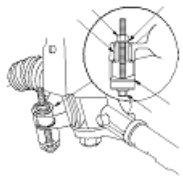
1. Set the steering wheel in the straight ahead driving position, and loosen the lock lever fully.
2. Attach the spring scale to the center point of the steering wheel.
3. Pull the spring scale, and read the force required to move the steering column during telescopic.
   Telescoping force:
   Standard: 140 N (14.3 kgf, 31.5 lbf) max.
4. If the measurement is higher than the specified, replace the steering column as an assembly.

Check of Lock Lever Force

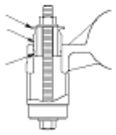
1. Move the lock lever (A) from the loosened position to the locked position three to five times, then release the lock lever. Adjust the steering column to the center tilt position and also to the full telescopic out position, and hold the steering wheel.
2. Using a push gauge, push the lock lever at 10 mm (0.39 in.) from its end, and measure the force required to move lock lever.
   Lock lever force:
   82 N (8.4 kgf, 18.2 lbf) min.
3. If the measurement is higher than the specified, replace the steering column as an assembly.

Steering Gearbox Mount Cushion Replacement

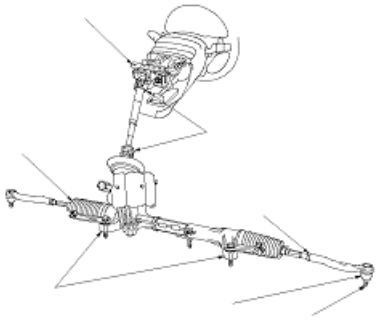
1. Remove the steering gearbox.
2. Position a 34 mm socket wrench (A) on the flange part of the gearbox housing with a washer (B), a 10 x 105 mm flange bolt (C) and a 10 mm nut (D) as shown.
3. Hold the flange bolt with a wrench, and tighten the nut with a wrench. Remove the gearbox mount cushion (E).



4. Apply a mild soap and water solution to the new gearbox mount cushion surface (A), then place it on the gearbox mounting cushion hole.
5. Position the 34 mm socket wrench on the flange part of the gearbox housing with a washer, a flange bolt, and a nut as shown.
6. Install the gearbox mount cushion by tightening the nut until the mount cushion edges (B) contact the gearbox flange surface.
7. Install the steering gearbox.



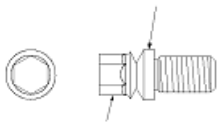
Steering Linkage and Gearbox Inspection



Steering Lock Replacement

1. Remove the steering column.
2. Center-punch each of the two shear bolts, and drill their heads off with a 5.0 mm (0.20 in.) drill bit. Be careful not to damage the switch body when removing the shear bolts.
3. Remove the shear bolts from the switch body.
4. Install the switch body without the key inserted.
5. Loosely tighten the new shear bolts.
6. Insert the ignition key, and check for proper operation of the steering wheel lock and that the ignition key turns freely.

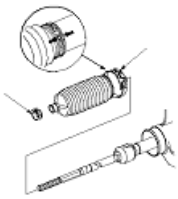
7. Tighten the shear bolts (A) until the hex heads (B) twist off.
8. Rewrite the new immobilizer control unit-receiver , and make sure the immobilizer system works properly.



Steering Rack End Removal and Installation

RHD model

LHD model



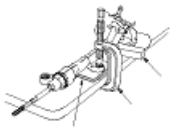
Removal

NOTE:

- Do not allow dust, dirt, or other foreign materials to enter the steering gearbox.
- The illustrations show RHD model, LHD model is similar for items not shown in this section.

1. Remove the boot bands (A) and discard them. Remove the tie-rod clips (B), and pull the boots away from the ends of the steering gearbox.

2. Hold the gearbox housing using a C-clamp (A) and wooden blocks (B) as shown. Do not clamp the cylinder part of the gearbox housing in the vise.

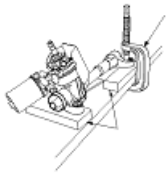


3. Unbend the lock washer (A).

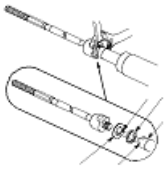
4. Hold the flat surface sections (A) of the steering rack (B) with one wrench, and unscrew both rack ends (C) with another wrench. Be careful not to damage the rack shaft surface with the wrench.
5. Remove the lock washer (D) and rubber stop (E).

Installation

1. Hold the gearbox housing using a C-clamp (A) and wooden blocks (B) as shown. Do not clamp the cylinder part of the gearbox housing in the vise.

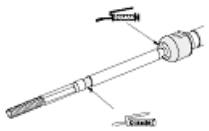


2. Install the new rubber stop (A) and a new lock washer (B). Align the lock washer tabs (C) with the slots (D) on the rack end (E) while holding the lock washer in place. Repeat this step for the other side of the rack.
3. Hold the flat surface sections of the steering rack with one wrench, and tighten both rack ends with another wrench. Be careful not to damage the rack surface with the wrench.

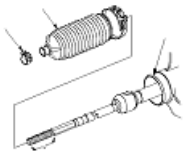


4. Bend the lock washer (A) back against the flat spots on the rack end joint housing.

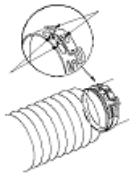
5. Apply multipurpose grease to the circumference of the rack end joint housing (A).
6. Apply a light coat of silicone grease to the boot grooves (B) on the rack end.



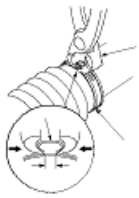
7. Clean off any grease or contamination from the boot installation grooves (A) around on the gearbox housing. Install the boots (B) on the rack ends with the tie-rod clips (C), and fit the boot end in the installation grooves in the housing properly.
8. After installing the boots, wipe the grease off the thread section (D) of the rack end.



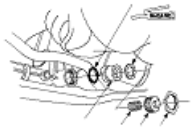
9. Install the new boot bands by aligning the tabs (A) with the holes (B) of the band.



10. Close the ear portion (A) of the boot band (B) with commercially available pincers, Oetiker 1098 or equivalent (C).
11. Slide the rack right and left to be certain that the boots are not deformed or twisted.
12. Install the tie-rod end to the rack end.
13. Install the steering gearbox.



Steering Rack Guide Removal/Installation



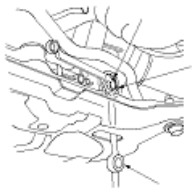
NOTE:

- During removal/installation, do not allow dust, dirt, or other foreign materials to enter the steering gearbox.
- The illustrations show RHD model, LHD model is similar for items not shown in this section.

1. Remove the steering gearbox.
2. Loosen the locknut (A), then remove the rack guide screw (B), the spring (C), disc washer (D), and rack guide (E).
3. Replace the O-ring (F) from the rack guide. Wipe the grease off the sliding surface of the rack guide.
4. Apply multipurpose grease to the new O-ring, then install it to the rack guide.
5. Apply multipurpose grease to the sliding surface and the circumference of the rack guide, and install it onto the gearbox housing. Wipe the grease off the threaded section of the gearbox housing.
6. Install the disc washer onto the gearbox housing.
7. Install the spring onto the gearbox housing.
8. Remove the old sealant from the rack guide screw and apply new sealant (Three Bond 1215 or Loctite 5699) to the middle of the threads. Loosely install the rack guide screw on the steering gearbox.
   NOTE: If more than 5 minutes has passed after applying the sealant, remove the old sealant and residue, and reapply new sealant.
9. Loosely install the locknut.
10. Adjust the rack guide screw. After adjusting, check that the rack moves smoothly by sliding the rack right and left.

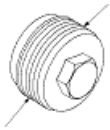
Steering Rack Guide Adjustment

Special Tools Required

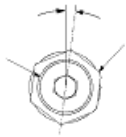


Locknut eye wrench, 40 mm
07MAA-SL00100

1. Set the wheels in the straight ahead position.
2. Loosen the rack guide screw locknut (A) with the locknut wrench, then remove the rack guide screw (B).



3. Remove the old sealant from the rack guide screw (A), and apply new sealant (Three Bond 1215 or Loctite 5699) to the middle of the threads (B). Loosely install the rack guide screw on the steering gearbox.
   NOTE: If more than 5 minutes has passed after applying the sealant, remove the old sealant and residue, and reapply new sealant.

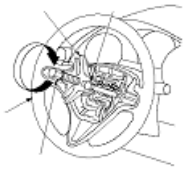


4. Tighten the rack guide screw (A) to 25 N·m (2.5 kgf·m, 18 lbf·ft), then loosen it.
5. Retighten the rack guide screw to 3.9 N·m (0.4 kgf·m, 4 lbf·ft), then back it off to the specified angle.
   Specified return angle: 10±3 °
6. Hold the rack guide screw stationary with a wrench, and tighten the locknut by hand until it's fully seated.
7. Install the locknut wrench on the locknut (B), and hold the rack guide screw stationary with a wrench. Tighten the locknut to the specified torque.
8. Check for unusual steering effort through the complete turning range.
9. Check the steering wheel rotation play and the power assist.

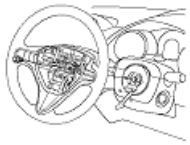
Steering Wheel Removal

SRS components are located in this area. Review the SRS component locations, and the precautions and procedures before doing repairs or service.

1. Do the battery terminal disconnection procedure.
2. Align the front wheels straight ahead, then remove the driver's airbag from the steering wheel.
3. Disconnect the cable reel subharness connector (A).
4. Loosen the steering wheel bolt (B).



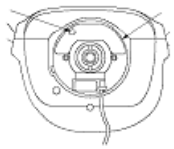
5. Install a commercially available steering wheel puller (A) on the steering wheel (B). Free the steering wheel from the steering column shaft by turning the pressure bolt (C) of the puller.
   Note these items when removing the steering wheel:
   - Do not tap on the steering wheel or the steering column shaft when removing the steering wheel.
   - If you thread the puller bolts (D) into the wheel hub more than five threads, the bolts will hit the cable reel and damage it. To prevent this, install a pair of jam nuts five threads up on each puller bolt.



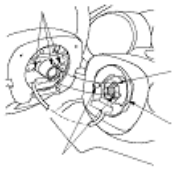
6. Remove the steering wheel puller, then remove the steering wheel bolt and steering wheel from the steering column.

Steering Wheel Installation

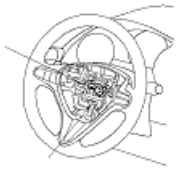
1. Before installing the steering wheel, make sure the front wheels are pointing straight ahead, then center the cable reel (A). Do this by first rotating the cable reel clockwise until it stops. Then rotate it counterclockwise about three full turns. The arrow mark (B) on the cable reel label should point straight up.



2. Position the two tabs (A) of the turn signal canceling sleeve (B) as shown. Install the steering wheel on to the steering column shaft, making sure the steering wheel hub (C) engages the pins (D) of the cable reel and tabs of the turn signal canceling sleeve. Do not tap on the steering wheel or steering column shaft when installing the steering wheel.



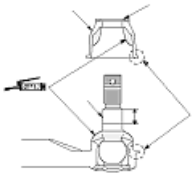
3. Install the steering wheel bolt (A), and tighten it to the specified torque. Connect the cable reel subharness connector (B). Make sure the wire harness is routed and fastened properly.



4. Install the driver's airbag.
5. Do the battery terminal reconnection procedure, and do these tasks:
   - Turn the ignition switch to ON (II) and check that the SRS indicator should come on for about 6 seconds and then go off.
   - Make sure the horn and turn signal switches work properly.
   - Make sure the steering wheel switches work properly.
6. After installation, do these checks:
   - Check the steering wheel spoke angle. If the steering spoke angles to the right and left are not equal (steering wheel is not centered), correct the engagement of the wheel/column shaft splines.
   - Set the steering column to the center tilt position, and to the center telescopic position, then do the front toe inspection.

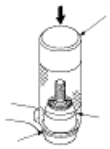
Steering Tie-rod Ball Joint Boot Replacement

Special Tools Required



Driver, 32.5 mm
070AD-SAA0100

1. Disconnect the tie-rod ball joint from the knuckle.
2. Remove the tie-rod end from the rack end.
3. Remove the tie-rod ball joint boot from the tie-rod end, and wipe the old grease off the ball pin.
4. Pack the lower area of the ball pin (A) with fresh multipurpose grease.
5. Pack the interior of the new tie-rod ball joint boot (B) and lip (C) with fresh multipurpose grease.
   Note these items when installing new grease:
   - Keep grease off the boot mounting area (D) and the tapered section (E) of the ball pin.
   - Do not allow dust, dirt, or other foreign materials to enter the boot.



6. Install the new tie-rod ball joint boot (A) using the inner bearing driver attachment. The boot must not have a gap at the boot installation sections (B). After installing the boot, check the ball pin tapered section for grease contamination, and wipe it if necessary.
7. Install the tie-rod end to the rack end.
8. Connect the tie-rod ball joint to the knuckle.
9. Check the wheel alignment, and adjust it if necessary.

EPS System Description

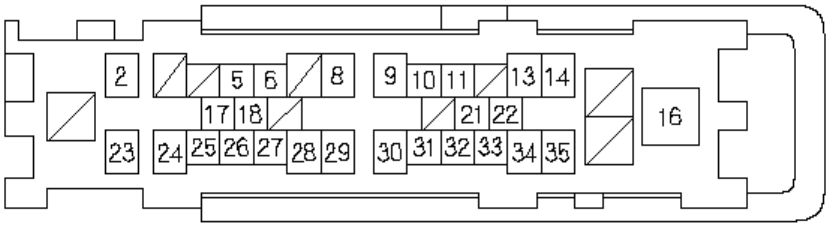
[EPS Control Unit Inputs and Outputs for Connector A (2P)]
[EPS Control Unit Inputs and Outputs for Connector B (2P)]
[EPS Control Unit Inputs and Outputs for Connector C (16P)]

EPS Circuit Diagram

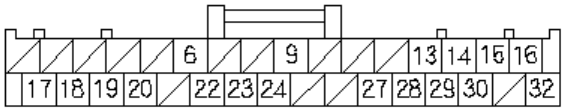
BATTERY

EPS CONTROL UNIT

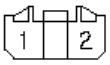
UNDER-DASH FUSE/RELAY BOX CONNECTOR B (36P)



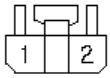
GAUGE CONTROL MODULE 32P CONNECTOR



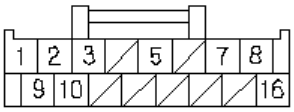
EPS CONTROL UNIT CONNECTOR A (2P)



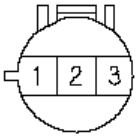
EPS CONTROL UNIT CONNECTOR B (2P)



EPS CONTROL UNIT CONNECTOR C (16P)



TORQUE SENSOR 3P CONNECTOR



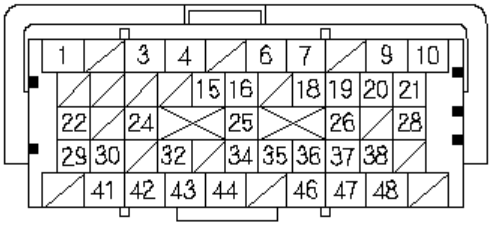
MOTOR 2P CONNECTOR

TEST TACHOMETER CONNECTOR

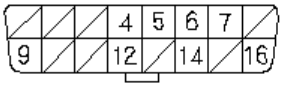
STEERING GEARBOX 1P CONNECTOR (RHD model)

Wire side of female tarminals

ECM/PCM CONNECTOR A (49P)

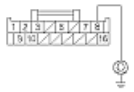


DATA LINK CONNECTOR (DLC)



Terminal side of female tarminals

EPS indicator does not go off, and no DTCs are stored



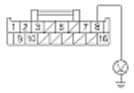
1. Turn the ignition switch to ON (II).
2. Check for DTCs with the HDS.

   Are any DTCs indicated?
   YES - Troubleshoot the indicated DTC.■
   NO - Go to Step 3 .
3. Turn the ignition switch to LOCK (0).
4. Check the No. 11 (7.5 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?
   YES - Reinstall the No. 11 (7.5 A) fuse, then go to Step 13 .
   NO - Go to Step 5 .
5. Disconnect the EPS control unit connector C (16P).
6. Check for continuity between EPS control unit connector C (16P) terminal No. 8 and body ground.

   Is there continuity?
   YES - Repair short to body ground in the wire between the EPS control unit and No. 11 (7.5 A) fuse in the under-dash fuse/relay box.■
   NO - Install a new No. 11 (7.5 A) fuse in the under-dash fuse/relay box, then go to Step 7 .
7. Reconnect the EPS control unit connector C (16P).
8. Start the engine, and watch the EPS indicator.

   Does the EPS indicator go off?
   YES - Troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTC's troubleshooting.■
   NO - Replace the EPS control unit. ■
9. Disconnect the EPS control unit connector C (16P).
10. Turn the ignition switch to ON (II).



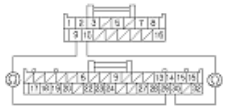
11. Measure the voltage between EPS control unit connector C (16P) terminal No. 8 and body ground.

    Is there battery voltage?
    YES - Go to Step 12 .
    NO - Repair open in the wire between the EPS control unit and No. 11 (7.5 A) fuse in the under-dash fuse/relay box.■
12. Turn the ignition switch to LOCK (0).
13. Disconnect the EPS control unit connector A (2P).

---

14. Check for continuity between EPS control unit connector A (2P) terminal No. 1 and body ground.

    Is there continuity?
    YES - Go to Step 15 .
    NO -
    - LHD model: Repair open in the wire between the EPS control unit and body ground (G301).■
    - RHD model: Repair open in the wire between the EPS control unit and body ground (G402).■
15. Turn the ignition switch to LOCK (0).
16. Disconnect the gauge control module 32P connector.



17. Check for continuity between EPS control unit connector C (16P) terminal and gauge control module 32P connector terminal individually.

Sign	EPS Control Unit Connector C (16P) Terminal	Gauge Control Module 32P Connector Terminal
CAN-L	9	29
CAN-H	10	30

    Is there continuity?
    YES - Check for loose terminals in the EPS control unit connectors and repair if necessary. If no poor connections are found, replace the EPS control unit. ■
    NO - Repair open in the wire between the EPS control unit and gauge control module.■

HDS does not communicate with the EPS control unit or the vehicle

Procedure(s)

1. Troubleshoot the DLC circuit

EPS indicator does not come on

Procedure(s)

1. Do the gauge control module troubleshooting

EPS indicator does not go off, and no DTCs are stored

Procedure(s)

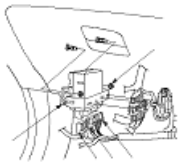
1. Symptom Troubleshooting
2. Do the gauge control module troubleshooting

EPS Symptom Troubleshooting Index

Symptom	Procedure(s)	Also check for
HDS does not communicate with the EPS control unit or the vehicle	Troubleshoot the DLC circuit	
EPS indicator does not come on	Do the gauge control module troubleshooting	
EPS indicator does not go off, and no DTCs are stored	1. Symptom Troubleshooting 2. Do the gauge control module troubleshooting	

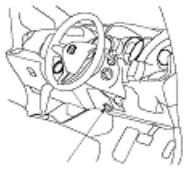
EPS Control Unit Removal/Installation

NOTE: The illustrations shows RHD model, LHD model is similar.



1. Do the battery terminal disconnection procedure.
2. Disconnect EPS control unit connector A (2P), connector B (2P), and connector C (16P).
3. Remove the connector clips from EPS control unit bracket (D).
4. Remove the nuts (E) from the EPS control unit bracket.
5. Remove the EPS control unit.
6. Install the EPS control unit in the reverse order of removal.
7. Do the battery terminal reconnection procedure.
8. Do the memorizing the torque sensor neutral position.
9. After installation, start the engine, allow it to idle, and turn the steering wheel from lock-to-lock several times. Check that the EPS indicator does not come on.

EPS Torque Sensor Neutral Position Memorization



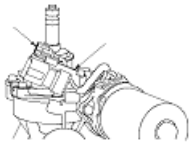
The torque sensor neutral position must be memorized whenever the steering gearbox, the EPS motor, or the EPS control unit is replaced. Note that the torque sensor neutral position is not affected when erasing the DTC.
NOTE: The torque sensor is temperature sensitive. When memorizing the torque sensor neutral position, the ambient temperature must be above 20 °C (68 °F).

1. With the ignition switch in LOCK (0), connect the HDS to the DLC (data link connector) (A) located under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the EPS control unit. If it doesn't, troubleshoot the DLC circuit.
4. From the EPS MENU, select MISCELLANEOUS TEST then TORQUE SENSOR LEARN and follow the screen prompts on the HDS.
   NOTE: See the HDS Help menu for specific instructions.
5. Turn the ignition switch to LOCK (0).

EPS Motor Removal and Installation

NOTE:

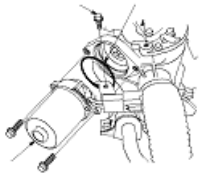
- Do not allow dust, dirt, or other foreign materials to enter the steering gearbox.
- The illustrations show RHD model, LHD model is similar for items not shown in this section.



Removal

1. Remove the steering gearbox.
2. LHD model: Remove the torque sensor 4P connector (A) from the connector bracket (B).

3. Remove the connector bracket mount bolt (A), then remove the EPS motor (B) and the O-ring (C).



Installation

1. Clean the mating surfaces of the EPS motor (A) and the steering gearbox.
2. Apply steering grease to the new O-ring (B), and carefully fit it on the EPS motor.
   NOTE: When you apply the silicone grease, make sure not to adhere to the terminal part of connectors and surrounding switches. Also do not touch the switches and the terminal part of connector by hands or glove that adheres the silicone grease.
3. Apply steering grease to the EPS motor shaft (C).
4. Install the EPS motor on the steering gearbox by engaging the EPS motor shaft and the worm shaft (D).
5. Turn the EPS motor two or three times to the right and left about 45 degrees. Make sure the EPS motor is evenly seated on the steering gearbox, and that the O-ring is not pinched between the mating surfaces.
6. Loosely install the EPS motor mounting bolts (E), then turn the steering wheel two or three times to the right and left about 45 degrees.
7. Tighten the EPS motor mounting bolts to the specified torque.
8. LHD model: Install the torque sensor 4P connector to the connector bracket.
9. Install the steering gearbox.

A/C Service Tips and Precautions

⚠WARNING

- Compressed air mixed with the R-134a forms a combustible vapor.
- The vapor can burn or explode causing serious injury.
- Never use compressed air to pressure test R-134a service equipment or vehicle air conditioning systems.

⚠CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

The air conditioning system uses HFC-134a (R-134a) refrigerant and polyalkyleneglycol (PAG) refrigerant oil, which are not compatible with CFC-12 (R-12) refrigerant and mineral oil. Do not use R-12 refrigerant or mineral oil in this system, and do not attempt to use R-12 servicing equipment; damage to the air conditioning system or your servicing equipment will result.
Separate the manifold gauge sets (pressure gauges, hoses, joints) for refrigerants R-12 and R-134a. Do not confuse them.
If accidental system discharge occurs, ventilate the work area before resuming service.
R-134a service equipment or vehicle air conditioning systems should not be pressure tested or leak tested with compressed air.
Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

- Always disconnect the negative cable from the battery whenever replacing air conditioning parts.
- Keep moisture and dirt out of the system. When disconnecting any lines, plug or cap the fittings immediately; don't remove the caps or plugs until just before you reconnect each line.
- Before connecting any hose or line, apply a few drops of refrigerant oil to the O-ring.
- When tightening or loosening a fitting, use a second wrench to support the matching fitting.
- When discharging the system, don't let refrigerant escape too fast; it will draw the A/C compressor oil out of the system.

A/C System Test

Performance Test

⚠WARNING

- Compressed air mixed with the R-134a forms a combustible vapor.
- The vapor can burn or explode causing serious injury.
- Never use compressed air to pressure test R-134a service equipment or vehicle air conditioning systems.

⚠CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

The performance test will help determine if the air conditioner system is operating within specifications.
Use only service equipment for refrigerant HFC-134a (R-134a).
If accidental system discharge occurs, ventilate the work area before resuming service.
R-134a service equipment or vehicle air conditioning systems should not be pressure tested or leak tested with compressed air.
Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

1. Connect an R-134a refrigerant recovery/recycling/charging station to the high-pressure service port and the low-pressure service port, following the equipment manufacturer's instructions.
2. Determine the relative humidity and air temperature.
3. Open the globe box. Release the glove box stop on each side, then let the glove box hang down.
4. Insert a thermometer (A) in the center vent.
5. Place another thermometer (B) near the blower unit's recirculation inlet duct.
6. Test conditions:
   - Avoid direct sunlight.
   - Open hood.
   - Open front doors.
   - Set the temperature control dial to Max Cool, the mode control switch to Vent, and the recirculation control knob to Recirculate.
   - Turn the A/C switch ON and the fan switch to Max.
   - Run the engine at 1,500 rpm (min $^{-1}$).
   - No driver or passengers in vehicle.
7. After running the air conditioning for 10 minutes under the above test conditions, read the delivery temperature from the thermometer in the center vent, the intake temperature near the blower unit, and the high and low system pressure from the A/C gauges.

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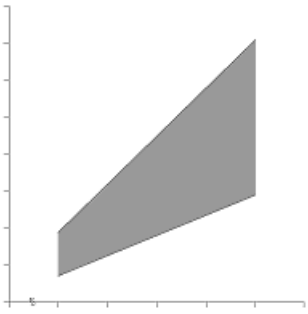
8. To complete the vent (delivery)/ambient air (intake) temperature chart:
   - Mark the vent (delivery) temperature on the vertical line.
   - Mark the ambient air (intake) temperature on the bottom line.
   - Draw a vertical line from the ambient air (intake) temperature mark.
   - Draw a horizontal line from the vent (delivery) temperature mark until it intersects the vertical line.

   NOTE: The low side and intake temperatures should intersect in the shaded area within about 10 % of the measured humidity level. Any measurements outside the line may indicate the need for further inspection.



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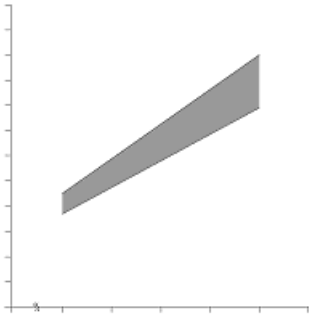
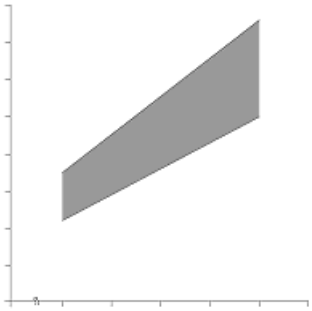
9. To complete the high side (discharge pressure)/ambient air (intake) temperature chart:
   - Mark the high side (discharge pressure) temperature on the vertical line.
   - Mark the ambient air (intake) temperature on the bottom line.
   - Draw a vertical line from the high side (discharge pressure) temperature mark.
   - Draw a horizontal line from the vent (delivery) temperature mark until it intersects the vertical line.

   NOTE: The low side and intake temperatures should intersect in the shaded area within about 10 % of the measured humidity level. Any measurements outside the line may indicate the need for further inspection.



10. To complete the low side (suction pressure)/ambient air (intake) temperature chart:
    - Mark the low side (suction pressure) temperature along the vertical line.
    - Mark the ambient air (intake) temperature along the bottom line.
    - Draw a vertical line from the ambient air (intake) temperature mark.
    - Draw a horizontal line from the vent (delivery) temperature mark until it intersects the vertical line.

    NOTE: The low side and intake temperatures should intersect in the shaded area within about 10 % of the measured humidity level. Any measurements outside the line may indicate the need for further inspection.



Pressure Test

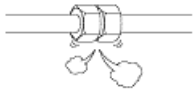
Test results	Related symptoms	Probable cause	Remedy
Driver's and passenger's side vent temperatures vary by more than 11 °C	Poor A/C performance. Discharge (high) and suction (low) pressures are low.	Low refrigerant charge	Recover, evacuate, and recharge with specified amount.
		Air mix door inoperable	Repair or replace.
Discharge (high) pressure abnormally high	After stopping A/C compressor, pressure drops about 196 kPa (2.0 kgf/cm ^{2}, 28 psi) quickly, and then falls gradually.	Air in system	Recover, evacuate, and recharge with specified amount.
	Reduced or no airflow through A/C condenser.	• Clogged condenser or radiator fins • A/C condenser or radiator fan not working properly	• Clean. • Check voltage and fan rpm. • Check fan direction.
	Line to A/C condenser is excessively hot.	Restricted flow of refrigerant in system	Restricted lines.
Discharge pressure abnormally low	High and low-pressures are balanced soon after stopping A/C compressor. Low side is higher than normal.	• Faulty A/C compressor discharge valve • Faulty A/C compressor seal	Replace the A/C compressor.

Test results	Related symptoms	Probable cause	Remedy
	Outlet of expansion valve is not frosted, low-pressure gauge indicates vacuum.	• Faulty expansion valve • Moisture in system	• Replace. • Recover, evacuate, and recharge with specified amount.
Suction (low) pressure abnormally low	Expansion valve is not frosted, and low-pressure line is not cold. Low-pressure gauge indicates vacuum.	• Frozen expansion valve (Moisture in system) • Faulty expansion valve	• Recover, evacuate, and recharge with specified amount. • Replace the expansion valve.
	Discharge temperature is low, and the airflow from vents is restricted.	Frozen evaporator	Run the fan with A/C compressor off, then check evaporator temperature sensor.
	Expansion valve is frosted.	Clogged expansion valve	Clean or replace.
	Receiver/dryer outlet is cool, and inlet is warm (should be warm during operation).	Clogged receiver/dryer	Replace.
Suction pressure abnormally high	Low-pressure hose and service port are cooler than the temperature around evaporator.	Expansion valve open too long	Repair or replace.
	Suction pressure is lowered when A/C condenser is cooled by water.	Excessive refrigerant in system	Recover, evacuate, and recharge with specified amount.
	High and low-pressures are equalized as soon as the A/C compressor is stopped, and both gauges fluctuate while running.	• Faulty gasket • Faulty high-pressure valve • Foreign particle stuck in high-pressure valve	Replace the A/C compressor.
Suction and discharge pressures abnormally high	Reduced airflow through A/C condenser.	• Clogged A/C condenser or radiator fins • A/C condenser or radiator fan not working properly	• Clean. • Check voltage and fan rpm. • Check fan direction.
Suction and discharge pressures abnormally low	Low-pressure hose and metal fittings are cooler than evaporator.	Clogged or kinked low-pressure hose parts	Repair or replace.
	Temperature around expansion valve is too low compared with that around receiver/dryer.	Clogged high-pressure line	Repair or replace.
Refrigerant leaks	A/C compressor clutch is dirty.	A/C compressor shaft seal leaking	Replace the A/C compressor.
	A/C compressor bolt(s) are dirty.	Leaking around bolt(s)	Tighten bolt(s) or replace A/C compressor.
	A/C compressor gasket is wet with oil.	Gasket leaking	Replace the A/C compressor.
	A/C fitting is dirty.	Leaking O-ring	Clean the A/C fitting and replace the O-ring.

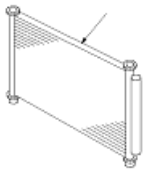
A/C System Inspection

Before troubleshooting any problem with the air conditioning system, do the following:

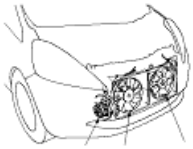
1. With the ignition switch in LOCK (0), inspect the A/C components, pressure lines and hoses for stains that may indicate a refrigerant or a compressor oil leak.



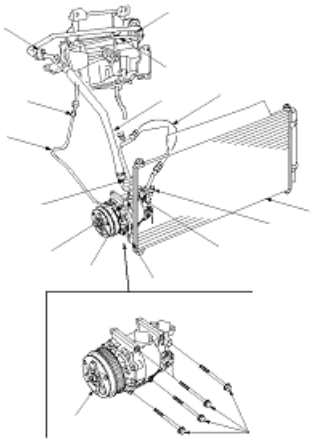
2. Check the A/C condenser (A) for material clogging the fins or for damage to the fins:
   - Carefully clean any material from the A/C condenser fins with water and detergent.
   - Be sure to dry the A/C condenser completely.
3. Inspect the drive belt.
4. Make sure no material is blocking the airflow to the A/C condenser.
5. Check the dust and pollen filter, and replace it if it is clogged.
6. Start the engine, turn the air conditioning system on, and allow it to normalize for a few minutes.
7. Check that the A/C operates at each position of the blower fan switch (except OFF).



8. Check that the A/C compressor clutch (A) is engaged. The pressure plate should be rotating at the same speed as the pulley.
9. Check that the A/C condenser fan (B) and radiator fan (C) operate when the A/C compressor clutch is engaged.
10. Check that the engine idle speed is correct when the A/C is switched on and off, and when the A/C compressor clutch is engaged and disengaged.

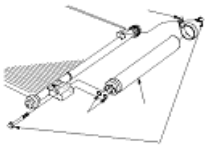


A/C Line Replacement



A/C Receiver/Dryer Desiccant Replacement

NOTE: Install the receiver/dryer as quickly as possible to prevent the system from absorbing moisture from the air.



1. Remove the A/C condenser.
2. Remove the bolts from the A/C condenser, then remove the receiver/dryer (A), the bracket (B), and the O-rings (C).
3. Install the receiver/dryer in the reverse order of removal. Replace the O-rings with new ones, and apply a thin coat of refrigerant oil (SP-10) before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.

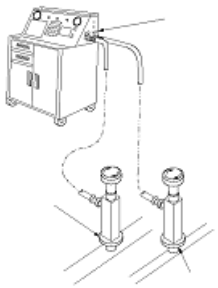
A/C Refrigerant Leak Test

⚠WARNING

- Compressed air mixed with the R-134a forms a combustible vapor.
- The vapor can burn or explode causing serious injury.
- Never use compressed air to pressure test R-134a service equipment or vehicle air conditioning systems.

⚠CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.



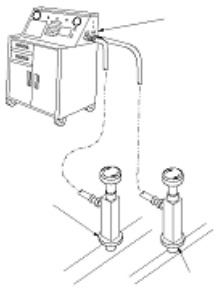
Use only service equipment for refrigerant HFC-134a (R-134a).
If accidental system discharge occurs, ventilate the work area before resuming service.
R-134a service equipment or vehicle air conditioning systems should not be pressure tested or leak tested with compressed air.
Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

1. Connect an R-134a refrigerant recovery/recycling/charging station (A) to the high-pressure service port (B) and the low-pressure service port (C), as shown, following the equipment manufacturer's instructions.
2. Open the high pressure valve to charge the system to the specified capacity, then close the supply valve, and disconnect the charging station fittings.
   Select the appropriate units of measurement for your refrigerant charging station.
   Refrigerant Capacity:
   370 to 420 g
   0.37 to 0.42 kg
   0.82 to 0.93 lbs
   13.1 to 14.8 oz
3. Check the system for leaks using an R-134a refrigerant leak detector with an accuracy of 14 g (0.5 oz) per year or better.
4. If you find leaks that require the system to be opened (to repair or replace hoses, fittings, etc.), do a recovery of the system.
5. After checking and repairing leaks, the system must be evacuated.

A/C Refrigerant Recovery

⚠CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.



Use only service equipment for refrigerant HFC-134a (R-134a).
If accidental system discharge occurs, ventilate the work area before resuming service.
Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

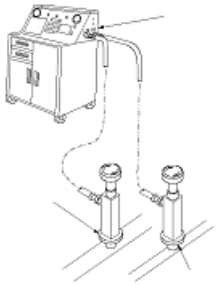
1. Connect an R-134a refrigerant recovery/recycling/charging station (A) to the high-pressure service port (B) and the low-pressure service port (C), as shown, following the equipment manufacture's instructions.

2. Measure the amount of refrigerant oil removed from the A/C system after the recovery process is completed. Be sure to put the same amount of new refrigerant oil back into the A/C system before charging.

A/C System Evacuation

⚠CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.



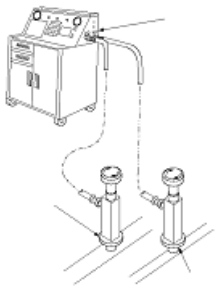
Use only service equipment for refrigerant HFC-134a (R-134a).
If accidental system discharge occurs, ventilate the work area before resuming service.
Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

1. When an A/C system has been opened to the atmosphere, such as during installation or repair, it must be evacuated using an R-134a refrigerant recovery/recycling/charging station. If the system has been open for several days, the receiver/dryer should be replaced, and the system should be evacuated for several hours.
2. Connect an R-134a refrigerant recovery/recycling/charging station (A) to the high-pressure service port (B) and the low-pressure service port (C), as shown, following the equipment manufacturer's instructions. Evacuate the system.
3. If the low-pressure does not reach more than 93.3 kPa (700 mmHg, 27.6 in.Hg) in 15 minutes, there is probably a leak in the system. Partially charge the system, and check for leaks.

A/C System Charging

⚠CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.



Use only service equipment for refrigerant HFC-134a (R-134a).
If accidental system discharge occurs, ventilate the work area before resuming service.
Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

1. Connect an R-134a refrigerant recovery/recycling/charging station (A) to the high-pressure service port (B) and the low-pressure service port (C), as shown, following the equipment manufacturer's instructions.
2. Evacuate the system.
3. Add the same amount of new refrigerant oil to the system that was removed during recovery. Use only SP-10 refrigerant oil.
4. Charge the system with the specified amount of R-134a refrigerant. Do not overcharge the system; the compressor will be damaged.
   Select the appropriate units of measure for your refrigerant charging station.
   Refrigerant Capacity:
   370 to 420 g
   0.37 to 0.42 kg
   0.82 to 0.93 lbs
   13.1 to 14.8 oz
5. Check for refrigerant leaks.
6. Check for system performance.

A/C Refrigerant Oil Replacement

Recommended PAG oil: SP-10

- P/N 38897-P13-003: 120 mL (4 fl·oz, 4.2 Imp·oz)
- P/N 38898-P13-003: 250 mL (8 1/3 fl·oz, 8.8 Imp·oz)
- P/N 38899-P13-A01: 40 mL (1 1/3 fl·oz, 1.4 Imp·oz)

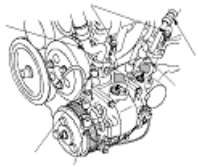
Add the recommended refrigerant oil in the amount listed if you replace any of the following parts.

- To avoid contamination, do not return the oil to the container once dispensed, and never mix it with other refrigerant oils.
- Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
- Do not spill the refrigerant oil on the vehicle; it may damage the paint; if it gets on the paint, wash it off immediately.

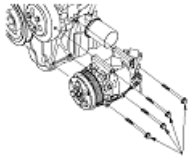
A/C condenser (including Dryer Desiccant) .	25 mL (5/6 fl·oz, 0.9 Imp·oz)
Evaporator .	35 mL (1 1/5 fl·oz, 1.2 Imp·oz)
Line or hose .	10 mL (1/3 fl·oz, 0.4 Imp·oz)
Receiver/Dryer Desiccant .	10 mL (1/3 fl·oz, 0.4 Imp·oz)
Leakage repair .	25 mL (5/6 fl·oz, 0.9 Imp·oz)
A/C compressor .	Since the oil separator is equipped inside the compressor for this vehicle, oil drainage is unnecessary at the time of compressor replacement.

A/C Compressor Replacement

NOTE: Do not install an A/C compressor into a system unless you are completely sure that the system is free of contamination. Installing the A/C compressor into a contaminated system can result in premature A/C compressor failure.



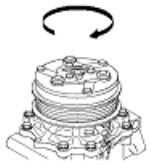
1. If the A/C compressor is marginally operable, run the engine at idle speed, and let the air conditioning work for a few minutes, then shut the engine off.
2. Recover the refrigerant with a recovery/recycling/charging station.
3. Remove the splash shield.
4. Remove the drive belt.
5. Remove the compressor clutch connector (A) from the condenser fan shroud, then disconnect the connector. Remove the nuts, then disconnect the suction line (B) and the discharge line (C) from the compressor, and remove the O-rings (D). Plug or cap the lines immediately after disconnecting them to avoid moisture and dust contamination.



6. Remove the mounting bolts and the A/C compressor (A). Be careful not to damage the radiator fins when removing the A/C compressor.
7. Install the compressor in the reverse order of removal, and note these items:
   - Inspect the A/C lines for any signs of contamination.
   - Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
   - Use refrigerant oil (SP-10) for HFC-134a SANDEN spiral type A/C compressor only.
   - To avoid contamination, do not return the oil to the container once dispensed, and never mix it with other refrigerant oils.
   - Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
   - Do not spill the refrigerant oil on the vehicle; it may damage the paint; if the refrigerant oil contacts the paint, wash it off immediately.
   - Charge the system.

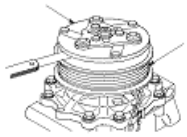
A/C Compressor Clutch Check

1. Check the armature plate for discoloration, peeling, or other damage. If there is damage, replace the clutch set.
2. Check the rotor pulley bearing play and drag by rotating the rotor pulley by hand. Replace the clutch set with a new one if it is noisy or has excessive play/drag.

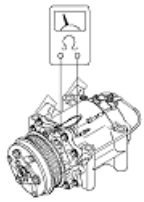


3. Measure the clearance between the rotor pulley (A) and the armature plate (B) all the way around. If the clearance is not within specified limits, remove the armature plate and add or remove shims as needed to increase or decrease clearance.
   Clearance: **0.35−0.65 mm (0.014−0.026 in.)**

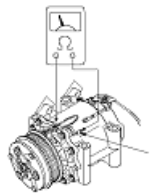
   NOTE: The shims are available in four thicknesses: 0.1 mm, 0.2 mm, 0.4 mm, and 0.5 mm.



4. Release the field coil connector from the holder, then disconnect it. Check the thermal protector for continuity. If there is no continuity, replace the thermal protector.
   NOTE: The thermal protector will have no continuity above 122 to 128 °C. When the temperature drops below 116 to 104 °C, the thermal protector will have continuity.

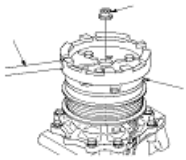


5. Disconnect the field coil connector (A). Check resistance of the field coil. If resistance is not within specifications, replace the field coil.
   Field Coil Resistance: **3.15−3.45 Ω 20 °C**

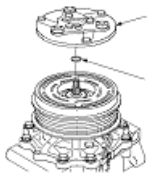


A/C Compressor Clutch Overhaul

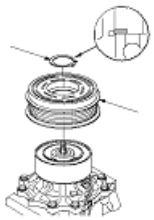
1. Remove the center nut while holding the armature plate (A) with a commercially available A/C clutch holder (B).



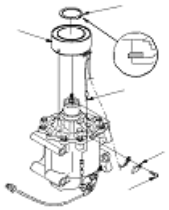
2. Remove the armature plate (A) and shim(s) (B), taking care not to lose the shim(s). If the clutch needs adjustment, increase or decrease the number and thickness of shims as necessary, then reinstall the armature plate, and recheck its clearance.
   NOTE: The shims are available in four thicknesses: 0.1 mm, 0.2 mm, 0.4 mm, and 0.5 mm.



3. If you are replacing the field coil, remove the snap ring (A) with snap ring pliers, then remove the rotor pulley (B). Be careful not to damage the rotor pulley and A/C compressor.



4. Remove the bolt and holder (A), then disconnect the field coil connector (B). Remove the snap ring (C) with snap ring pliers, then remove the field coil (D). Be careful not to damage the field coil and A/C compressor.



5. Reassemble the clutch in the reverse order of disassembly, and note these items:
   - Install the field coil with the wire side facing down, and align the boss on the field coil with the hole in the A/C compressor.
   - Clean the rotor pulley and A/C compressor sliding surfaces with contact cleaner or other non-petroleum solvent.
   - Install new snap rings, note the installation direction, and make sure they are fully seated in the groove.
   - Make sure that the rotor pulley turns smoothly after it's reassembled.
   - Route and clamp the wires properly or they can be damaged by the rotor pulley.

A/C Compressor Clutch Circuit Troubleshooting

NOTE:

- It is normal for the A/C compressor to turn off under certain conditions, such as low idle, high engine coolant temperature, or hard acceleration.
- Do not use this troubleshooting procedure if the fans are also inoperative with the A/C on. Refer to the symptom troubleshooting index.

1. Check the No. 43 (7.5 A) and the No. 10 (7.5 A) fuses in the under-dash fuse/relay box.

   Are the fuses OK?
   YES - Go to Step 2 .
   NO - Replace the fuses, and recheck. If the fuses blow again, check for a short in the No. 43 (7.5 A) and No. 10 (7.5 A) fuses circuit.■

2. Connect the HDS to the DLC.
3. Start the engine.
4. Turn on the A/C.
5. Check the A/C switch in the PGM-FI Data List with the HDS.

   Is the A/C switch on?
   YES - Go to Step 6 .
   NO - Go to A/C pressure switch circuit troubleshooting. ■

6. Using the HDS, confirm the following values in the PGM-FI Data List at idle.

TP sensor	About 0.5 V	
RPM	A/T	740−840
	M/T	700−800
ECT SENSOR 2	80−100 °C	
A/C SWITCH	ON	
A/C CLUTCH	ON	
A/C PRESSURE SENSOR	196−3,138 kPa (2−32 kgf/cm ^{2}) 28−455 psi	
A/C TEMPERATURE	3.0 °C or more	

   Are all the values within specifications?
   YES - Go to Step 7 .
   NO - Troubleshoot the value that is not within the specifications.■

7. Turn the ignition switch to LOCK (0).
8. Remove the A/C compressor clutch relay from the auxiliary under-hood relay box, and test it.

   Is the relay OK?
   YES - Go to Step 9 .
   NO - Replace the A/C compressor clutch relay .■

9. Measure the voltage between the No. 1 terminal of the A/C compressor clutch relay 4P socket and body ground.

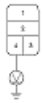
   Is there battery voltage?
   YES - Go to Step 10 .
   NO - Repair open in the wire between the No. 43 (7.5 A) fuse in the under-dash fuse/relay box and the A/C compressor clutch relay.■

10. Connect the No. 1 and No. 2 terminals of the A/C compressor clutch relay 4P socket with a jumper wire.

    Does the A/C compressor clutch click?
    YES - Go to Step 11 .
    NO - Go to Step 21 .

11. Disconnect the jumper wire.
12. Turn the ignition switch to ON (II).

13. Measure the voltage between the No. 4 terminal of the A/C compressor clutch relay 4P socket and body ground.



Is there battery voltage?

YES - Go to Step 14 .

NO - Repair open in the wire between the No. 10 (7.5 A) fuse in the under-dash fuse/relay box and the A/C compressor clutch relay.■

14. Turn the ignition switch to LOCK (0).
15. Reinstall the A/C compressor clutch relay.
16. Make sure the A/C switch is OFF.
17. Jump the SCS line with the HDS.
NOTE: This step must be done to protect the engine control module (ECM)/powertrain control module (PCM) from damage.
18. Disconnect ECM/PCM connector A (49P).

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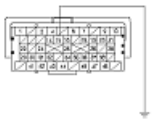
19. Connect the ECM/PCM connector A (49P) No. 15 terminal to body ground with a jumper wire.



20. Turn the ignition switch to ON (II).

Does the A/C compressor click?

YES - Check for loose wires or poor connections at ECM/PCM connector A (49P). If the connections are good, substitute a known-good ECM/PCM, and recheck. If the symptom/indication goes away, replace the original ECM/PCM. ■

NO - Repair open in the wire between the A/C compressor clutch relay and the ECM/PCM.■

21. Disconnect the jumper wire.
22. Disconnect the A/C compressor clutch 1P connector.

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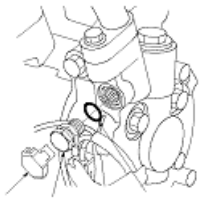
23. Check for continuity between the A/C compressor clutch relay 4P socket No. 2 terminal and the A/C compressor clutch 1P connector No. 1 terminal.

Is there continuity?

YES - Check the A/C compressor clutch clearance, the thermal protector circuit, and the A/C compressor clutch field coil. ■

NO - Repair open in the wire between the A/C compressor clutch relay and the A/C compressor clutch.■

A/C Compressor Relief Valve Replacement

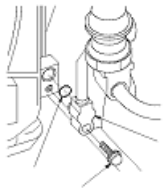


1. Recover the refrigerant with a recovery/recycling/charging station.
2. Remove the relief valve cover (A), the relief valve (B), and the O-ring (C). Plug the opening to keep foreign matter from entering the system and the A/C compressor oil from running out.
3. Clean the mating surfaces.
4. Replace the O-ring with a new one at the relief valve, and apply a thin coat of refrigerant oil before installing it.
5. Remove the plug, and install and tighten the relief valve.
6. Charge the system.

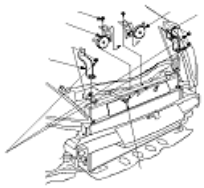
A/C Condenser Replacement

1. Recover the refrigerant with a recovery/recycling/charging station.
2. Remove the front bumper.
3. Remove the nut, then disconnect the discharge hose (A) from the A/C condenser. From the discharge hose, remove the O-ring (B).

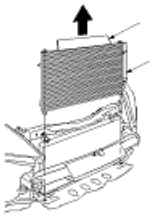
4. Remove the bolt, then disconnect the receiver line (A) from the A/C condenser. From the receiver line, remove the O-ring (B).



5. Remove the bolts (A), disconnect the connector (B), and remove the horn (C). If equipped with the high horn (D), remove it.
6. Remove the bolts (E) and the brackets (F).

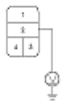


7. Remove the A/C condenser (A) by lifting it up.
   - Do not grab the upper seal (B).
   - Be careful not to damage the radiator and A/C condenser fins when removing the A/C condenser.
8. Install the A/C condenser in the reverse order of removal, and note these items:
   - If you're installing a new A/C condenser, add refrigerant oil (SP-10).
   - Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
   - Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
   - Do not spill the refrigerant oil on the vehicle; it may damage the paint; if the refrigerant oil contacts the paint, wash it off immediately.
   - Charge the system.



A/C Condenser Fan Circuit Troubleshooting

NOTE: Do not use this troubleshooting procedure if the fans are also inoperative with the A/C on. Refer to the symptom troubleshooting index.



1. Check the No. 47 (30 A) and the No. 10 (7.5 A) fuses in the under-dash fuse/relay box.

   Are the fuses OK?
   YES - Go to Step 2 .
   NO - Replace the fuses, and recheck. If the fuses blow again, check for a short in the No. 47 (30 A) and No. 10 (7.5 A) fuses circuit.■

2. Remove the A/C condenser fan relay from the auxiliary under-hood relay box, and test it.

   Is the relay OK?
   YES - Go to Step 3 .
   NO - Replace the A/C condenser fan relay .■

3. Measure the voltage between the No. 2 terminal of the A/C condenser fan relay 4P socket and body ground.

   Is there battery voltage?
   YES - Go to Step 4 .
   NO - Repair open in the wire between the No. 47 (30 A) fuse in the under-dash fuse/relay box and the A/C condenser fan relay.■

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4. Connect the No. 1 and No. 2 terminals of the A/C condenser fan relay 4P socket with a jumper wire.

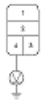
   Does the A/C condenser fan run?
   YES - Go to Step 5 .
   NO - Go to Step 8 .

5. Disconnect the jumper wire.

6. Turn the ignition switch to ON (II).

---

7. Measure the voltage between the No. 4 terminal of the A/C condenser fan relay 4P socket and body ground.



   Is there battery voltage?
   YES - Repair open in the GRN wire between the A/C condenser fan relay and the ECM/PCM.■
   NO - Repair open in the wire between the No. 10 (7.5 A) fuse in the under-dash fuse/relay box and the A/C condenser fan relay.■

8. Disconnect the jumper wire.

9. Disconnect the A/C condenser fan 2P connector.

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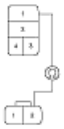
10. Check for continuity between the No. 1 terminal of the A/C condenser fan relay 4P socket and the No. 2 terminal of the A/C condenser fan 2P connector.



    Is there continuity?
    YES - Go to Step 11 .
    NO - Repair open in the wire between the A/C condenser fan relay and the A/C condenser fan.■

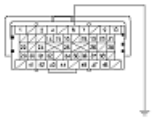
---

11. Check for continuity between the No. 1 terminal of the A/C condenser fan 2P connector and body ground.

    Is there continuity?
    YES - Replace the A/C condenser fan motor.■
    NO - Check for an open in the wire between the A/C condenser fan and body ground. If the wire is OK, check for poor ground at G202. ■

Radiator and A/C Condenser Fan Common Circuit Troubleshooting

NOTE: Do not use this troubleshooting procedure if the A/C compressor is inoperative. Refer to the symptom troubleshooting index.



1. Remove the radiator fan relay and A/C condenser fan relay from the auxiliary under-hood relay box, and test them.

   Are the relays OK?
   YES - Go to Step 2 .
   NO - Replace the relays.■

2. Reinstall the relays.
3. Jump the SCS line with the HDS.
   NOTE: This step must be done to protect the engine control module (ECM)/powertrain control module (PCM) from damage.
4. Disconnect ECM/PCM connector A (49P).
5. Connect the ECM/PCM connector A (49P) No. 6 terminal to body ground with a jumper wire.
6. Turn the ignition switch to ON (II).

   Do the fans run?
   YES - Check for loose wires or poor connections at ECM/PCM connector A (49P). If the connections are good, substitute a known-good ECM/PCM, and recheck. If the symptom/indication goes away, replace the original ECM/PCM .■
   NO - Repair open in the wire between the radiator fan relay, the A/C condenser fan relay and the ECM/PCM.■

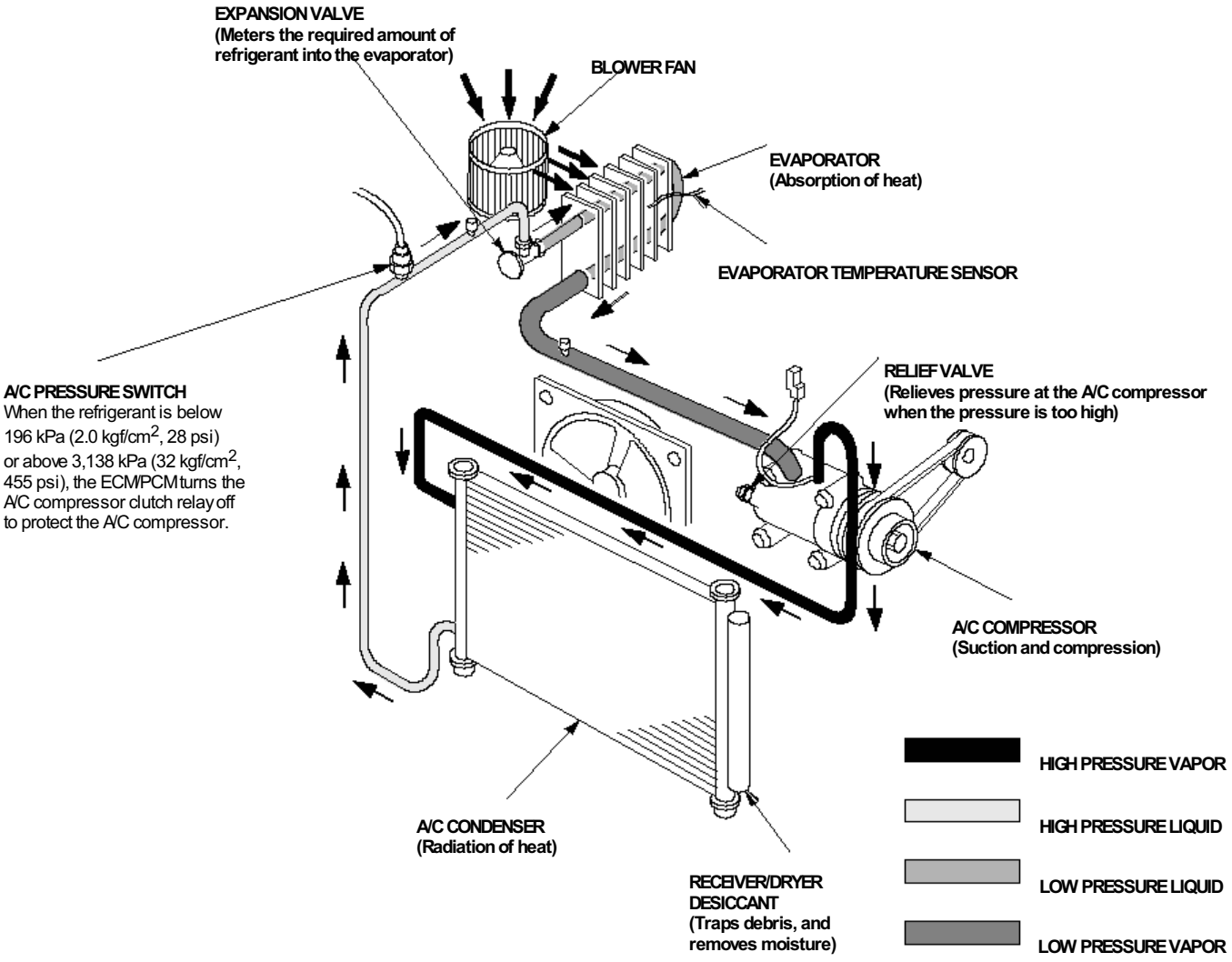
A/C Evaporator Temperature Sensor Test

1. Remove the evaporator core and the evaporator temperature sensor.
2. Dip the sensor in ice water, and measure the resistance between its terminals.
3. Then pour warm water on the sensor, and check for a change in resistance.

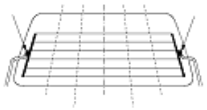
4. Compare the resistance readings with the specifications shown in the graph; the resistance should be within the specifications.
5. If the resistance is not as specified, replace the evaporator temperature sensor.

Heating and A/C System Description

The air conditioning system removes heat from the passenger compartment by transferring heat from the ambient air to the evaporator. The evaporator cools the air with the refrigerant that is circulating through the evaporator. The refrigerant expands in the evaporator, and the evaporator becomes very cold and absorbs the heat from the ambient air. The blower fan pushes air across the evaporator where the heat is absorbed, and then it blows the cool air into the passenger compartment.



Rear Window Defogger Function Test



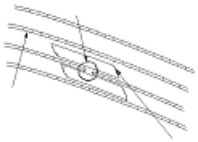
NOTE:

- Before testing, check the No. 10 (7.5 A), No. 59 (20 A), and No. 60 (IGN) (50 A) fuse in the under-dash fuse/relay box.
- Be careful not to scratch or damage the defogger wires with the tester probe.

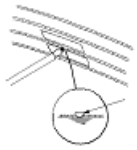
1. Turn the ignition switch to ON (II), then turn the rear window defogger switch ON.
2. Measure the voltage between the positive terminal (A) and body ground. There should be battery voltage.
   - If there is no voltage, check for:
     - Faulty rear window defogger relay.
     - Faulty rear window defogger switch.
     - An open in the BLU wire to the positive terminal.
   - If there is battery voltage, go to Step 3 .
3. Turn the ignition switch to LOCK (0).
4. Disconnect the negative terminal (B) from the rear window defogger.
5. Check for continuity between the negative terminal and body ground. There should be continuity.
   If there is no continuity, check for an open in the BLK wire or poor ground (G602). If there is continuity, go to Step 6 .
6. Reconnect the negative terminal to the rear window defogger.
7. Turn the ignition switch to ON (II), then turn the rear window defogger switch ON.
8. Touch the voltmeter positive probe to each point on each defogger wire, and the negative probe to the negative terminal.
   - If the voltage is as specified, the defogger wire up to that point is OK.
   - If the voltage is not as specified, repair the defogger wire.
     - If it is more than specified at one of the points, there is a break in the negative half of the wire.
     - If it is less than specified at one of the points, there is a break in the positive half of the wire.

Rear Window Defogger Wire Repair

NOTE: To make an effective repair, the broken section must be no longer than 25 mm (1 inch).

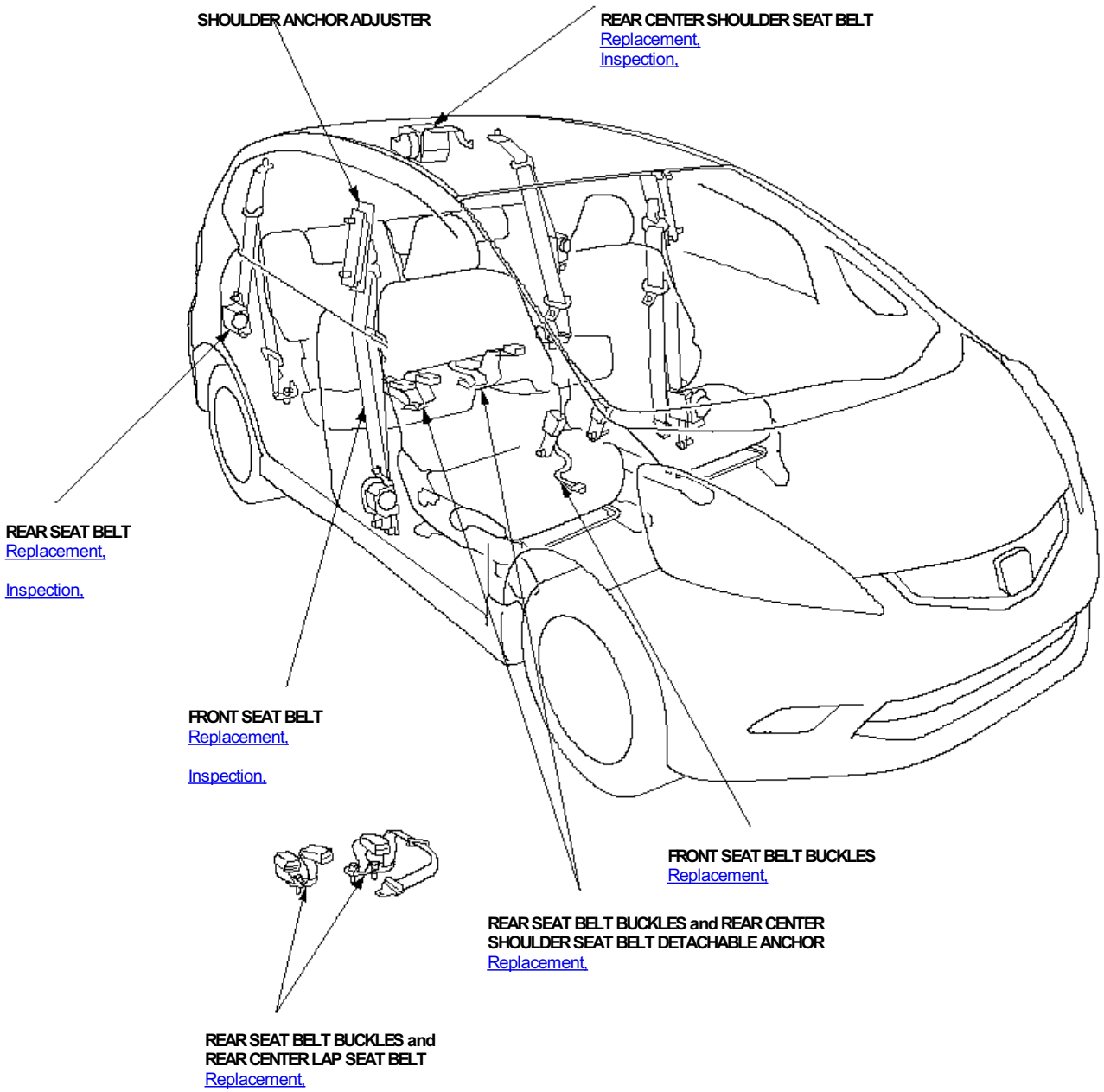


1. Lightly rub the area around the broken section (A) with fine steel wool, then clean it with isopropyl alcohol.
2. Carefully mask above and below the broken portion of the defogger wire (B) with cellophane tape (C).



3. Using a small brush, apply a heavy coat of silver conductive paint (commercially available) (A) extending about 3 mm (1/8") on both sides of the break. Allow 25 minutes to dry.
4. Do the function test to confirm that the wire is repaired.
5. Apply a second coat of paint in the same way. Let it dry 3 hours before removing the tape.

Seat Belts Component Location Index



Seat Belt Inspection

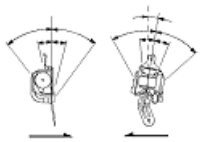
Out of Vehicle

For front seat belt retractors with seat belt tensioners, review the SRS component locations, and the precautions and procedures before doing repairs or service.

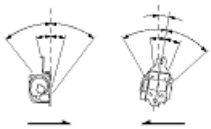
Retractor

1. Before installing the retractor, check that the seat belt can be pulled out freely.
2. Make sure that the seat belt does not lock when the retractor (A) is leaned slowly up to 15 ° from the mounted position. The seat belt should lock when the retractor is leaned over 40 °. Do not attempt to disassemble the retractor.
3. Replace the seat belt with a new assembly if there is any abnormality. Do not disassemble any part of the seat belt for any reason.

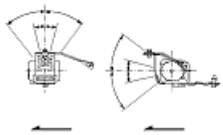
Front



Rear



Rear center shoulder



In-vehicle

1. Check that the seat belt is not twisted or caught on anything.
2. After installing the anchors, check for free movement on the anchor bolts. If necessary, remove the anchor bolts and check that the washers and other parts are not damaged or improperly installed.
3. Check the seat belts for damage or discoloration.
   Clean with a shop towel if necessary. Use only soap and water to clean.
   NOTE: Dirt build-up in the loops of the upper anchors can cause the seat belts to retract slowly. Wipe the inside of the loops with a clean cloth dampened in isopropyl alcohol.
4. Check that the seat belt does not lock when pulled out slowly. The seat belt is designed to lock only during a sudden stop or impact.
5. Make sure that the seat belt will retract automatically when released.
6. For each rear passenger's seat belt, check the seat belt retractor locking mechanism ALR (automatic locking retractor). This function is for securing child seats.
   -1. Pull the seat belt all the way out to engage the ALR. The seat belt should retract, but not extend. This is normal.
   -2. To disengage the ALR, release the seat belt and allow it to fully retract, then pull the seat belt out part-way. The seat belt should retract and extend normally.
7. Replace the seat belt with a new assembly if there is any abnormality. Do not disassemble any part of the seat belt for any reason.

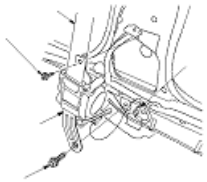
Front Seat Belt Replacement

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:

- Take care not to bend or scratch the trim and panels.
- When removing components, use the trim tool or equivalent.
- Check the front seat belts for damage, and replace them if necessary. Be careful not to damage them during removal and installation.

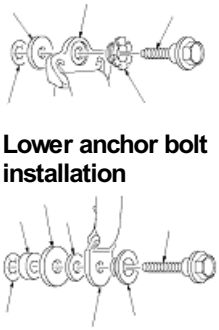
Front Seat Belt

1. Do the battery terminal disconnection procedure, then wait at least 3 minutes before beginning work.
2. Slide the front seat forward fully.
3. Remove the center pillar lower trim:
   - Without side curtain airbags
   - With side curtain airbags
4. Remove the upper anchor cover (A), and remove the upper anchor bolt (B).



5. Disconnect the seat belt tensioner connector (A).
6. Remove the self-tapping ET screw (B) and the lower retractor bolt (C), then remove the front seat belt (D) and retractor (E).
7. Remove the center pillar lower trim:
   - Without side curtain airbags
   - With side curtain airbags

8. Remove the shoulder anchor adjuster (A).



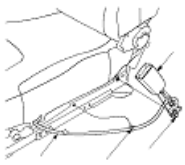
9. Install the seat belt and retractor in the reverse order of removal, and note these items:
   - Apply medium strength type liquid thread lock to the anchor bolts before reinstallation.
   - Tighten the bolts by hand first, then tighten to specified torque.
   - Check that the retractor locking mechanism functions as described.
   - Assemble the washers, the collars, and the bushings on the upper anchor bolt and lower anchor bolt as shown.
   - Before installing the anchor bolts, make sure there are no twists or kinks in the seat belt.
   - Make sure the seat belt tensioner connector is plugged in properly.
   - Do the battery terminal reconnection procedure.
   - Check for any DTCs, and clear them using the HDS. If the DTCs will not clear, do the necessary troubleshooting.

Upper anchor bolt installation

Lower anchor bolt installation

Front Seat Belt Buckle

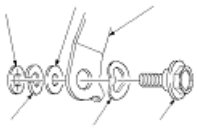
1. Do the battery terminal disconnection procedure, then wait at least 3 minutes before beginning work.
2. Remove the front seat.
3. Lift up the front driver's seat, then detach the seat belt switch connector (A), and detach the harness clip (B). RHD model is shown, LHD model is similar.



4. Detach the harness clip (A), and pull the seat belt switch harness (B) through the hole in the seat track. Remove the center anchor bolt (C), then remove the seat belt buckle (D).

5. Install the buckle in the reverse order of removal, and note these items:
    - Assemble the washers and collar on the center anchor bolt as shown.
    - Apply medium strength type liquid thread lock to the anchor bolts before reinstallation.
    - Tighten the bolt by hand first, then tighten to specified torque.
    - Make sure the seat belt switch connector is plugged in properly.
    - Do the battery terminal reconnection procedure.
    - Check for any DTCs, and clear them using the HDS. If the DTCs will not clear, do the necessary troubleshooting.

Center anchor bolt installation



Rear Seat Belt Replacement

NOTE: Check the rear seat belts for damage, and replace them if necessary. Be careful not to damage them during removal and installation.

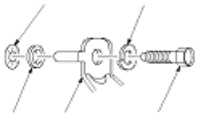
Rear Seat Belt

1. Remove the cargo side trim panel.
2. Pull the carpet back as necessary, and remove the lower anchor bolt (A).

3. Remove the upper anchor cap (A), and remove the upper anchor bolt (B).

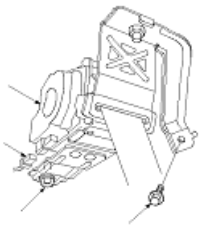
4. Disconnect the seat belt tensioner connector (A) if equipped, and remove the self-tapping ET screw (B) and the lower retractor mounting bolt (C). Remove the rear seat belt (D) and retractor (E). The right seat belt is shown, the left seat belt is similar.

Upper anchor bolt installation



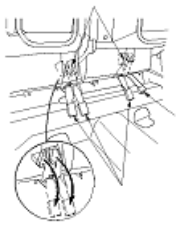
5. Install the seat belt in the reverse order of removal, and note these items:
   - Apply medium strength type liquid thread lock to the anchor bolts before reinstallation.
   - Tighten the bolts by hand first, then tighten to specification torque.
   - Check that the retractor locking mechanism functions as described.
   - Assemble the washers and the collar on the upper anchor bolt as shown.
   - Before installing the anchor bolts, make sure there are no twists or kinks in the seat belt.
   - Make sure the seat belt tensioner connector is properly plugged in.

Rear Center Shoulder Seat Belt

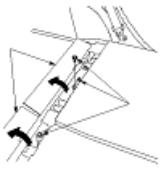


1. Remove the headliner.
2. Disconnect the seat belt tensioner connector (A) if equipped, and remove the retractor mounting bolts (B, C), then remove the center seat belt and retractor (D).
3. Install the center seat belt and retractor in the reverse order of removal, and note these items:
   - Tighten the bolts by hand first, then tighten to specification torque.
   - Check that the retractor locking mechanism functions as described.
   - Before installing the anchor mounting bolt, make sure there are no twists or kinks in the center seat belt.
   - Make sure the seat belt tensioner connector is properly plugged in if equipped.

Rear Seat Belt Buckles and Center Shoulder Seat Belt Detachable Anchor/Center Lap Seat Belt



1. Pull the rear seat belt buckles (A) and rear center seat belt detachable anchor or rear center lap seat belt (B) out through each elastic straps (C) on both seat cushions.
2. Lift both rear seat cushions up, and slip the seat belt buckles and seat belt detachable anchor or seat belt.
3. Fold both rear seat-backs.

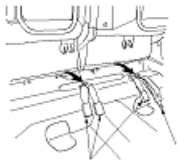


4. Opening the cargo floor lids (A) and remove the anchor bolts (B).
5. Lift both rear seat cushions up.

6. Remove the seat belt buckles (A) and center seat belt detachable anchor (B) or rear center lap seat belt (C).

With center seat belt and seat belt buckles

With center lap seat belt and seat belt buckles



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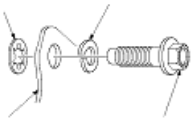
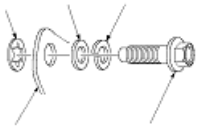
7. Install the anchor and buckle in the reverse order of removal, and note these items:
   - Tighten the bolts by hand first, then tighten to specification torque.
   - Assemble the washers, and the collar on the anchor bolt as shown.

Right side anchor bolt installation



Left side anchor bolt installation



Airbag and Tensioner Disposal

Deploying Airbags in the Vehicle

Special Tools Required

Deployment tool
07HAZ-SG00500

Before scrapping any airbags, side airbags, side curtain airbags, or seat belt tensioners (including those in a whole vehicle to be scrapped), the part(s) must be deployed. If the vehicle is still within the warranty period, the Honda District Parts and Service Manager must give approval and/or special instruction before deploying the part(s). Only after the part(s) have been deployed (as the result of vehicle collision, for example), can they be scrapped. If the parts appear intact (not deployed), treat them with extreme caution. Follow this procedure.
If an SRS equipped vehicle is to be entirely scrapped, its airbags, side airbags, side curtain airbags, and seat belt tensioners, should be deployed while still in the vehicle. These parts should not be considered as salvageable parts and should never be installed in another vehicle.

1. Turn the ignition switch to LOCK (0). Do the battery terminal disconnection procedure, then wait for 3 minutes before starting work.
2. Confirm that each airbag, side airbag, side curtain airbag, or seat belt tensioner is securely mounted.
3. Confirm that the deployment tool is functioning properly by following the check procedure on the tool label.

Driver's Airbag

1. Remove the access panel (A) from the steering wheel, then disconnect the driver's airbag 4P connector (B) from the cable reel.

Front Passenger's Airbag

1. Lower the glove box, then remove the connector clip. Disconnect the front passenger's airbag 4P connector (A) from the dashboard wire harness.

Side Airbag

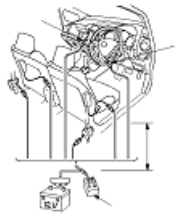
1. Disconnect the side airbag 2P connector (A) from the floor wire harness.

Side Curtain Airbag

1. Disconnect the floor wire harness 2P connector (A) from the side curtain airbag.

Seat Belt Tensioner

1. Disconnect the floor wire harness 4P connector (A) from the seat belt tensioner. Pull the seat belt out all the way and cut it.

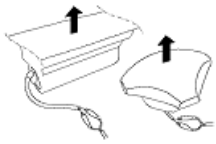


2. Cut off each connector, and strip the ends of the wires. Twist each pair of unlike colored wires together, and clip an alligator clip (A) from the deployment tool to each pair. Place the deployment tool at least 10 m (30 ft) away from the vehicle.
   NOTE: The driver's and front passenger's airbags have dual inflators. Twist each pair of unlike colored wires together, and clip an alligator clip to each pair.
3. Connect a 12 volt battery to the tool.
   - If the green light on the tool comes on, the igniter circuit is defective and cannot deploy the component. Go to Disposal of Damaged Components.
   - If the red light on the tool comes on, the component is ready to be deployed.

4. Push the tool's deployment switch. The airbags and tensioners should deploy (deployment is both highly audible and visible: A loud noise and rapid inflation of the bag, followed by slow deflation).
   - If the components deploy and the green light on the tool comes on, continue with this procedure.
   - If a component does not deploy, and the green light comes ON, its igniter is defective. Go to Disposal of Damaged Components.
   - During deployment, the airbags can become hot enough to burn you. Wait for 30 minutes after deployment before touching the airbags.

5. Dispose of the complete airbag. No part of it can be reused. Place it in a sturdy plastic bag (A), and seal it securely. Dispose of the deployed airbag according to your local regulations.

Deploying Components Out of the Vehicle



If an intact airbag or tensioner has been removed from a scrapped vehicle, or has been found defective or damaged during transit, storage, or service, it should be deployed as follows:

1. Confirm that the deployment tool is functioning properly by following the check procedure Deploying Airbags in the Vehicle on the tool label.
2. Position the airbag face up, outdoors, on flat ground, at least 10 m (30 ft) from any obstacles or people.
3. Follow Step 2 through 12 of the in-vehicle deployment procedure.
   NOTE: The driver's and front passenger's airbags have dual inflators. Twist each pair of unlike colored wires together, and clip an alligator clip to each pair.

Disposal of Damaged Components

1. If installed in a vehicle, follow the removal procedure for the driver's airbag, front passenger's airbag, side airbag, side curtain airbag, seat belt tensioner.
2. In all cases, make a short circuit by cutting, stripping, and twisting together the two inflator wires.
   NOTE: The driver's and front passenger's airbags have dual inflators. The like color wires go to the individual inflators. Twist the like colored wires together.
3. Package the component in exactly the same packaging that the new replacement part came in.
4. Mark the outside of the box ‘‘DAMAGED AIRBAG NOT DEPLOYED,'' ‘‘DAMAGED SIDE AIRBAG NOT DEPLOYED,'' ‘‘DAMAGED SIDE CURTAIN AIRBAG NOT DEPLOYED,'' ‘‘DAMAGED SEAT BELT TENSIONER NOT DEPLOYED'' so it does not get confused with your parts stock.
5. Contact your Honda District Parts and Service Manager for instructions on how and where to return it for disposal.

Deployment Tool Check

1. Connect the yellow clips to both switch protector handles on the tool.
2. Then connect the red lead to the positive battery post and the black lead to the negative battery post.
3. Push the operation switch: The green light should come on, indicating that the tool is operating properly and is ready for use. If the red light stays on, the tool is faulty, and another one must be used for the procedure.
4. Disconnect the tool clips and connectors from the protector handles and the battery.

SRS Symptom Troubleshooting - SRS indicator does not come on

SRS indicator does not come on

NOTE: Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Turn the ignition switch to LOCK (0), then wait for 10 seconds.
2. Turn the ignition switch to ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator come on?
   YES - Intermittent failure, the system is OK at this time.
   NO - Go to Step 3 .
3. Connect the HDS to the data link connector (DLC).
4. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, troubleshoot the DLC circuit.
5. Do the gauge control module self diagnostic function.

   Does the SRS indicator come on?
   YES - Faulty SRS unit; replace the SRS unit. ■
   NO - Faulty gauge control module; replace the gauge control module. ■

SRS Symptom Troubleshooting - SRS indicator stays on, but no DTCs are stored

SRS indicator stays on, but no DTCs are stored

NOTE: Before doing this troubleshooting procedure, check the battery is sufficiently charged. If the battery voltage is low, SRS indicator stays on.

1. Start the engine, and see if the malfunction indicator lamp (MIL) stays on.

   Does the MIL come on?
   YES - Go to the MIL Circuit Troubleshooting.
   NO - Go to Step 2 .

2. Connect the HDS to the data link connector (DLC).

3. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, troubleshoot the DLC circuit.

4. Read the DTC.

   Are any SRS DTCs indicated?
   YES - Do the SRS DTC troubleshooting.
   NO - Go to Step 5 .

5. Select Body Electrical status with the HDS.

6. Check for DTCs in the Gauge Menu with the HDS.

   Is DTC B1187 indicated?
   YES - Go to the DTC B1187 troubleshooting.
   NO - Go to Step 7 .

7. Do the gauge control module self diagnostic function.

   Does the SRS indicator come on?
   YES - Faulty SRS unit; replace the SRS unit.
   NO - Faulty gauge control module; replace the gauge control module.

Side airbag cutoff indicator stays on

1. Make sure nothing is on the front passenger's seat.
2. Make sure the seat-back is dry.
3. Turn the ignition switch to ON (II), and see if the SRS indicator comes on.

   Does the SRS indicator come on and stay on?
   YES - Go to the Symptom Troubleshooting ‘‘SRS indicator stay on, but no DTCs are stored".
   NO - Go to Step 4 .
4. Connect the HDS to the data link connector (DLC).
5. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, troubleshoot the DLC circuit.
6. Select Body Electrical status with the HDS.
7. Check for DTCs in the Gauge Menu with the HDS.

   Is DTC B1187 indicated?
   YES - Go to the DTC B1187 troubleshooting.
   NO - Go to Step 8 .
8. Do the gauge control module self-diagnostic function.

   Does the side airbag cutoff indicator flash?
   YES - Initialize the OPDS unit. If problem is still present, replace the OPDS sensor/seat-back cover/pad. ■
   NO - Faulty gauge control module; replace the gauge control module. ■

Side airbag cutoff indicator does not come on

NOTE:

- If the SRS indicator also stays on, go to SRS indicator stays on, but no DTCs are stored.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Turn the ignition switch to LOCK (0), then wait for 10 seconds.
2. Turn the ignition switch to ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the side airbag cutoff indicator come on?
   YES - Intermittent failure, the system is OK at this time.
   NO - Go to Step 3 .
3. Connect the HDS to the data link connector (DLC).
4. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, troubleshoot the DLC circuit.
5. Do the gauge control module self diagnostic function.

   Does the side airbag cutoff indicator come on?
   YES - Faulty SRS unit; replace the SRS unit. ■
   NO - Faulty gauge control module; replace the gauge control module. ■

SRS Symptom Troubleshooting - Faulty front seat belt reminder indicator

Faulty Front Seat Belt Reminder Indicator

NOTE: Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not latest, update the SRS unit software.

1. Observe these precautions:
   - Unbuckle the right seat belt.
   - Unbuckle the left seat belt.
   - Make sure nothing is on or under the seat.
2. Connect the HDS to the data link connector (DLC).
3. Turn the ignition switch to ON (II).
4. Make sure the HDS communicates with the vehicle and the SRS unit. If it dose not communicate, troubleshoot the DLC circuit.
5. From the Main Menu on the HDS, select SRS, then PARAMETER INFORMATION. In the PARAMETER INFORMATION Menu, select "SRS PSS", and read the HDS indicated.

   Is OFF indicated on the HDS?
   YES - Go to Step 8 .
   NO - Go to Step 6 .
6. Disconnect the floor wire harness 3P connector (A) from the front passenger's seat sitting switch.
7. From the Main Menu on the HDS, select SRS, then PARAMETER INFORMATION. In the PARAMETER INFORMATION Menu, select "SRS PSS", and read the HDS indicated.

   Is ON indicated on the HDS?
   YES - Short to ground in the floor wire harness; replace the faulty harness.■
   NO - Faulty front passenger's seat sitting switch.■
8. Observe these precautions:
   - Unbuckle the right seat belt.
   - Unbuckle the left seat belt.
   - I make it the state that people more than 45 kg in weight sit down on in front passenger's seat.
9. From the Main Menu on the HDS, select SRS, then PARAMETER INFORMATION. In the PARAMETER INFORMATION Menu, select "SRS PSS", and read the HDS indicated.

   Is ON indicated on the HDS?
   YES - Go to Step 10 .
   NO - Go to Step 11 .
10. Check the front seat belt reminder indicator.

    Does the front seat belt reminder indicator stay on?
    YES - Faulty gauge control module.■
    NO - Faulty SRS unit or poor connection at SRS unit connector B (39P) and SRS unit or poor connection at front passenger's seat belt sitting switch 3P connector and front passenger's seat sitting switch. Check the connection; if connection is OK and DTC is not indicated, replace the SRS unit. ■

11. Disconnect the floor wire harness 3P connector (A) from the front passenger's seat sitting switch.
12. Install a jumper wire between the No. 1 terminal and the No. 2 terminal of the floor wire harness 3P connector.
13. From the Main Menu on the HDS, select SRS, then PARAMETER INFORMATION. In the PARAMETER INFORMATION Menu, select "SRS PSS", and read the HDS indicated.

    Is ON indicated on the HDS?
    YES - Faulty front passenger's seat sitting switch; replace the front seat cushion cover/pad.
    NO - Open in the floor wire harness; replace the faulty wire harness.■

SRS Component Replacement/Inspection After Deployment

NOTE:

- Before doing any SRS repairs, check the DTCs, for the less obvious deployed components (seat belt tensioners, front impact sensors, side airbag sensors, etc.).
- Do not replace the OPDS unit unless it is physically damaged or a specific fault was found during DTC troubleshooting.

After a collision where the seat belt tensioners deployed, replace these items:

- SRS unit
- Seat belt tensioners
- Front impact sensors

After a collision where the front airbag(s) deployed, replace these items:

- SRS unit
- Deployed airbag(s)
- Seat belt tensioners
- Front impact sensors

After a collision where the side airbag(s) deployed, replace these items:

- SRS unit
- Deployed side airbag(s)
- Side impact sensor(s) (first)
- Side impact sensor(s) (second)
- Center pillar lower trim
- Complete seat frame

After a collision where a side curtain airbag has deployed, replace the items for the side(s) that deployed:

- SRS unit
- Deployed side curtain airbag(s)
- Seat belt tensioner(s)
- Side impact sensor(s) (first)
- Side impact sensor(s) (second)
- Front pillar trim
- Center pillar upper trim
- Quarter pillar trim
- Headliner
- Front grab handle
- Rear grab handle
- All related trim clips
- Sunvisor

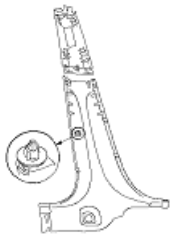
After a moderate to severe side or rear collision, inspect for any damage on the side curtain airbag or other related components. Replace the components as needed.
During the repair process, inspect these areas:

- Inspect all the SRS wire harnesses. Replace, do not repair, any damaged harnesses.
- Inspect the cable reel for heat damage. If there is any damage, replace the cable reel.

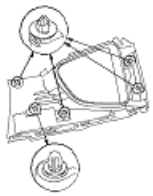
After the vehicle is completely repaired, turn the ignition switch to ON (II). If the SRS indicator comes on for about 6 seconds and then goes off, the SRS is OK. If the indicator does not function properly, use the HDS to read the DTC. If you cannot retrieve a code, do the SRS Symptom Troubleshooting.

Front pillar trim

Center pillar trim



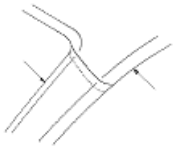
Quarter pillar trim



Checking and Adjusting the Headliner/Pillar Trim Overlap

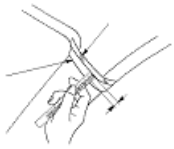
To prevent the side curtain airbag from deploying and damaging the pillar trim, the overlap between the headliner and pillar trim must be less then 8 mm (0.3 in.). To check the overlap, do this:

1. Install the headliner (A) and the pillar trim (B).

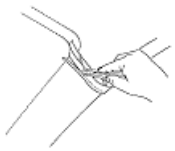


2. Using masking tape on the headliner, mark the upper edge of each pillar trim.

3. Remove the pillar trim, and measure the headliner overlap.
   - If the overlap is less than 8 mm (0.3 in.), remove the tape, and install the pillar trim.
   - If the overlap is more than 8 mm (0.3 in.), go to Step 4 .



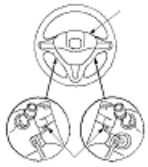
4. Carefully trim the headliner with a utility knife, reducing the overlap to less than 8 mm (0.3 in.).
5. Remove the tape, and install the pillar trim.



Driver's Airbag Replacement

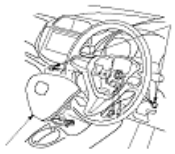
Removal

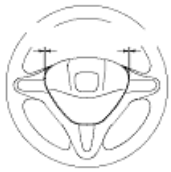
1. Do the battery terminal disconnection procedure, then wait for 3 minutes before starting work.
2. Remove the access panel (A) from the steering wheel, then disconnect the driver's airbag 4P connector (B) and horn switch 1P connector (C) from the cable reel.



3. Using a TORX T30 bit, remove the two TORX bolts (A).
4. Remove the driver's airbag (B).

Installation





1. Place the driver's airbag (A) in the steering wheel, and secure it with new TORX bolts (B).
   NOTE: Make sure the clearance (C) between the steering wheel and horn pad is the specified value.

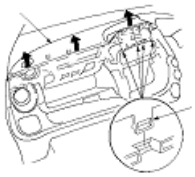
2. Connect the driver's airbag 4P connector (A) and horn switch 1P connector (B) of the cable reel, then install the access panel (C) on the steering wheel.
3. Do the battery terminal reconnection procedure.
4. Connect the HDS, and clear the DTCs.
5. After installing the airbag, confirm proper system operation:
   - Turn the ignition switch to ON (II); the SRS indicator should come on for about 6 seconds and then go off.
   - Make sure the horn and turn signal switches work properly.
   - Make sure the steering wheel switches work properly.

Front Passenger's Airbag Replacement

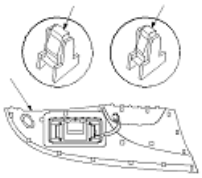
Removal

1. Do the battery terminal disconnection procedure, then wait for 3minutes before starting work.
2. Remove these items:
   - The glove box is lowered
   - Passenger's tray lid
   - Passenger's side vent
   - Center vent
   - Audio unit
3. Remove the connector clip, then disconnect the front passenger's airbag 4P connector (A) from the dashboard wire harness (B).

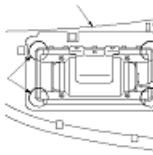
4. Remove the screw (A) from the passenger's lid.
5. Remove the three mounting bolts (B) from the bracket.



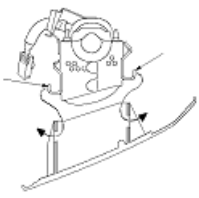
6. Release the hooks (A), of the front passenger's lid (B) from the Audio panel.
7. Pull up the front edges of the front passenger's lid to release the hooks (C).



8. Remove the front passenger's airbag assembly (A) out of the dashboard. If you are replacing only the front passenger's lid, go to Step 8 .
   NOTE: The front passenger's lid has pawls (B, C) on each side which attach it to the dashboard.



9. Cut the four parts (A) of the front passenger's lid (B) as shown, and remove the front passenger's airbag.
   NOTE:
   - Always replace the front passenger's lid whenever you remove the airbag from the panel.
   - Replace the airbag if the airbag mounting hooks or its housing is damaged.



10. Insert the hooks (A) of the front passenger's airbag housing into the new front passenger's lid, then insert the other hooks (B) into the panel.
    NOTE:
    - Make sure there are no objects between the airbag and the front passenger's lid.
    - Make sure the airbag is fully seated, and make sure the front passenger's lid is not deformed or damaged after the airbag is in place.
    - Do not use tools when detaching the front passenger's airbag in order to protect it.

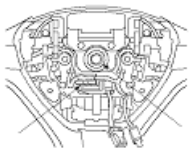
Installation

1. Place the front passenger's airbag assembly (A) into the dashboard. Torque the front passenger's airbag mounting bolts (B).
2. Install the screws (C) from the front passenger's lid.

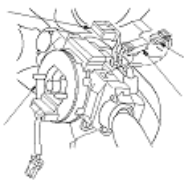
3. Connect the front passenger's airbag 4P connector (A) to the dashboard wire harness (B), then connect the connector clip. Reinstall the glove box.
4. Do the battery terminal reconnection procedure.
5. Connect the HDS and clear the DTCs.
6. After installing the airbag, confirm proper system operation: Turn the ignition switch to ON (II); the SRS indicator should come on for about 6 seconds and then go off.

Cable Reel Replacement

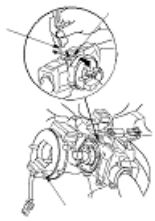
Removal



1. Make sure the front wheels are aligned straight ahead.
2. Do the battery terminal disconnection procedure, then wait for 3 minutes.
3. Remove the driver's airbag.
4. Disconnect the connector (A) from the cable reel, then remove the steering wheel bolt (B).
5. Confirm that the front wheels point straight ahead, then remove the steering wheel with a steering wheel puller. Do not tap on the steering wheel or steering column shaft when removing the steering wheel.
6. Remove the column cover.

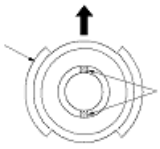


7. Disconnect the dashboard wire harness 4P connector (A) from the cable reel 4P connector (B), then disconnect the dashboard wire harness 20P connector (C) from the cable reel (D).

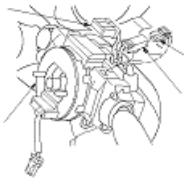


8. Release the lock tab (A) under the cable reel connector with a 90 ° hook shaped tool (B). Slide the tool below the cable reel connector just above the lock tab. Release the lower lock tab (C), and slide the cable reel off the column.

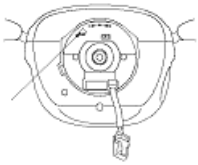
Installation



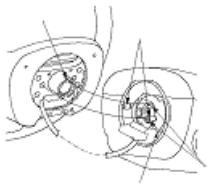
1. Before installing the steering wheel, align the front wheels straight ahead.
2. If not already done, disconnect the negative cable from the battery, then wait for 3 minutes.
3. Set the turn signal canceling sleeve (A) so that the projections (B) are aligned vertically.



4. Carefully install the cable reel (A) on the steering column shaft. Then connect 20P connector (B) to the cable reel, and connect the cable reel 4P connector (C) to the dashboard wire harness 4P connector (D).
5. Install the column covers.

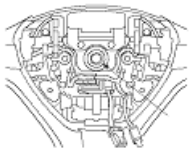


6. If necessary, center the cable reel (New replacement cable reels come centered.). Do this by first rotating the cable reel clockwise until it stops. Then rotate it counterclockwise (about three turns) until the arrow mark (A) on the cable reel label points straight up.



7. Position the two tabs (A) of the turn signal canceling sleeve (B) as shown, and install the steering wheel on to the steering column shaft, making sure the steering wheel hub (C) engages the pins (D) of the cable reel and tabs of the turn signal canceling sleeve. Do not tap on the steering wheel or steering column shaft when installing the steering wheel.

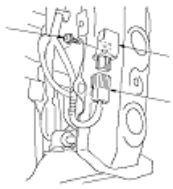
8. Install and torque a new steering wheel bolt (A), then reconnect the connectors.



9. Install the driver's airbag.
10. Do the battery terminal reconnection procedure.
11. Connect the HDS and clear any DTCs.
12. After installing the cable reel, confirm proper system operation:
    - Turn the ignition switch to ON (II); the SRS indicator should come on for about 6 seconds, and then go off.
    - After the SRS indicator has turned off, turn the steering wheel fully left and right to confirm the SRS indicator does not come on.
    - Make sure the horn and turn signal switches work properly.
    - Make sure the steering wheel switches work properly.

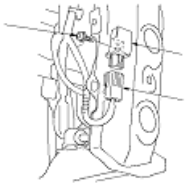
Front Impact Sensor Replacement

Removal



1. Do the battery terminal disconnection procedure, then wait for 3 minutes before starting work.
2. Disconnect the driver's airbag 4P connector, the front passenger's airbag 4P connector, and both seat belt tensioner 4P connectors.
3. Remove the front bumper.
4. Disconnect the engine compartment wire harness 2P connector (A). Using a TORX T30 bit, remove the TORX bolt (B), then remove the front impact sensor (C).

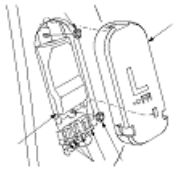
Installation



1. Install the front impact sensor with a new TORX bolt (A), then connect the engine compartment wire harness 2P connector (B) to the front impact sensor (C).
2. Reconnect the driver's airbag 4P connector, the front passenger's airbag 4P connector, and both seat belt tensioner 4P connectors.
3. Do the battery terminal reconnection procedure.
4. Confirm proper SRS operation: Turn the ignition switch to ON (II); the SRS indicator should come on for about 6 seconds and then go off.
5. Reinstall all removed parts.

OPDS Unit Replacement

Removal



1. Do the battery terminal disconnection procedure, then wait for 3 minutes before starting work.
2. Disconnect the front passenger's side airbag harness 2P connector.
3. Remove the front passenger's seat assembly.
4. Remove the seat-back cover/pad.
5. Remove the cover (A), then disconnect the OPDS unit 18P connector (B) and sensor connectors (C) from the OPDS unit (D).
6. Remove the two nuts (E) and the OPDS unit.

Installation

1. Place the OPDS unit (A) on the seat-back frame. Tighten the new nuts (B), and connect the OPDS unit harness 18P connector (C) and sensor connectors (D) to the OPDS unit. Reinstall the cover (E).
2. Install the seat-back cover/pad.
3. Install the front seat assembly, then connect the front passenger's side airbag harness 2P connector.
4. Do the battery terminal reconnection procedure.
5. Set the seat-back in the normal position, and make sure there is nothing on the front passenger's seat.
6. Initialize the OPDS unit.
7. Confirm proper SRS operation: Turn the ignition switch to ON (II); the SRS indicator should come on for about 6 seconds and then go off.

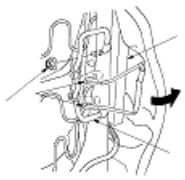
OPDS Unit Initialization

When a seat-back cover/pad and/or OPDS unit is replaced, initialize the OPDS by doing this procedure.
NOTE: A new (uninitialized) OPDS unit installed with a faulty OPDS sensor can cause DTC 85-71 or 85-78.

1. Clear the DTC memory.
2. Make sure the front passenger's seat is dry. Set the seat-back in a normal position, and make sure there is nothing on the seat.
3. Make sure the ignition switch is in LOCK (0).
4. Connect the HDS to the data link connector (DLC) (A).
5. Turn the ignition switch to ON (II).
6. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, troubleshoot the DLC circuit.
7. From the HDS Main Menu, select SRS, then SRS, then Calibration. In the Calibration Menu, select OPDS UNIT INITIALIZATION. Follow the screen prompts to initialize the OPDS unit.
8. Turn the ignition switch to LOCK (0).
9. Disconnect the HDS from the DLC.
   NOTE: If the OPDS unit fails to initialize after several attempts, replace the OPDS sensor/seat-back and retry. If the OPDS unit continues to fail to initialize, replace the OPDS unit.

Side Airbag Replacement

Removal



1. Do the battery terminal disconnection procedure, then wait for 3 minutes before starting work.
2. Remove the front seat assembly.
3. Pull out the seat-back cover/pad as needed.
4. Release the rear hooks (A) from seat-back frame (B).
5. Remove the mounting nut (C) and the side airbag (D).

Installation

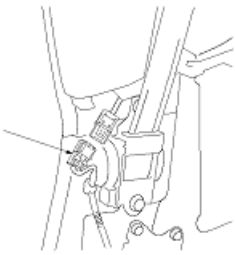
NOTE:

- If the side airbag lid is secured with tape, remove the tape.
- Do not open the lid on the side airbag cover.
- Use new mounting nut tightened to the specified torque.
- Make sure that the seat-back cover/pad is installed properly. Improper installation may prevent proper deployment.
- Be sure to install the harness so that they are not pinched or interfering with other parts.

1. Place the side airbag (A) on the seat-back frame. Torque the new side airbag mounting nut (B).
2. Install the rear hooks (C) in the seat-back frame (D).
3. Install the seat-back cover/pad.
4. Install the front seat assembly. then connect the floor wire harness 2P connector.
5. Move the front seat and the seat-back through their full ranges of movement, making sure the harness are not pinched or interfering with other parts.
6. Do the battery terminal reconnection procedure.
7. Connect the HDS, and clear the DTCs.
8. After installing the side airbag, confirm proper system operation: Turn the ignition switch to ON (II); the SRS indicator should come on for about 6 seconds and then go off.

Side Curtain Airbag Replacement

Removal

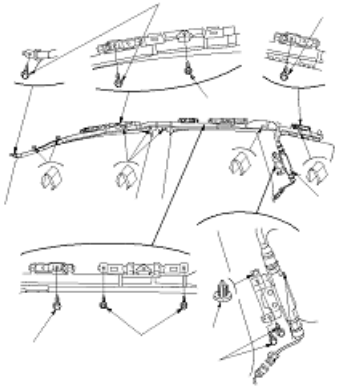


NOTE:

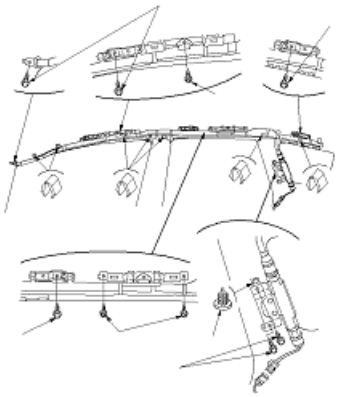
- Review the interior trim replacement procedure before doing repair or service.
- Removal of the side curtain airbag must be done according to Precaution and Procedures.
- The side curtain airbag system consists of many components. When the side curtain airbag has been deployed, go to Component Replacement/Inspection After Deployment, and replace all of the parts listed.

1. Do the battery terminal disconnection procedure, then wait for 3 minutes before starting work.
2. Remove the cargo area side trim panel.
3. Disconnect the floor wire harness 2P connectors (A) from the side curtain airbags.
4. Remove the headliner.

5. Remove the side airbag mounting bolts (A) and mounting screws (B) from the bracket. Detach the clip (C), then remove the side curtain airbag (D).



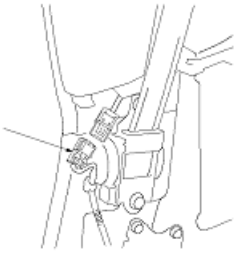
Installation



NOTE:

- Installation of the side curtain airbag must be done according to the Precautions and Procedures.
- If the airbag is frayed, or has any other visible damage, replace it. Do not attempt to repair an airbag.
- When you install the airbag, make sure it is not twisted, and that it is not caught between the inflator bracket by the bracket bolts.
- Make sure that the side curtain airbag inflator retainer is installed properly. Otherwise the airbag could incorrectly deploy and cause damage or injuries.
- Make sure you have the slack or no cutting and peeling. If tape has slack or cutting, and peeling side curtain airbag should be replacement.

1. Place the side curtain airbag assembly on the side of the roof, and fit its clip (A) into the holes in the body. Tighten the new side curtain airbag mounting bolts (B) and mounting screws (C).



2. Connect the floor wire harness 2P connectors (A) to the side curtain airbags.
3. Do the battery terminal reconnection procedure.
4. Connect the HDS, and clear the DTCs.
5. After installing the side curtain airbag, confirm proper system operation: Turn the ignition switch to ON (II); the SRS indicator should come on for about 6 seconds and then go off.
6. Install all removed parts.
7. Confirm proper headliner/pillar trim overlap.

Side Impact Sensor (Second) Replacement

Removal

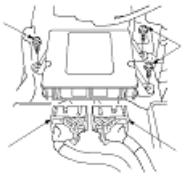
1. Do the battery terminal disconnection procedure, then wait for 3 minutes before starting work.
2. Remove the cargo area side trim panel.
3. Disconnect the floor wire harness 2P connector (A) from the side impact sensor (second) (B).
4. Using a TORX T30 bit, remove the TORX bolt (C) then remove the side impact sensor (second).

Installation

1. Install the side impact sensor (second) with a new TORX bolt (A), then connect the floor wire harness 2P connector (B) to the side impact sensor (second) (C).
2. Do the battery terminal reconnection procedure.
3. Confirm proper SRS operation: Turn the ignition switch to ON (II); the SRS indicator should come on for about 6 seconds, and then go off.
4. Reinstall all removed parts.

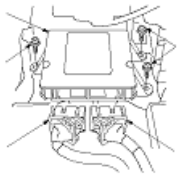
SRS Unit Replacement

Removal



1. Do the battery terminal disconnection procedure, then wait for 3 minutes before starting work.
2. Remove the center console.
3. Remove the rear heater joint duct.
4. Disconnect SRS unit connectors A (39P) and B (39P) from the SRS unit.
5. Remove the TORX bolts (C) using a TORX T30 bit, then pull out the SRS unit.

Installation



1. Install the SRS unit (A) with a new TORX bolts (B), then connect the connectors (C) to the SRS unit; push them into position until they click.
   NOTE: Be sure the SRS unit is sitting squarely against it's bracket before torquing the TORX bolts.
2. Do the battery terminal reconnection procedure.
3. Confirm proper SRS operation: Turn the ignition switch to ON (II); the SRS indicator should come on for about 6 seconds and then go off.
4. Reinstall all removed parts.

SRS Unit Update

Special Tools Required

- Honda diagnostic system (HDS) table tester
- Honda interface module (HIM) and an iN workstation with HDS and CM update software
- HDS pocket tester
- GNA600 and an iN workstation with HDS and CM update soft ware (Any one of the update tools above will work)

NOTE:

- Use this procedure when you need to update the SRS unit at anytime.
- Make sure the HDS/HIM has the latest software version.
- Before you update the SRS unit, make sure the battery in the vehicle is fully charged.
- Never turn the ignition switch to LOCK (0) or ACC (I) during the update. If there is a problem with the update, leave the ignition switch in the ON (II).
- To prevent SRS unit damage, do not operate anything electrical (headlights, audio system, brakes, A/C, power windows, moonroof (if equipped), door locks, etc.) during the update.
- To ensure the latest program is installed, do an SRS unit update whenever the SRS unit is replaced.
- You cannot update an SRS unit with a program it already has. It will only accept a new program.
- If you need to diagnose the HIM because the HIM's red (#3) light came on or was flashed during the update, leave the ignition switch in the ON (II) position when you disconnect the HIM from the data link connector (DLC). This will prevent SRS unit damage.

1. Connect the HDS to the DLC (A).
2. Turn the ignition switch to ON (II), but do not start the engine.
3. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, troubleshoot the DLC circuit.
4. Select the update program, and follow the screen prompts to update the SRS unit.
5. If the software in the SRS unit is the latest, disconnect the HDS/HIM from the DLC, and go back to the procedure that you were doing. If the software in the SRS unit is not the latest, follow the instructions on the screen.
   NOTE: If you run into a problem during the update procedure (programming takes over 15 minutes, status bar goes over 100 %, D or immobilizer light flashes, HDS tablet freezes, etc.), follow these steps to minimize the chance of damaging the SRS unit :
   - Leave the ignition switch in the ON (II) position.
   - Connect a jumper battery (do not connect a battery charger).
   - Shut down the HDS.
   - Disconnect the HDS from the DLC.
   - Reboot the HDS.
   - Reconnect the HDS to the DLC, and try the update procedure again.
6. Turn the ignition switch to LOCK (0).
7. Disconnect the HDS from the DLC.

Audio System Description

[Overview](#)
[Audio Unit Connector for Inputs and Outputs](#)
[USB Adapter Connector for Inputs and Outputs](#)

Poor AM or FM radio reception or interference

NOTE:

- Check the vehicle battery condition first.
- Check the connectors for poor connections or loose terminals.
- Check the radio reception in an open area.
- Compare it to a known-good vehicle of the same model, year, and trim level whenever possible.
- If necessary, have the customer demonstrate the symptom.
- Poor reception/interference can be caused by the following:
  - The radio station is far away.
  - Atmospheric conditions are unfavorable.
  - Tall buildings, mountains, or high-voltage power lines are nearby.
  - Non-standard antenna element.

1. Check if the radio reception/interference is the same as the known-good vehicle in several locations.

   Is the reception/interference the same?
   YES - Go to Step 2 .
   NO - Multipath interference or weak station. Operation is normal.■

2. Check the reception/interference while the engine is running, and compare it to the known-good vehicle.

   Is there noise (static or whine) only with the engine running?
   YES - Check the antenna and radio grounds. If OK, check the charging system, fuel injection system (fuel pump), HVAC (blower motor), and the ignition system.■
   NO - Go to Step 3 .

3. Make sure turn the ignition switch to LOCK (0).

4. Check the AM/FM antenna element for cracks, or other damage. Make sure that the AM/FM antenna element isn't loose.
   NOTE: Do not use any tools to tighten the AM/FM antenna element.

   Is there any damage?
   YES - Replace the AM/FM antenna element. ■
   NO - Go to Step 5 .

5. Disconnect AM/FM antenna 3P connector.

6. Turn the ignition switch to ON (II).

7. Turn on the audio unit.

8. Measure the voltage between the AM/FM antenna 3P connector No. 3 terminal and body ground.

   Is there battery voltage?
   YES - Go to Step 14 .
   NO - Go to Step 9 .

9. Turn the ignition switch to LOCK (0).

10. Remove the audio unit.

11. Turn the ignition switch to ON (II).

12. Turn on the audio unit.

---

13. Measure the voltage between audio unit connector D (3P) No. 3 terminal and body ground with the audio unit connectors connected.

    Is there battery voltage?
    YES - Repair open or short in the wire between audio unit and AM/FM antenna. Also check the AM/FM antenna lead/sublead connector.■
    NO - Replace the audio unit. ■

14. Turn the ignition switch to LOCK (0).

15. Remove the audio unit, and disconnect audio unit connector D (3P).

---

16. Check for continuity between audio unit connector D (3P) terminal No. 1 and body ground.

    Is there continuity?
    YES - Replace the AM/FM antenna lead and/or sublead.■
    NO - Go to Step 17 .

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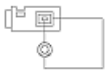
17. Check for continuity between audio unit connector D (3P) No. 1 and No. 2 terminals.



Is there continuity?

YES - Replace the AM/FM antenna lead and/or sublead.■

NO - Go to Step 18 .

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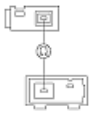
18. Check for continuity between audio unit connector D (3P) No. 1 terminal and the AM/FM antenna 3P connector No. 1 terminal.



Is there continuity?

YES - Go to Step 19 .

NO - Replace the AM/FM antenna lead and/or sublead.■

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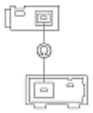
19. Check for continuity between audio unit connector D (3P) No. 2 terminal and the AM/FM antenna 3P connector No. 2 terminal.



Is there continuity?

YES - Substitute a known-good AM/FM antenna and recheck. If the reception is still poor, replace the audio unit. ■

NO - Replace the AM/FM antenna lead and/or sublead.■

Audio System Symptom Troubleshooting - Volume does not change

Volume does not change

NOTE: Set the fader and balance positions to the center.

1. Turn on the audio unit, and listen for sound from the speakers.

   Is the sound normal?
   YES - Go to Step 2 .
   NO - Go to audio system sound is weak or distorted, or no sound is heard from speakers. ■

2. Operate the volume knob to see if the volume changes.

   Does the volume change?
   YES - Operation is normal at this time.■
   NO - Replace audio unit. ■

Audio disc does not load

NOTE:

- CD labels should not be used in the audio unit. They may damage the player mechanism.
- Make sure the CD is compatible with the system (see the owner's manual for more information).

1. Insert a known-good CD to see if the symptom can be duplicated.

   Does the CD load?
   YES - Operation is normal. If the disc loads normally, but will not play, go to audio disc does not play. ■
   NO - Go to Step 2 .

2. Insert another CD.

   Does the CD load?
   YES - The original CD is faulty.■
   NO - Replace audio unit. ■

Audio disc does not play

1. Try loading a known-good CD.

   Does the CD load?
   YES - Go to Step 2 .
   NO - Go to audio disc does not load. ■

2. Insert another known-good CD to see if the symptom can be duplicated.

   Does the CD play?
   YES - Operation is normal.■
   NO - Replace the audio unit. ■

Audio System Symptom Troubleshooting - Audio disc skips

Audio disc skips

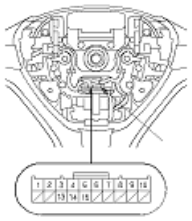
1. Confirm the vehicle's tyres are properly inflated with no cupping or flat spots.
2. Check the customers CD for scratches, fingerprints, and marks.
   NOTE: The following test should be done with audio unit bass and treble set to customers listening performance.
   When comparing to known-good vehicles, the comparison should be done on same model and trim level.
3. Compare the customer's CD that is skipping in a known-good vehicle under the same conditions.

   Does the CD skip in the known-good vehicle under the same conditions?
   YES - Operation is normal.■
   NO - Replace the audio unit. ■

AM/FM Antenna Replacement

1. Remove the AM/FM antenna element (A).
2. Remove the AM/FM antenna base (B).
   -1. Remove the quarter pillar trim and disconnect the connector (C).
   -2. Remove the headliner and detach the clip (D).
   -3. Remove the nut (E) from the AM/FM antenna base and remove it.
3. Install the antenna in the reverse order of removal.

Audio Remote Switch Test



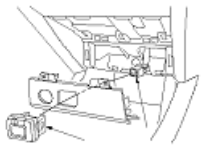
1. Remove the driver's airbag assembly.
2. Disconnect the cable reel 20P connector (A).
3. Measure the resistance between the No. 3 and No. 7 terminals in each switch position according to the table.

Position	Resistance
No button pressed	About 10 kΩ
MODE	About 3.7 kΩ
CH (+)	About 1.7 kΩ
CH (−)	About 775 Ω
▲ (VOL.UP)	About 357 Ω
▼ (VOL.DOWN)	About 100 Ω

4. If the resistance is not as specified, replace the audio remote switch.

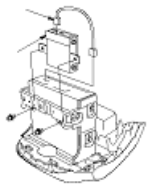
USB Adapter Holder Replacement

1. Remove the center lower trim.
2. Remove the 5P connector (A) from the USB adapter holder (B).
3. Push out the USB adapter holder from the center lower trim.
4. Install the holder in the reverse order of removal.



USB Adapter Unit Replacement

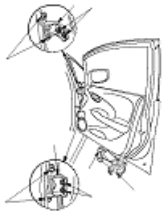
1. Remove the audio unit.
2. Disconnect the connector (A) from the USB adapter unit (B).
3. Remove the bolts and the USB adapter unit.
4. Install the unit in the reverse order of removal.



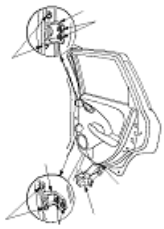
Door Position Adjustment

NOTE: Check for a flush fit with the body, then check for equal gaps between the front, rear, and bottom door edges and the body. Check that the door and body edges are parallel.

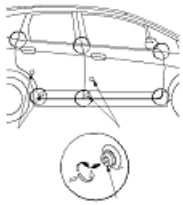
Front door



Rear door

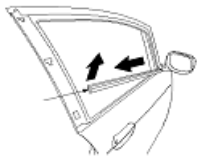


1. Place the vehicle on a firm, level surface when adjusting the doors.
2. Adjust at the hinges (A):
   - Pad a floor jack (B) with shop towels (C), then use the jack to support the door to prevent damage to the door while adjusting it.
   - On the front door: Remove the front inner fender. Loosen the hinge mounting bolts (D) slightly, and move the door backward or forward, up or down as necessary to equalize the gaps.
   - On the rear door: Loosen the hinge mounting bolts (E) slightly, and move the door backward or forward, up or down as necessary to equalize the gaps.
3. If necessary, replace the door mounting bolts with the adjusting bolts (P/N 90102-SFA-305) made specifically for door adjustment, then adjust at the door: Loosen the door mounting bolts (F) slightly, and move the door up or down as necessary to equalize the gaps, and move it in or out until it's flush with the body.



4. Check that the door and body edges are parallel. If necessary, adjust the door cushions (A) to make the rear of the doors flush with the body.
5. Apply touch-up paint to the hinge mounting bolts, and around the hinges.
6. Check for water leaks.

Front Door Glass Outer Weatherstrip Replacement



NOTE:

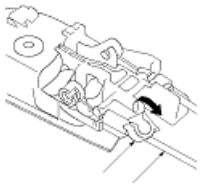
- Put on gloves to protect your hands.
- Take care not to scratch the door and related parts.
- RHD model is shown; LHD model is symmetrical.

1. Lower the glass fully.
2. Remove the door sash outer trim.
3. While lifting the rear of the door glass outer weatherstrip (A), slide the weatherstrip rearward, then remove the weatherstrip.
4. Install the weatherstrip in the reverse order of removal, and note these items:
   - Push the weatherstrip into place securely.
   - Make sure that there is no clearance between the rear edge of the weatherstrip and door sash outer trim.

Front Door Latch Replacement - Without Super Locking

NOTE:

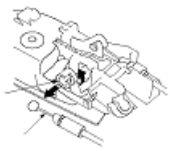
- Put on gloves to protect your hands.
- Take care not to scratch the door and related parts.
- RHD model is shown; LHD model is symmetrical.



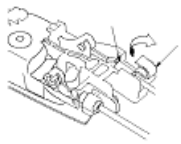
Latch Replacement

1. Raise the glass fully.
2. Remove the door panel.
3. Disconnect the power door lock actuator connector.
4. Remove the plastic cover, as needed.
5. Detach the latch cable fastener (A) from the latch cable (B).

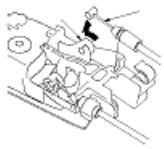
6. Disconnect the latch cable (A) from the lock knob (B).



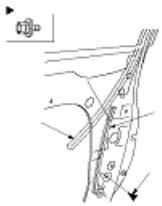
7. Detach the inner handle cable fastener (A) from the inner handle cable (B).



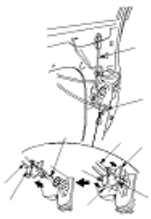
8. Disconnect the inner handle cable (A) from the lock knob (B).



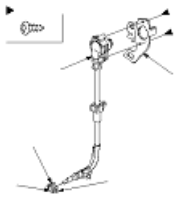
9. Pull the glass run channel (A) away as needed, and remove the bolt, then remove the center lower channel (B).



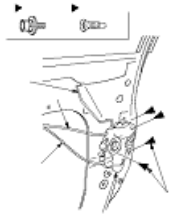
10. Driver's door. Pull both side flanges (A) of the retainer (B) outward, and pull the middle flange portion (C) of the outer casing cover (D) out, then disconnect the cylinder cable (E) from the latch.



11. If necessary, remove the front door outer handle and the special screws, then separate the door cylinder (A) and outer handle protector (B). If the retainer (C) is damaged, release the hooks (D), and replace it.
NOTE: If removed, the special screws must be replaced.



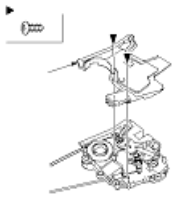
12. Disconnect the outer handle rod (A).
13. Remove the bolt (B) and the screws (C) securing the latch (D), then remove the latch through the hole in the door.
NOTE: Take care not to bend the outer handle rod, the latch cable (E), and the inner handle cable (F).
14. Install the latch in the reverse order of removal, and note these items:
    - Make sure the actuator connector is plugged in properly, and each rod is connected securely.
    - Make sure the door locks and opens properly.
    - When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.
    - Check for water leaks.



Cable Replacement

1. Remove the door latch.
2. Remove the screw(s), then remove the latch protector (A).

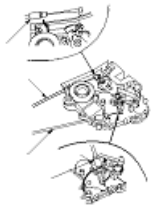
Indonesia-produced models



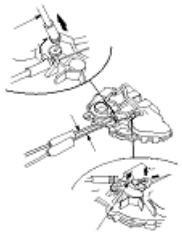
Thailand-produced models

3. Disconnect the latch cable (A) and inner handle cable (B).
4. Install the cables in the reverse order of removal, and note these items:
   - Make sure the latch cable and inner handle cable are connected securely.
   - Make sure the door locks and opens properly.
   - When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.
   - Check for water leaks.

Indonesia-produced models



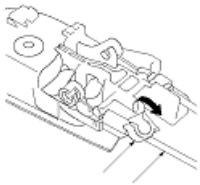
Thailand-produced models



Front Door Latch Replacement - With Super Locking

NOTE:

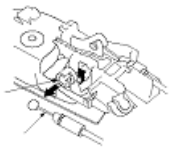
- Put on gloves to protect your hands.
- Take care not to scratch the door and related parts.



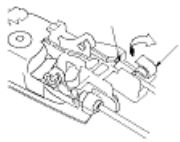
Latch Replacement (with Super Locking)

1. Raise the glass fully.
2. Remove the door panel.
3. Disconnect the power door lock actuator connector.
4. Remove the plastic cover, as needed.
5. Detach the latch cable fastener (A) from the latch cable (B).

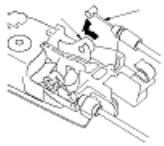
6. Disconnect the latch cable (A) from the lock knob (B).



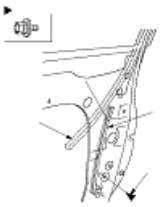
7. Detach the inner handle cable fastener (A) from the inner handle cable (B).



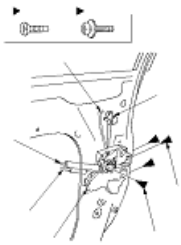
8. Disconnect the inner handle cable (A) from the lock knob (B).



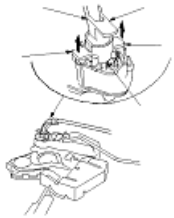
9. Pull the glass run channel (A) away as needed, and remove the bolt, then remove the center lower channel (B) by pulling it downward.



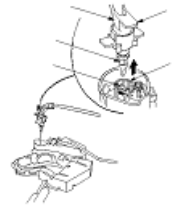
10. Remove the screws (A, B) securing the latch (C), then remove the latch through the hole in the door. Take care not to bend the outer handle rod (D), the cylinder cable (E) (driver's door), the latch cable (F), and the inner handle cable (G).



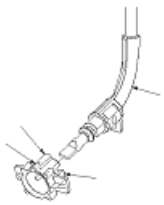
11. Driver's door: While pressing a middle flange portion (A) of the outer casing cover (B) against the latch, pull both outside flanges (C) of the retainer (D) upward.



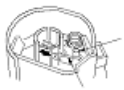
12. Driver's door: Pull the middle flange portion (A) of the outer casing cover (B) up, then disconnect the cylinder cable (C) from the latch.
NOTE: As soon as the cable comes off the latch, the shutter (D) goes down into the connector (E).

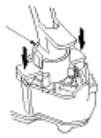


13. Driver's door: If the retainer (A) of the lock cylinder cable (B) is damaged, release the hooks (C), then replace it.



14. Install the latch in the reverse order of removal, and note these items:
    - Make sure the actuator connector is plugged in properly and each rod is connected securely.
    - Make sure the door locks and opens properly.
    - When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.
    - Cylinder cable installation: Before installing the cylinder cable (A) to the latch, hang the elbow of the shutter (B) on the boss (C) as shown. Next install the cylinder cable fully into the connector (D), then push the retainer (E) until it snaps to engage the latch and the door cylinder securely. Make sure the elbow of the shutter is on the boss.

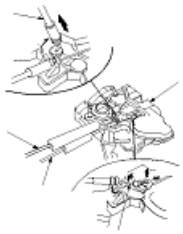




Cable Replacement

1. Remove the screw, then remove the latch protector (A) by releasing the hook (B).

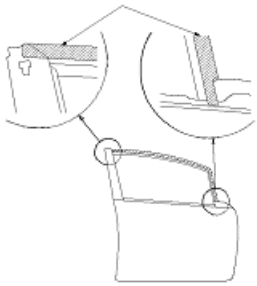
2. Detach the latch cable (A) and the inner handle cable (B) from the latch (C).

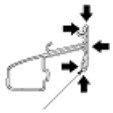


3. Install the cable in the reverse order of removal.
    - Make sure the latch cable and inner handle cable are connected securely.
    - Make sure the door locks and opens properly.
    - When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.

Front Door Channel Tape Replacement

NOTE:





- Keep dust away from the working area.
- When working at lower temperatures, heat the door channel and door channel tape with a hair dryer.
  Door channel: about 15 °C (59 °F).
  Door channel tape: about 30 °C (86 °F).
- When heating the door channel tape, heat it evenly and gradually to prevent deformation.
- When pressing the door channel tape, slowly press it from the corner to prevent air bubbles and wrinkles.
- If there are air bubbles in the door channel tape, release the air with your finger or a plastic squeegee.
- If the air bubble is more than 10 mm (0.4 in.) in diameter, peel up the door channel tape, then reapply it.
- RHD model is shown; LHD model is symmetrical.

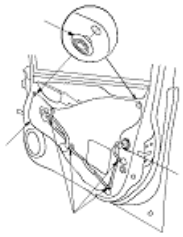
1. The following tools are required to replace the door channel tape:
   - Plastic squeegee
   - Isopropyl alcohol
   - Sponge or shop towel
   - Hair dryer
2. Remove these items:
   - Power mirror
   - Front door glass outer weatherstrip
   - Front door weatherstrip, as needed
   - Glass run channel, as needed
   - Front door sash outer trim
3. Slowly peel up the old door channel tape while heating it with a hair dryer.
4. Clean the door channel bonding surface with a sponge dampened in isopropyl alcohol. After cleaning, keep oil, grease, and water from getting on the surface.
5. Attach the door channel tape.
   -1. Peel the edge of the adhesive backing from the channel tape.
   -2. Fit the door channel tape to the door channel.
   -3. Apply the door channel tape to the door channel while peeling the adhesive backing from it a little at a time. Check that the channel tape is parallel with the door channel.
   -4. Push firmly on the door channel tape with a plastic squeegee (felt side).
   NOTE: To prevent air bubbles, slowly press the door channel tape around the door frame corner.
6. As necessary, repeat the preceding steps.
7. Reinstall all remaining removed parts.
8. Check that the body color on the door channel is covered by the door channel tape.
9. Check for water leaks.

Attachment Point (Reference)

Front Door Outer Handle Replacement

NOTE:

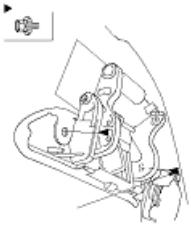
- Put on gloves to protect your hands.
- Take care not to scratch the door and related parts.
- When removing components, use the trim tools or equivalent.



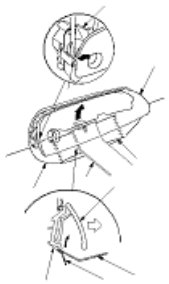
1. Remove the door panel.
2. Raise the glass fully.
3. Disconnect the power door lock actuator connector (A), and detach the harness clips (B).
4. Remove the plug caps (C), then remove the plastic cover (D) as needed.

5. Detach the rod fastener (A), then disconnect the outer handle rod (B) with a clip remover.

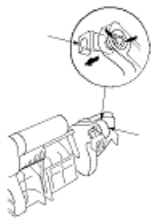
6. Remove the bolts.



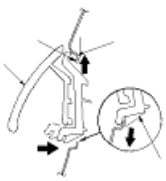
7. Remove the outer handle (A).
   -1. Release the hook (B) of the outer handle protector (C).
   -2. Apply protective tape (D) to the door panel (E) as shown.
   -3. Pry out the outer handle with the appropriate trim tool (F) to release the hook (G), then remove it.
   NOTE: Take care not to scratch the door.



8. Remove the rod fastener (A) from the outer handle base (B), then replace it with a new one.



9. Install the handle (A) in the following order.
   -1. Set the upper portion (B) of the handle to the edge (C) of the door panel.
   -2. While pulling up the handle, push the lower hook (D) into place.
   NOTE: Push the hook into place securely.



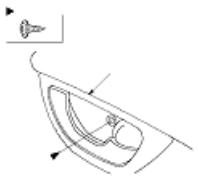
10. Install the removed parts in the reverse order of removal, and note these items:
    - Make sure that the actuator connector is plugged in properly, and that the outer handle rod are connected securely.
    - Make sure the door handle works properly.

Front Door Panel Removal/Installation

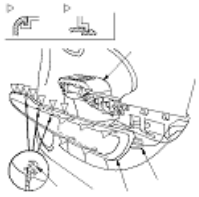
NOTE:

- RHD model is shown; LHD model is symmetrical.
- Take care not to scratch the door and related parts.
- When removing components, use the trim tools or equivalent.

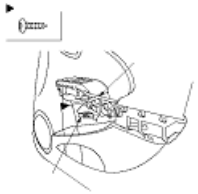
1. Remove the screw securing the inner handle (A).



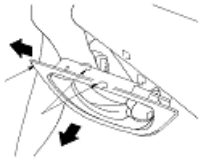
2. Remove the grip cover (A).
   -1. Using a flat-tip screwdriver wrapped with protective tape, pry out the front bottom edge of the cover while pushing up the hooks (B).
   -2. From front to rear, pry out along the edge of the cover to release the hooks (C, D) from the power window switch panel (E).
   -3. Release the rear hook (F), while pulling the cover forward.



3. Disconnect the power window switch connector (A). Remove the screw from the grip base (B).

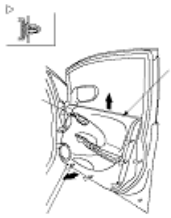


4. Pull the inner handle (A) forward and out half-way to release the hooks (B).



5. Apply protective tape (A) to the door panel (B) as shown.

6. Remove the door panel (A) with as little bending as possible to avoid creasing or breaking it.
   -1. Start at the bottom edge of the door panel, release the clips with a commercially available trim pad remover.
   -2. Detach the upper clips.
   -3. Starting at the rear, pull the door panel upward.
   NOTE: Do not pull the door panel up too far, or the door panel will be damaged by the inner handle (B).



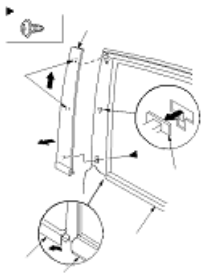
7. Remove the door panel (A) while pulling the inner handle (B) out through the hole in the door panel.

8. Install the door panel in the reverse order of removal, and note these items:
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Make sure the connector is plugged in properly.

Front Door Sash Outer Trim Replacement

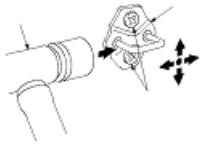
NOTE:

- Take care not to scratch the door and related parts.
- RHD model is shown; LHD model is symmetrical.



1. Remove the door sash outer trim (A).
   -1. Remove the screw from inside the door.
   -2. Release the lower edge of the trim from the door glass outer weatherstrip (B).
   -3. Pull the trim up to release the hooks (C) from the door, then remove the trim.
2. Install the trim in the reverse order of removal.

Door Striker Adjustment



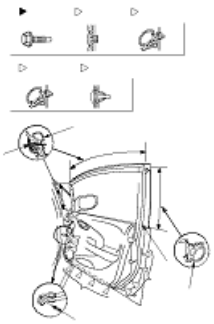
Make sure the door latches securely without slamming it. If necessary, adjust the striker (A): The striker nuts are fixed, but the striker can be adjusted slightly up or down, and in or out.

1. Loosen the screws (B).
2. Wrap the striker with a shop towel, then adjust the striker by tapping it with a plastic hammer (C). Do not tap the striker too hard.
3. Lightly tighten the screws.
4. Hold the outer handle out, and push the door against the body to be sure the striker allows a flush fit. If the door latches properly, tighten the screws and recheck.

Front Door Weatherstrip Replacement

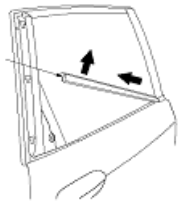
NOTE:

- Take care not to scratch the door and related parts.
- Use a clip remover to remove the clips.
- RHD model is shown; LHD model is symmetrical.



1. At the front pillar, remove the door checker mounting bolt (A).
2. Detach the clips (B, C, D, E), then remove the door weatherstrip (F).
3. Install the weatherstrip in the reverse order of removal and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Make sure the weatherstrip is installed in the holder (G) securely.
   - Apply medium strength type liquid thread lock to door stop mounting bolt before installation.
   - Check for water leaks.

Rear Door Glass Outer Weatherstrip Replacement



NOTE:

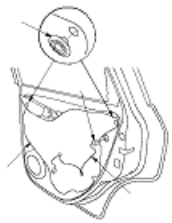
- Put on gloves to protect your hands.
- Take care not to scratch the door and related parts.
- RHD model is shown; LHD model is symmetrical.

1. Lower the glass fully.
2. Remove the rear door rear sash trim.
3. While lifting the rear of the door glass outer weatherstrip (A), slide the weatherstrip rearward, then remove the weatherstrip.
4. Install the weatherstrip in the reverse order of removal, and note these items:
   - Push the weatherstrip into place securely.
   - Make sure that there is no clearance between the front edge of the weatherstrip and door sash outer trim.

Rear Door Latch Replacement

NOTE:

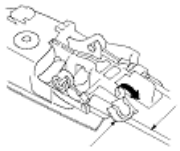
- Put on gloves to protect your hands.
- Take care not to scratch the door and related parts.
- RHD model is shown; LHD model is symmetrical.



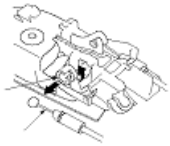
Latch Replacement

1. Raise the glass fully.
2. Remove the door panel.
3. Detach the harness clip (A), then disconnect the power door lock actuator connector (B).
4. Remove the plug caps (C), then remove the plastic cover (D), as needed.

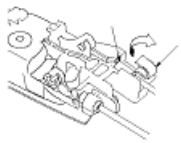
5. Detach the latch cable fastener (A) from the latch cable (B).



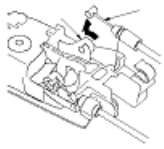
6. Disconnect the latch cable (A) from the lock knob (B).



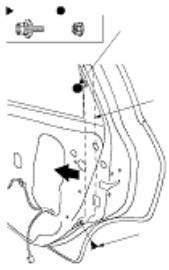
7. Detach the inner handle cable fastener (A) from the inner handle cable (B).



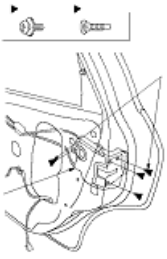
8. Disconnect the inner handle cable (A) from the lock knob (B).



9. Remove the bolt, and loosen the nut, then pull the rear lower channel (A) forward.



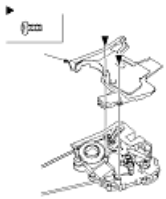
10. Remove the screws (A, B), then remove the latch (C) through the gap between the rear lower channel and door.
    NOTE: Take care not to bend the latch cable, the inner handle cable.
11. Install the latch in the reverse order of removal, and note these items:
    - Make sure the actuator connector is plugged in properly.
    - Make sure the door locks and opens properly.
    - When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.
    - Check for water leaks.



Cable Replacement

1. Remove the door latch.
2. Remove the screws, then remove the latch protector (A).

Indonesia-produced models



Thailand-produced models

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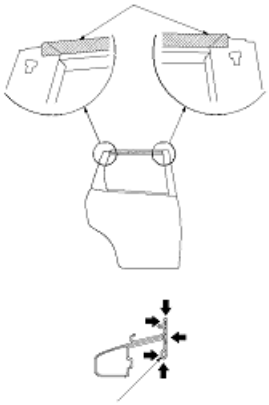
3. Disconnect the latch cable (A) and the inner handle cable (B).
4. Install the cable in the reverse order of removal, and note these items:
   - Make sure the latch cable and inner handle cable are connected securely.
   - Make sure the door locks and opens properly.
   - When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.
   - Check for water leaks.

Indonesia-produced models

Thailand-produced models

Rear Door Channel Tape Replacement

NOTE:



- Keep dust away from the working area.
- When working at lower temperatures, heat the door channel and door channel tape with a hair dryer.
  Door channel: about 15 °C (59 °F).
  Door channel tape: about 30 °C (86 °F).
- When heating the door channel tape, heat it evenly and gradually to prevent deformation.
- When pressing the door channel tape, slowly press it from the corner to prevent air bubbles and wrinkles.
- If there are air bubbles in the door channel tape, release the air with your finger or a plastic squeegee.
- If the air bubble is more than 10 mm (0.4 in.) in diameter, peel up the door channel tape, then reapply it.

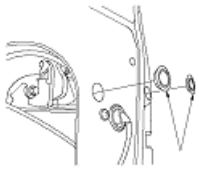
1. The following tools are required to replace the door channel tape:
   - Plastic squeegee
   - Isopropyl alcohol
   - Sponge or shop towel
   - Hair dryer
2. Remove these items:
   - Rear door sash outer trim
   - Rear door rear sash trim
   - Rear door glass outer weatherstrip
   - Glass run channel, as needed
   - Rear door weatherstrip, as needed
3. Slowly peel up the old door channel tape while heating it with a hair dryer.
4. Clean the door channel bonding surface with a sponge dampened in isopropyl alcohol. After cleaning, keep oil, grease, and water from getting on the surface.
5. Attach the door channel tape.
   -1. Peel the edge of the adhesive backing from the channel tape.
   -2. Fit the door channel tape to the door channel.
   -3. Apply the door channel tape to the door channel while peeling the adhesive backing from it a little at a time. Check that the channel tape is parallel with the door channel.
   -4. Push firmly on the door channel tape with a plastic squeegee (felt side).
   NOTE: To prevent air bubbles, slowly press the door channel tape around the door frame corner.
6. As necessary, repeat the preceding steps.
7. Reinstall all remaining removed parts.
8. Check that the body color on the door channel is covered by the door channel tape.
9. Check for water leaks.

Attachment Point (Reference)

Rear Door Outer Handle Replacement

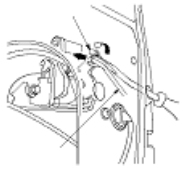
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the door and related parts.
- When removing components, use the trim tools or equivalent.
- RHD model is shown; LHD model is symmetrical.

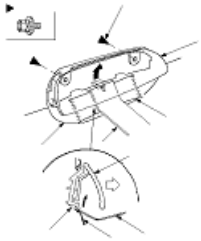


1. Remove the door panel.
2. Raise the glass fully.
3. Remove the plastic cover, as needed.
4. Remove the maintenance caps (A).

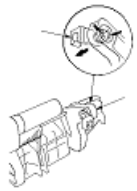
5. Detach the rod fastener (A), then disconnect the outer handle rod (B) with a clip remover.



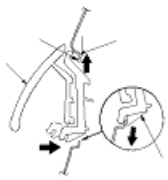
6. Remove the outer handle (A).
   -1. Remove the bolts.
   -2. Apply protective tape (B) to the door panel (C) as shown.
   -3. Pry out the outer handle with the appropriate trim tool (D) to release the hook (E), then remove it.
   NOTE: Take care not to scratch the door.



7. Remove the rod fastener (A) from the outer handle base (B), then replace it with a new one.



8. Install the handle (A) in the following order.
   -1. Set the upper portion (B) of the handle to the edge (C) of the door panel.
   -2. While pulling up the handle, push the lower hook (D) into place.
   NOTE: Push the hook into place securely.

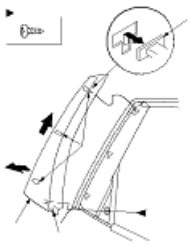


9. Install the removed parts in the reverse order of removal, and note these items:
   - Make sure that the outer handle rod are connected securely.
   - Make sure the door handle works properly.
   - When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.
   - Check for water leaks.

Rear Door Rear Sash Trim Replacement

NOTE:

- Take care not to scratch the door and related parts.
- RHD model is shown; LHD model is symmetrical.

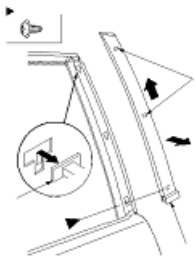


1. Remove the door quarter inner trim.
2. From inside the door, remove the screw.
3. Pull up the door rear sash trim (A) to release the hooks (B, C), then remove it from the door.
4. Install the trim in the reverse order of removal.

Rear Door Sash Outer Trim Replacement

NOTE:

- Take care not to scratch the door and related parts.
- RHD model is shown; LHD model is symmetrical.

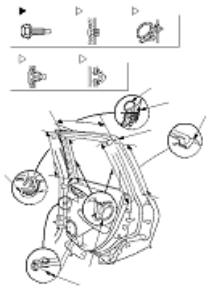


1. Remove these items:
   - Rear door rear sash trim
   - Rear door glass outer weatherstrip
2. Remove the screw from inside the door.
3. Pull the rear door sash outer trim (A) up to release the hooks (B) from the door, then remove the trim.
4. Install the trim in the reverse order of removal.

Rear Door Weatherstrip Replacement

NOTE:

- Take care not to scratch the door and related parts.
- Use a clip remover to remove the clips.
- RHD model is shown; LHD model is symmetrical.

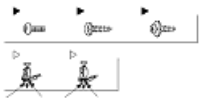


1. Remove these items:
   - Rear door rear sash trim
   - Rear door glass outer weatherstrip
   - Rear door sash outer trim
2. At the center pillar, remove the door checker mounting bolt (A).
3. Detach the clips (B, C, D, E), then remove the door weatherstrip (F).
4. Install the weatherstrip in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Make sure the weatherstrip is installed in the holder (G) securely.
   - Apply medium strength type liquid thread lock to the door stop mounting bolt before installation.
   - Check for water leaks.

Front Bumper Removal/Installation

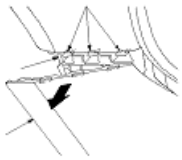
NOTE:

- Put on gloves to protect your hands.
- Have an assistant help you when removing and installing the front bumper.
- Take care not to scratch the front bumper and the body.

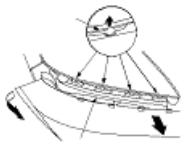


1. Remove the screws (A, B, C) and clips (D, E) securing the front bumper (F).
   NOTE: To remove the clips, pry the inner clip up at the edge near the line (G) on its head.

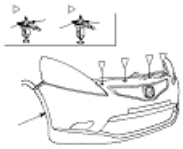
2. Pull on the front bumper (A) at the wheel arch areas to release it from the hooks (B) on the side spacers (C).



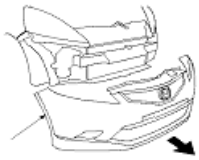
3. With the help of an assistant, release the bumper from the hooks (A) on the upper beam (B).



4. Remove the clips (A, B) securing the front bumper (C).
   NOTE: To remove the clips, pry the inner clip up at the edge near the line (D) on its head.



5. Remove the front bumper (A).



6. Install the bumper in the reverse order of removal, and note these items:
   - Make sure the front bumper engages the hooks (of both upper beams and side spacers) on each side securely.
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips and the hooks into place securely.

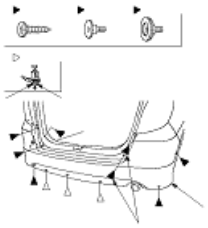
Rear Bumper Removal/Installation

NOTE:

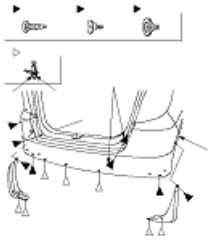
- Put on gloves to protect your hands.
- Have an assistant help you when removing and installing the rear bumper.
- Take care not to scratch the rear bumper and the body.

1. Remove the clips (A), screws (B), and bolts (C, D) securing the rear bumper (E).
   NOTE: To remove the clips, pry the inner clip up at the edge near the line (F) on its head.

Without rear splash guard

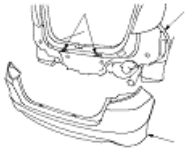


With rear splash guard



2. Pull on the rear bumper (A) at the wheel arch areas to release it from the hooks (B, C) on the side spacers (D).

3. With the help of an assistant, while pulling the wheel arch portion away from the side spacer (A), pull the rear bumper (B) to release the bumper from the hooks (C) on the body.



4. Install the bumper in the reverse order of removal, and note these items:
   - Make sure the rear bumper engages the hooks (of both the side spacers) on each side securely.
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips and the hooks into place securely.

Rear Bumper Lower Trim Replacement

For Some Models

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the rear bumper.

1. Remove the rear bumper (A).
2. Remove the clips and the hooks (B, C), then remove the rear bumper lower trim (D) from the rear bumper.
   NOTE: To remove the clips, pry the inner clip up at the edge near the line (E) on its head.
3. Install the trim in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips and the hooks into place securely.

Front Air Spoiler Replacement

For Some Models

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the front bumper.

1. Remove the clips securing the air spoiler (A) from under the front bumper (B).
   NOTE: To remove the clips, pry the inner clip up at the edge near the line (C) on its head.
2. Pull the front air spoiler back to detach the hooks (D) and remove the spoiler.
3. Install the spoiler in the reverse order of removal:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips and the hooks into place securely.

Bulkhead Under Spoiler Replacement

For Some Models

NOTE: Take care not to scratch the body.

1. Detach the clips, then remove the bulkhead under spoiler (A) from the front bulkhead.
   NOTE: To remove the clips, pry the inner pin up at the edge near the line (B) on its head.
2. Install the spoiler in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.

Rear Fender Cover Replacement

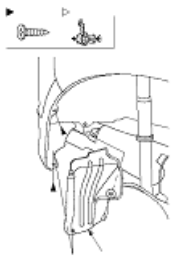
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the body.

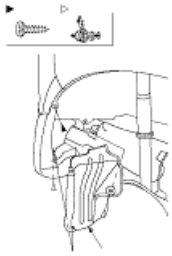
1. Remove the screws and the clips, then remove the rear fender cover (A).

2. Install the cover in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.

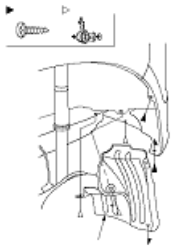
Driver's side without rear splash guard



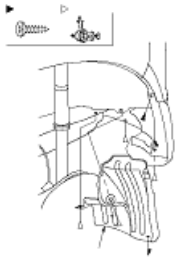
Driver's side with rear splash guard



Passenger's side without rear splash guard



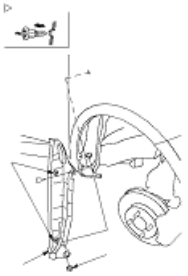
Passenger's side with rear splash guard



Front Fender Fairing Replacement

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the body.



1. Remove the front inner fender as needed.
2. From the wheel arch, remove the clip and the maintenance plug (A).
3. Release the hooks (B) of the front fender enclosure (C) from the holes in the front fender, and pull the fender enclosure out, then remove it.

4. Install the fender enclosure in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Before installing the clips, make sure the hooks (A) of the front fender enclosure (B) is installed into the holes (C) in the front fender securely.
   - Push the clip into place securely.

Rear Air Outlet Replacement

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the body.

1. Remove the rear bumper.
2. Detach the hooks (A), then remove the rear air outlet (B).
3. Install the air outlet by pushing on the hook portions until the hooks snap into place.

Rear Spring Seat Lower Cover Replacement

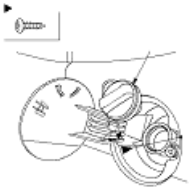
NOTE: Take care not to scratch the body.

1. Remove the clip and detach the hooks (A), then remove the rear spring seat lower cover (B).
2. Install the cover in the reverse order of removal, and note these items:
   - Checki if the clip is dameged or stress-whitened, and if necessary, replace it with a new one.
   - Push the hook portions into place securely.

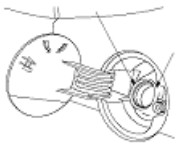
Fuel Fill Door/Adapter Replacement

NOTE: Take care not to scratch the body.

1. Remove the fuel cap (A) by turning it counterclockwise, and remove the screw.

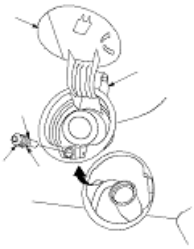


2. Pull the fuel fill door/adapter lip (A) out from the fuel fill pipe (B).



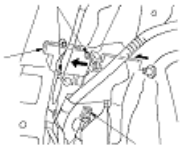
3. While pulling the fuel fill door/adapter (A), turn the fuel fill door/adapter 90 ° clockwise with the fuel fill door partly opened.

4. Remove the fuel fill door/adapter (A).
   -1. Pull the lower portion of the fuel fill door/adapter out.
   -2. Pull the portion (B) of the hinge out from inside the body.
   -3. If necessary, release the hooks (C), then remove the fuel fill door push lifter (D) from the fuel fill door/adapter.

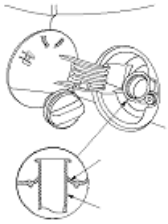


5. If necessary, pull out the fuel fill adapter grommet (A) and the fuel fill adapter packing (B) from the rod (C).
   NOTE: When reinstalling the packing, be sure the arrow mark (D) on the packing is the upper side of the packing.

6. If necessary, remove the fuel fill door actuator (A).
   -1. Remove the left cargo area side trim panel.
   -2. Disconnect the actuator connector (B), and loosen the screws (C), then remove the actuator.



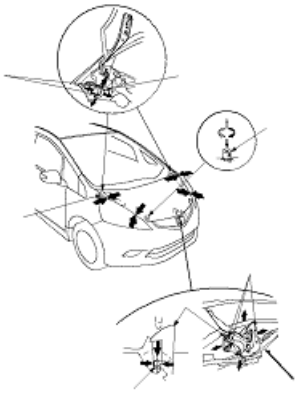
7. Install the fuel fill door/adapter in the reverse order of removal, and note these items:
   - Apply multipurpose grease to the sliding surfaces (A) of the fuel fill adapter grommet (B) where shown.
   - Make sure the adapter lip (C) is fully seated on the fuel fill pipe (D).



Hood Adjustment

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the hood, body and other related parts.



1. Remove the cowl covers.
2. Slightly loosen each bolt (A).
3. Adjust the hood (B) alignment in this sequence:
   - Adjust the hood right and left, as well as forward and rearward, by using the elongated holes in the hood hinges (C).
   - Turn the hood edge cushions (D), as necessary, to make the hood fit flush with the body at the front and side edges.
4. Adjust the hood latch (E) to obtain the proper height at the forward edge, and move the hood latch right or left until the striker (F) is centered in the hood latch.
5. Tighten the bolts to the specified torque.
6. Check that the hood opens properly and closes securely.
7. Apply touch-up paint to the hinge mounting bolts and around the hinges, and let the paint dry.

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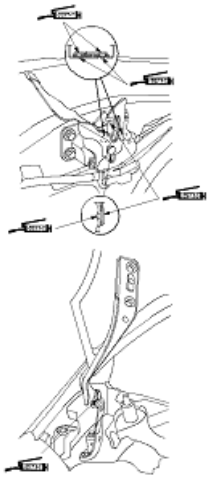
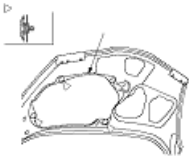
8. Apply multipurpose grease to the hood latch and the hood hinges as indicated by the arrows.
9. Reinstall all of the removed parts.



Hood Insulator Replacement

1. Using a clip remover, detach the clips, then remove the hood insulator (A). Take care not to scratch the hood.



2. Install the insulator in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.

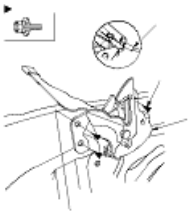
Hood Latch Replacement

NOTE:

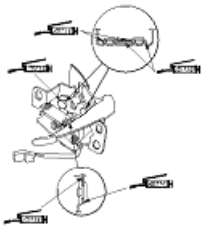
- Put on gloves to protect your hands.
- Take care not to scratch the body and related parts.

1. For some models: Remove the clip (A), then disconnect and detach the hood switch connector (B).

2. Remove the bolts, then remove the hood latch (A) from the body.
3. Disconnect the hood opener cable (B) from the hood latch. Take care not to kink the cable.



4. Install the latch in the reverse order of removal, and note these items:
   - Apply multipurpose grease to each location of the hood latch indicated by the arrows.
   - Make sure the hood opener cable is connected properly and hood latch switch connector is plugged in properly (for some models).
   - Adjust the hood latch alignment.
   - Make sure the hood opens properly and locks securely.



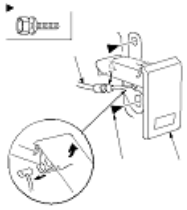
Hood Seal Replacement

1. Using a clip remover, detach the clips, then remove the hood seals (A). Take care not to scratch the hood.

2. Install the seal in the reverse order of removal, and note these items:
    - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
    - Push the clips into place securely.

Hood Release Handle Replacement

NOTE:



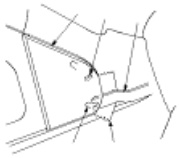
- Put on gloves to protect your hands.
- Take care not to scratch the body.
- RHD model is shown; LHD model is symmetrical.

1. Remove these items:
   - Kick panel, driver's side
   - Driver's dashboard undercover
2. Remove the bolts, then remove the hood release handle (A).
3. Disconnect the hood opener cable (B) from the hood release handle. Take care not to kink the cable.
4. Install the hood release handle in the reverse order of removal, and note there items:
   - Make sure the hood opener cable is connected properly.
   - Make sure the hood opens properly.

Front Pillar Corner Trim Replacement

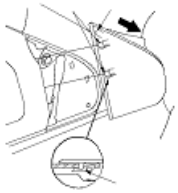
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the corner trim and the body.
- When removing components, use the trim tools or equivalent.



1. Carefully insert the trim tool (A) next to the grommet (B), and detach the grommet by prying on the front pillar corner trim (C), then detach the tab (D).
   NOTE: Apply protective tape (E) to the body as shown.

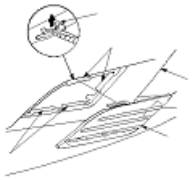
2. While sliding the front pillar corner trim forward in the direction shown, detach the clips (A) and the tab (B) from the body, then remove the trim.



3. Install the trim in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.

Front Bumper Lid Replacement

For Some Models



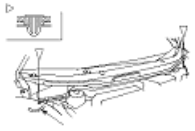
NOTE: Take care not to scratch the front bumper.

1. Release the hooks (A) by using a flat-tip screwdriver wrapped with the protective tape, then remove the front bumper lid (B) from the front bumper (C).
2. Install the front bumper lid by pushing on the hook portions until the hooks snap into place.

Cowl Cover Replacement

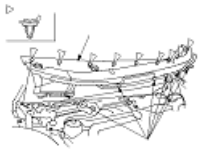
NOTE:

- Put on gloves to protect your hands.
- When removing components, use the trim tools or equivalent.
- Take care not to damage the body.
- RHD model is shown, LHD model is symmetrical.



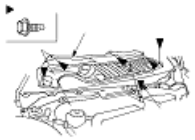
1. Remove the windshield wiper arms.
2. Using a clip remover, detach the clips from the cowl cover, then disconnect the windshield washer tube (A).

3. Detach the clips by carefully pulling the windshield side edge of the cowl cover (A) upward, and release the forward hooks (B) by pulling the cowl cover forward, then remove the cover.



4. Remove the hood hinge covers (A) on both sides.
   -1. Detach the clips(B) from the under-cowl panel.
   -2. Release the hook (C) from the front fender, then detach the clips (D).

5. If necessary, remove the under-cowl panel (A).
   -1. Remove the wiper motor.
   -2. Remove the bolts.



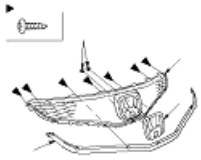
6. Install the covers in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips and the hooks into place securely.
   - Make sure the washer tube is connected securely.

Upper Front Grille Replacement

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the front bumper.

1. Remove the front bumper.
2. Remove the screws, and release the hooks (A), then remove the upper front grille (B) from the front bumper (C).



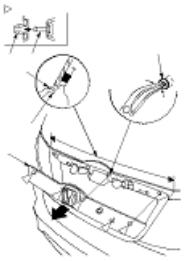
3. For some models: If necessary, remove the screws and the push nuts (A), then remove the upper front grille molding (B) and the front "H" emblem (C) from the grille base (D).
4. Install the grille in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips and the hooks into place securely.

Rear License Trim Replacement

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the body.

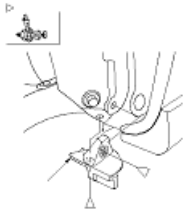
1. Remove these items:
   - Tailgate lower trim panel
   - Rear window wiper motor
   - Rear window wiper arm
2. From inside the tailgate, remove the bolt securing the rear license trim.



3. Pull out the rear license trim (A) to detach the pins (B) of the clips from the grommets (C), then remove the trim from the tailgate.
4. Using snap ring pliers, remove the grommets from the tailgate.
5. Check if the grommets and pins are damaged or stress-whitened, and if necessary, replace grommets and pins as an assembly with new ones.
6. Install the grommets on the pins by pushing them into place.
7. Install the trim in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Do not roll up the lip (D) of the rear window rubber dam. If necessary for proper attachment, set a plastic plate between the lip and the trim. Install the top edge of the trim while sliding a plastic plate sideward. Be careful not to cut the lip.
   - Push the clips into place securely.

Rear Strake Replacement

For Some Models



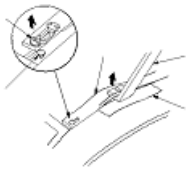
NOTE: Take care not to scratch the body.

1. Remove the clips, then remove he rear strake (A) from the body.
2. Install the strake in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.

Roof Molding Replacement

NOTE:

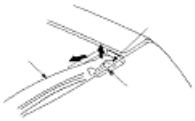
- Take care not to scratch the body.
- Take care not to bend the roof molding.
- When removing components, use the trim tools or equivalent.



1. Apply protective tape (A) to the body. Using a trim tool (B), pry up on the roof molding (C).
2. Pull up and slide the roof molding to release the front bracket (D) from the pin (E).

3. Pull up the front portion of the roof molding.

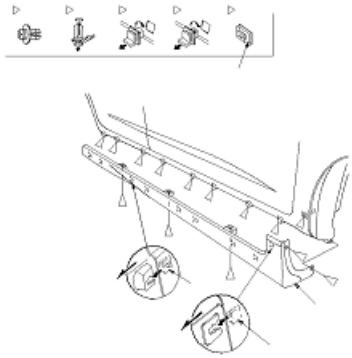
4. Pull up and release the rear bracket (A) from the pin (B), then remove the roof molding (C).



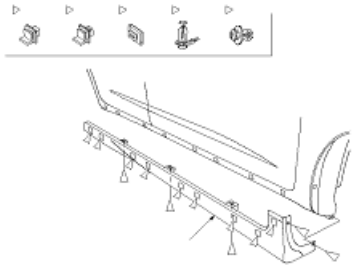
5. Install the molding in the reverse order of removal, and note these items:
    - Take care not to damage the windshield molding.
    - Make sure the roof molding is installed securely.

Side Sill Panel Replacement

For Some Models



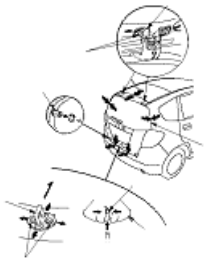
1. Remove the side sill panel (A).
   -1. On the back of the front wheel arch, remove the clips (B).
   -2. Remove the expansion clips (C).
   -3. Slide the side sill panel forward, and remove it. The side clips (D, E, F) will stay in the body.
   -4. Remove the side clips (D, E) from the body by turning them 45 °.
   -5. If necessary, use a utility knife to cut the double-sided adhesive tape (G) that holds the side clips (F) to the body. Take care not to scratch the body.
2. Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
3. If the side clips (F) will be reinstalled, remove any remaining double-sided adhesive tape from the side clips, then clean the side clip surfaces with a sponge dampened in isopropyl alcohol where new double-sided will be attached. Apply primer to the side clips, then attach new double-sided adhesive tape.
4. Clean the body surface with a sponge dampened in isopropyl alcohol where adhesive tape will be attached.



5. Install the side clips (A, B, C) on the side sill panel (D).
6. Hold the panel up, and fit all the side clips into the holes in the body. Push on the panel until the clips snap into place, and press the adhesive tape into place.
7. Install the expansion clips (E).
8. Install the clips (F) on the back of the front wheel arch.

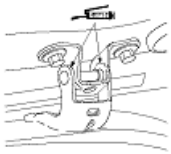
Tailgate Adjustment

NOTE:



- Have an assistant help you when adjusting the tailgate.
- Take care not to scratch the tailgate, the body and other related parts.
- Put on gloves to protect your hands.

1. Remove the tailgate support strut from each side.
2. Slightly loosen each bolt.
3. Adjust the tailgate (A) alignment in the following sequence:
   - Adjust the tailgate hinges (B) right and left, using the elongated holes.
   - Turn the tailgate edge cushions (C), in or out as necessary, to make the tailgate fit flush with the body at the side edges.
   - Adjust the fit between the tailgate and tailgate opening by moving the striker (D), and adjust the striker right or left until it is centered in the tailgate latch (E).
4. Tighten each bolt securely.
5. Check that the tailgate opens properly and locks securely.
6. Reinstall the support struts securely.
7. Apply touch-up paint to the hinge mounting bolts and around the hinges.



8. Apply multipurpose grease to the pivot portion of the tailgate hinges as indicated by the arrows.
9. Reinstall all of the removed parts.

Tailgate Latch Replacement - Without Super Locking

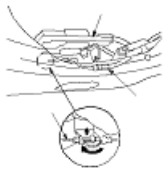
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the tailgate and the related parts.
- If the tailgate latch doesn't be unlocked by using the keyless entry transmitter or unlocking the driver's door lock, remove the maintenance lid (A) from the tailgate lower trim panel, then unlock the tailgate latch by turning the lock lever counterclockwise as shown. Open the tailgate by pulling the tailgate handle.

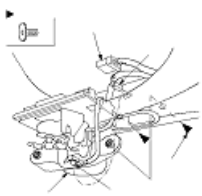
Without tailgate key cylinder

With tailgate key cylinder

1. Remove the tailgate lower trim panel.
2. Disconnect the tailgate opener cable (A) from the tailgate latch (B). Take care not to kink the cable.
3. For some models: Disconnect the cylinder rod from the tailgate lock cylinder.



4. Disconnet the tailgate latch actuator connector (A) and the tailgate lock switch connector (B), and detach the clip (C), then remove the tailgate latch.
5. Using a 6 mm socket wrench, remove the bolts, then pull out the tailgate latch (D) from the tailgate.
6. Install the tailgate latch in the reverse order of removal, and note these items:
   - Make sure the connectors are plugged in properly and the handle cable is connected properly.
   - Make sure the tailgate opens properly and locks securely.



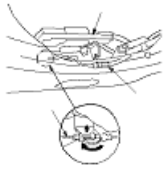
Tailgate Latch Replacement - With Super Locking

With Super Locking

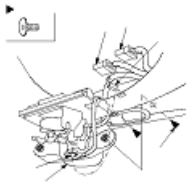
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the tailgate and the related parts.
- If the tailgate latch doesn't be unlocked by using the keyless entry transmitter or unlocking the driver's door lock, remove the maintenance lid (A) from the tailgate lower trim panel, then unlock the tailgate latch by turning the lock lever counterclockwise as shown. Open the tailgate by pulling the tailgate handle.

1. Remove the tailgate lower trim panel.
2. Disconnect the tailgate opener cable (A) from the tailgate latch (B). Take care not to kink the cable.

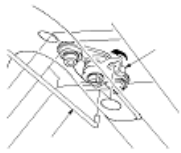


3. Disconnect the tailgate latch actuator connector (A) and the tailgate lock switch connector (B), and the trunk knob switch connector (C) and detach the clip (D), then remove the tailgate latch.
4. Using a 6 mm socket wrench, remove the bolts, then pull out the tailgate latch (E) from the tailgate.
5. Install the tailgate latch in the reverse order of removal, and note these items:
   - Make sure the connectors are plugged in properly and the handle cable is connected properly.
   - Make sure the tailgate opens properly and locks securely.



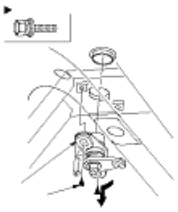
Tailgate Lock Cylinder Replacement

For Some Models



NOTE: Put on gloves to protect your hands.

1. Remove the tailgate lower trim panel.
2. Disconnect the tailgate cylinder rod (A).
   NOTE: Check for damaged or stress-whitened rod fastener (B).

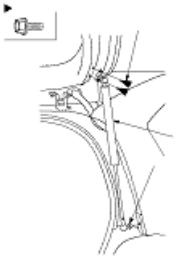


3. Remove the bolt securing the lock cylinder (A), then remove the lock cylinder by turning it.
4. Install the lock cylinder in the reverse order of removal, and note these items:
   - Make sure the cylinder rod is connected properly.
   - Make sure the tailgate opens properly and locks securely.

Tailgate Support Strut Replacement

NOTE:

- Have an assistant help you when removing and installing the support strut.
- Take care not to scratch the body and tailgate.



1. Remove the pivot bolt (A) from the body.
2. Remove the bolts, then remove the support strut (B) from the tailgate.
3. Install the tailgate side bolts first, next install the body side pivot bolt, and fix the support strut correctly.

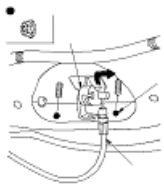
Tailgate Weatherstrip Replacement

1. Remove the tailgate weatherstrip (A) by pulling out on it.
2. Locate the painted alignment mark (B) on the tailgate weatherstrip. Align the painted mark with the alignment tab in the center of the tailgate opening, and install the weatherstrip. Make sure it's seated completely and facing in the direction shown. Make sure there are no wrinkles in the weatherstrip.
3. Check for water leaks.

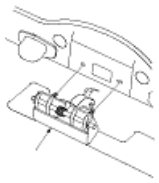
Tailgate Handle Replacement

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the tailgate and the related parts.



1. Remove these items:
   - Tailgate lower trim panel
   - Rear license trim
2. Disconnect the tailgate opener cable (A) from the tailgate handle (B), and remove the nuts. Take care not to kink the cable.



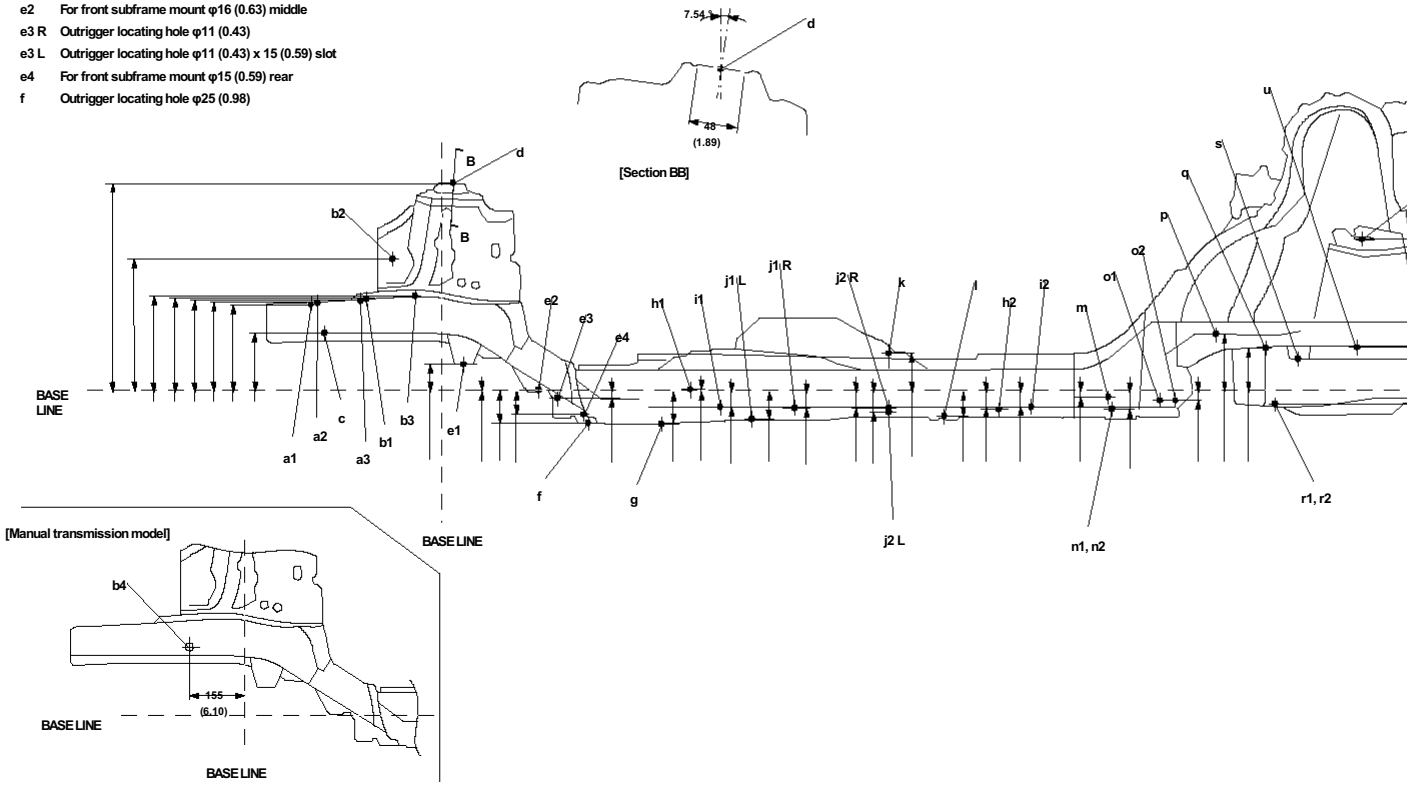
3. From outside of the tailgate, pull out the tailgate handle (A), then remove it.
4. Install the handle in the reverse order of removal, and note these items:
   - Make sure the tailgate opener cable is connected securely.
   - Make sure the tailgate opens properly.

Frame Repair Chart

Top View

Unit: mm (in.)
φ: Inner diameter

a1	For engine side mount φ15 (0.59) front
a2	For engine side mount φ13 (0.51) outer
a3	For engine side mount φ15 (0.59) rear
b1	For transmission mount φ15 (0.59) front
b2	For transmission mount φ15 (0.59) wheelhouse side
b3	For transmission mount φ15 (0.59) rear
b4	For transmission mount φ13 (0.51) [Manual transmission model]
c	Front side frame locating hole φ16 (0.63)
d	Front damper center hole φ48 (1.89)
e1	For front subframe mount φ15 (0.59) front
e2	For front subframe mount φ16 (0.63) middle
e3 R	Outrigger locating hole φ11 (0.43)
e3 L	Outrigger locating hole φ11 (0.43) x 15 (0.59) slot
e4	For front subframe mount φ15 (0.59) rear
f	Outrigger locating hole φ25 (0.98)
g	Floor center stiffener locating hole φ15 (0.59)
h1	Front floor locating hole φ50 (1.97) front
i1	Inside sill locating hole φ25 (0.98) front
j1 R	Floor frame locating hole φ15 (0.59) front
j1 L	Floor frame locating hole φ15 (0.59) front
j2 R	Floor frame locating hole φ15 (0.59) rear
j2 L	Floor frame locating hole φ15 (0.59) rear
k	Front floor center locating hole φ15 (0.59)
l	Front floor cross-member locating hole φ25 (0.98)
h2	Front floor locating hole φ25 (0.98) rear
i2	Inside sill locating hole φ25 (0.98) rear
m	Trailing arm gusset locating hole φ20 (0.79)
n1	Rear seat guide bracket locating hole φ9 (0.35) right
n2	Rear seat guide bracket locating hole φ9 (0.35) left
o1	For trailing arm mount φ15 (0.59) inner
o2	For trailing arm mount φ17 (0.67) outer



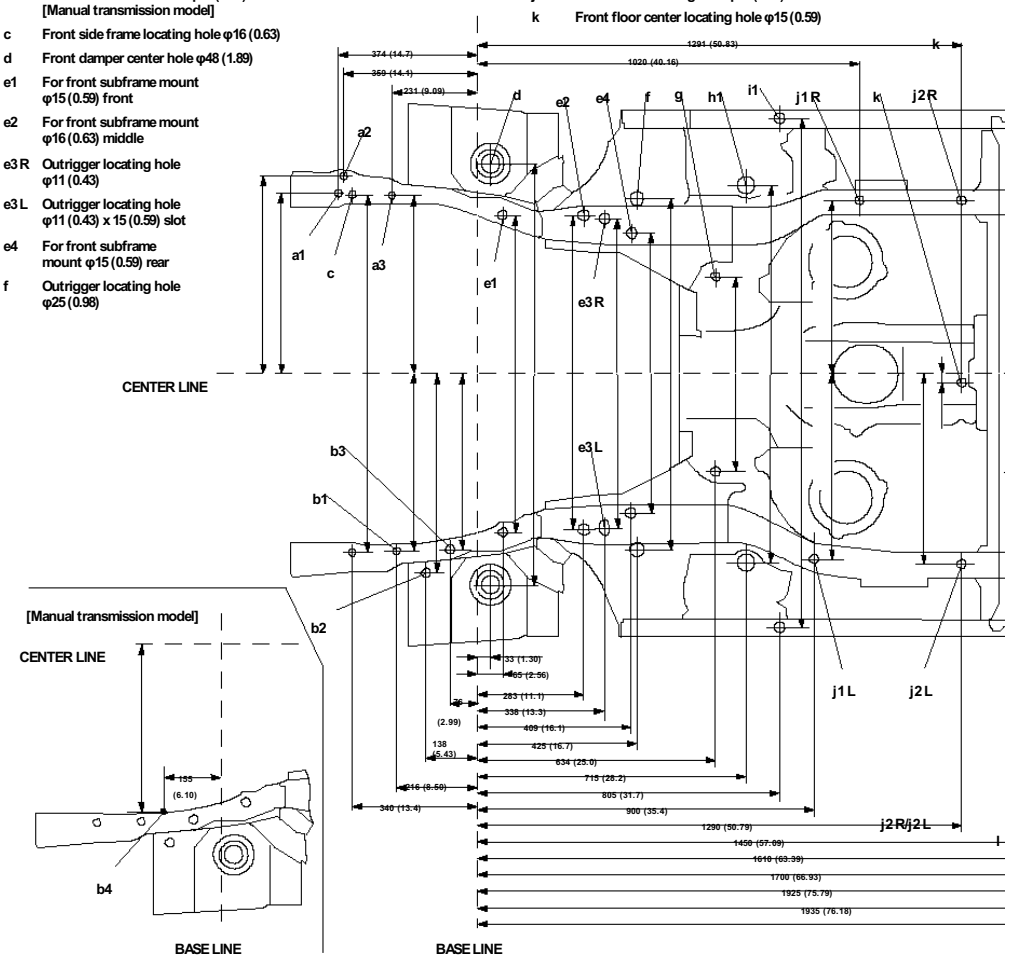
Frame Repair Chart

Top View

Unit: mm (in.)

φ: Inner diameter

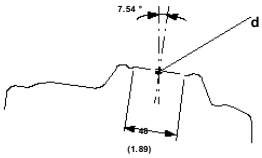
a1	For engine side mount φ15 (0.59) front
a2	For engine side mount φ13 (0.51) outer
a3	For engine side mount φ15 (0.59) rear
b1	For transmission mount φ15 (0.59) front
b2	For transmission mount φ15 (0.59) wheelhouse side
b3	For transmission mount φ15 (0.59) rear
b4	For transmission mount φ13 (0.51) [Manual transmission model]
c	Front side frame locating hole φ16 (0.63)
d	Front damper center hole φ48 (1.89)
e1	For front subframe mount φ15 (0.59) front
e2	For front subframe mount φ16 (0.63) middle
e3 R	Outrigger locating hole φ11 (0.43)
e3 L	Outrigger locating hole φ11 (0.43) x 15 (0.59) slot
e4	For front subframe mount φ15 (0.59) rear
f	Outrigger locating hole φ25 (0.98)
g	Floor center stiffener locating hole φ15 (0.59)
h1	Front floor locating hole φ50 (1.97) front
i1	Inside sill locating hole φ25 (0.98) front
j1 R	Floor frame locating hole φ15 (0.59) front
j1 L	Floor frame locating hole φ15 (0.59) front
j2 R	Floor frame locating hole φ15 (0.59) rear
j2 L	Floor frame locating hole φ15 (0.59) rear
k	Front floor center locating hole φ15 (0.59)



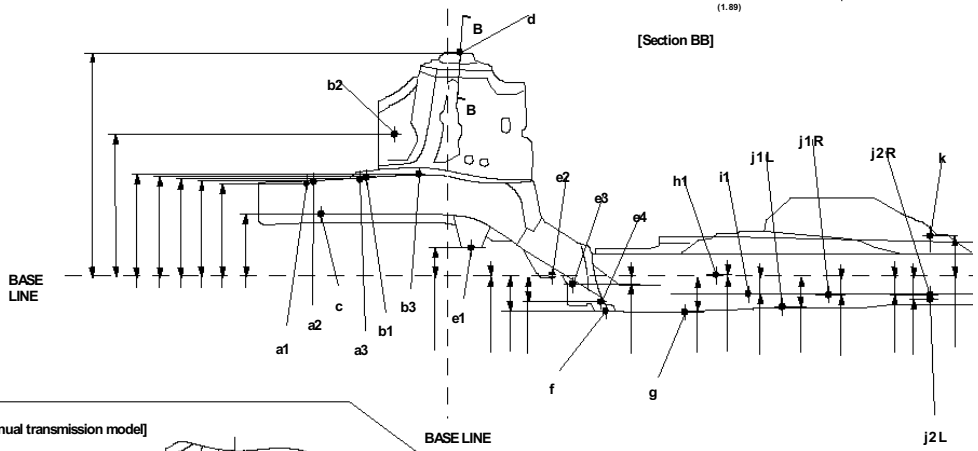
Unit: mm (in.)

φ: Inner diameter

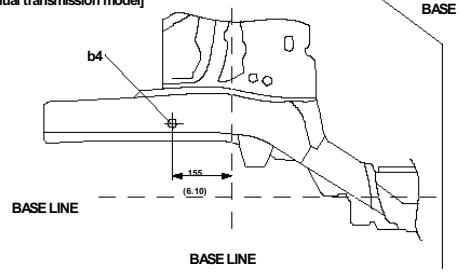
a1	For engine side mount φ15 (0.59) front
a2	For engine side mount φ13 (0.51) outer
a3	For engine side mount φ15 (0.59) rear
b1	For transmission mount φ15 (0.59) front
b2	For transmission mount φ15 (0.59) wheelhouse side
b3	For transmission mount φ15 (0.59) rear
b4	For transmission mount φ13 (0.51) [Manual transmission model]
c	Front side frame locating hole φ16 (0.63)
d	Front damper center hole φ48 (1.89)
e1	For front subframe mount φ15 (0.59) front
e2	For front subframe mount φ16 (0.63) middle
e3 R	Outrigger locating hole φ11 (0.43)
e3 L	Outrigger locating hole φ11 (0.43) x 15 (0.59) slot
e4	For front subframe mount φ15 (0.59) rear
f	Outrigger locating hole φ25 (0.98)
g	Floor center stiffener locating hole φ15 (0.59)
h1	Front floor locating hole φ50 (1.97) front
i1	Inside sill locating hole φ25 (0.98) front
j1 R	Floor frame locating hole φ15 (0.59) front
j1 L	Floor frame locating hole φ15 (0.59) front
j2 R	Floor frame locating hole φ15 (0.59) rear
j2 L	Floor frame locating hole φ15 (0.59) rear
k	Front floor center locating hole φ15 (0.59)



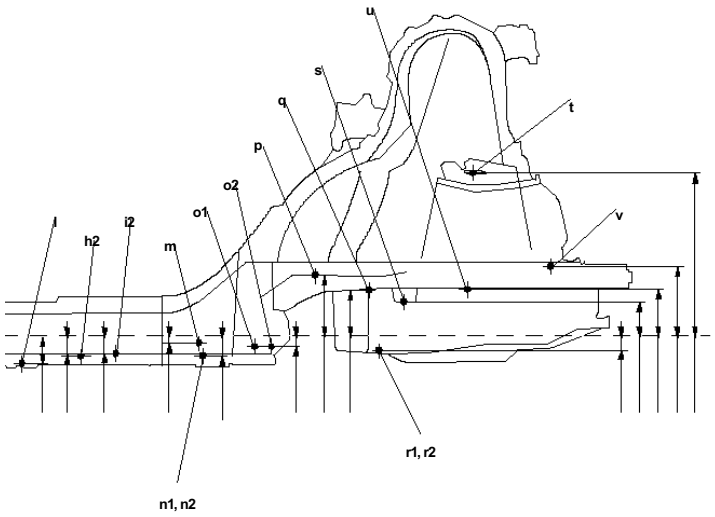
[Section BB]



[Manual transmission model]

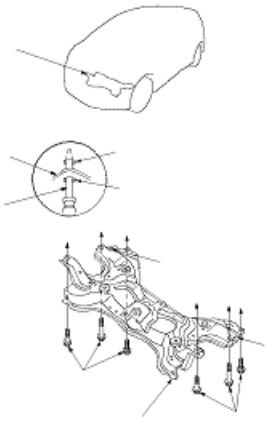


l	Front floor cross-member locating hole φ25 (0.98)
h2	Front floor locating hole φ25 (0.98) rear
i2	Inside sill locating hole φ25 (0.98) rear
m	Trailing arm gusset locating hole φ20 (0.79)
n1	Rear seat guide bracket locating hole φ9 (0.35) right
n2	Rear seat guide bracket locating hole φ9 (0.35) left
o1	For trailing arm mount φ15 (0.59) inner
o2	For trailing arm mount φ17 (0.67) outer
p	Middle floor cross-member locating hole φ20 (0.79)
q	Rear frame A locating hole φ15 (0.59)
r1	Rear floor locating hole φ25 (0.98) right
r2	Rear floor locating hole φ25 (0.98) left
s	For spring base mount hole 15 (0.59) x 15 (0.59) square
t	Rear damper center hole φ24 (0.94)
u	Rear frame B locating hole φ20 (0.79)
v	Rear floor side panel locating hole φ20 (0.79)



Subframe Replacement

Front Subframe Torque



NOTE:

- After loosening the subframe mounting bolts, be sure to replace them with new ones.
- When installing, align both installation reference holes in the subframe with both reference holes in the body using a screwdriver or tapered punch as a guide.

Gauge Control Module Self-diagnostic Function

NOTE: Before doing the self-diagnostic function, make sure the No. 1 (10 A) and the No. 22 (7.5 A) fuse in the under-dash fuse/relay box are OK.
The gauge control module has a self-diagnostic function which consists of the following checks:

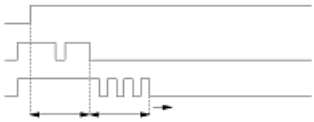
- The beeper drive circuit check.
- The indicator drive circuit check.
- The switch input test.
- The LCD segment check.
- The gauges drive circuit check (Tachometer, Fuel gauge, Speedometer).
- The communication line check (of the body-controller area network (B-CAN) communication line and the fast-controller area network (F-CAN) communication line between the gauges).

NOTE:
Indicators are also controlled via the communication line.

Entering the self-diagnostic function with the HDS

Using the HDS, select Body Electrical, Gauges, then Function Test and do the self-diagnostic function.

Entering the self-diagnostic function (manual method)



1. Push and hold the SELECT/RESET switch button.
2. Turn the combination light switch ( ) ON.
3. Turn the ignition switch to ON (II).
4. Within 2−5 sec., turn the combination light switch ( ) OFF, then ON and OFF again.
5. Within 5 sec., release the SELECT/RESET switch button, and then push and release the button three times repeatedly.

NOTE:

- While in the self-diagnostic mode, the dash lights brightness controller operates normally.
- While in the self-diagnostic mode, the SELECT/RESET button is used to start the Beeper Drive Circuit Test and the Gauge Drive Circuit Check.
- If the vehicle speed exceeds 2 km/h (1.2 mph) or the ignition switch is turned to LOCK (0), the self-diagnostic mode ends.

The Indicator Drive Circuit Check

When entering the self-diagnostic mode, the following indicators blink:
ABS indicator, brake system indicator, A/T gear position indicator, charging system indicator, cruise control indicator, cruise main indicator, EPS indicator, high beam indicator, high temperature indicator, immobilizer indicator, lights-on indicator, low temperature indicator, low oil pressure indicator, low fuel indicator, malfunction indicator lamp (MIL), seat belt indicator, security indicator, side airbag cutoff indicator, sequential sportshift mode shift indicator, safety indicators, SRS indicator.

The Beeper Drive Circuit Check

When entering the self-diagnostic mode, the beeper sounds five times.

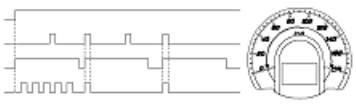
Switch Input Check

After the beeper drive circuit check, you can check the switch input. The beeper sounds continuously when the ODO/TRIP button or the parking brake switch inputs are switched from OFF to ON: ODO/TRIP button, parking brake switch.

The LCD Segment Check

With ODO/TRIP display: When entering the self-diagnostic mode, all the segments blink five times.With multi-information display (MID): When entering the self-diagnostic mode, "…" shows on the MID, and blink five times.

The Gauge Drive Circuit Check



When entering the self-diagnostic mode, the speedometer, the tachometer, the fuel gauge needles sweep from the minimum position to maximum position, then return to the minimum position.
NOTE:
After the beeper stops sounding and the gauge needles return to the minimum position, pressing the ODO/TRIP button starts the Beeper Drive Circuit Check (one beep) and the Gauge Drive Circuit Check again.
The check cannot be started again until the gauge needles return to the minimum position.
If the needles fail to sweep, or the beeper does not sound, replace the gauge control module.

The Communication Line Check - With ODO/TRIP display

Example Indication

While in the self-diagnostic mode, the Communication Line Check starts after the LCD Segments Check.
If all segments come on, the communication line is OK. If faulty, the word ‘‘Err" will be indicated on the odometer display followed by number(s).

Error Code List

Error code	Type of communication line(s) error
Error 1	F-CAN communication
Error 2	B-CAN communication
Error 12	F-CAN and B-CAN communication

- Err 1: there is a malfunction in the communication line between the gauge control module and F-CAN. Check for DTCs in the ECM/PCM, and troubleshoot the indicated DTCs.
- Err 2: there is a malfunction in the communication line between the gauge control module and B-CAN. Check for DTCs in the body electrical system and troubleshoot the indicated DTCs.
- Err 12: there is a malfunction in the communication line between the gauge control module and F-CAN or B-CAN. Check for DTCs in the ECM/PCM first and troubleshoot the indicated DTCs. If there is no DTCs in the ECM/PCM, check for the body electrical system DTCs and troubleshoot the indicated DTCs.

The Communication Line Check - With multi-information display (MID)

Example Indication

While in the self-diagnostic mode, the Communication Line Check starts after the LCD Segments Check.
If ‘‘···" come on, the communication line is OK. If faulty, the word ‘‘Error" will be indicated on the MID followed by number(s).

Error Code List

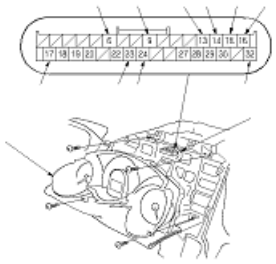
Error code	Type of communication line(s) error
Error 1	F-CAN communication
Error 2	B-CAN communication
Error 12	F-CAN and B-CAN communication

- Error 1: there is a malfunction in the communication line between the gauge control module and F-CAN. Check for DTCs in the ECM/PCM, and troubleshoot the indicated DTCs.
- Error 2: there is a malfunction in the communication line between the gauge control module and B-CAN. Check for DTCs in the body electrical system and troubleshoot the indicated DTCs.
- Error 12: there is a malfunction in the communication line between the gauge control module and F-CAN or B-CAN. Check for DTCs in the ECM/PCM first and troubleshoot the indicated DTCs. If there is no DTCs in the ECM/PCM, check for the body electrical system DTCs and troubleshoot the indicated DTCs.

Ending the self-diagnostic function

Turn the ignition switch OFF.
NOTE: If the vehicle speed exceeds 2 km/h (1.2 mph), the self-diagnostic function ends.

Gauge Control Module Input Test



NOTE: Before testing, do the gauge control module self-diagnostic function, and make sure the B-CAN communication line is OK.

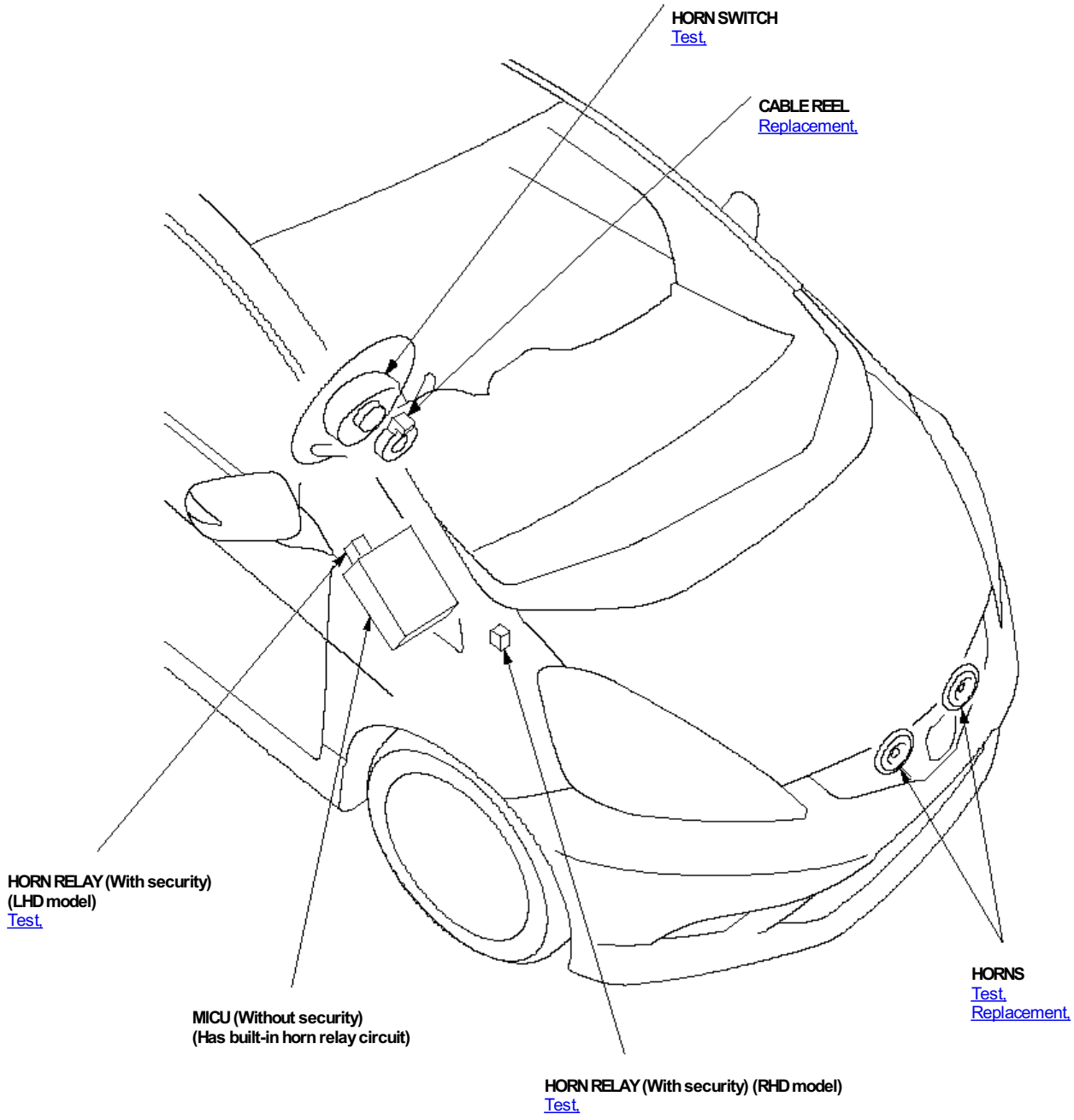
1. Turn the ignition switch to LOCK (0).
2. Remove the gauge control module (A), and disconnect the 32P connector (B) from it.
3. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals are OK, go to Step 4 .
4. With the connector still disconnected, make these input tests at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the gauge control module must be faulty; replace it.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
13	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
17	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
16	PNK	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 1 (10 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
32	LT BLU	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 22 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
6	WHT	Ignition switch ON (II), and turn signal switch in RIGHT position	Measure the voltage to ground: There should be battery voltage when the lights are flashing.	• Faulty under-dash fuse/relay box • Faulty combination light switch • An open in the wire
9	BLU	Ignition switch ON (II), and turn signal switch in LEFT position	Measure the voltage to ground: There should be battery voltage when the lights are flashing.	• Faulty under-dash fuse/relay box • Faulty combination light switch • An open in the wire
23	ORN	Parking brake lever pulled	Check for continuity to ground: There should be continuity.	• Faulty parking brake switch • An open in the wire
		Parking brake lever released	Check for continuity to ground: There should be continuity.	• Faulty parking brake switch • A short to ground in the wire
24	GRY	Brake fluid is lower level in the reservoir	Check for continuity to ground: There should be continuity.	• Poor ground (G301) [G302] • Faulty brake fluid level switch • A short to ground in the wire
		Brake fluid is full level in the reservoir	Check for continuity to ground: There should be continuity.	• Poor ground (G301) [G302] • Faulty brake fluid level switch • An open in the wire
14*	GRN	Ignition switch ON (II), information button pressed	Measure the voltage to ground: There should be battery voltage.	• Blown No. 24 (10 A) fuse in the under-dash fuse/relay box • Faulty select/reset/information switch • An open in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
		Ignition switch ON (II), information button released	Measure the voltage to ground: There should be less than 1 V.	• Faulty select/reset/information switch • A short to power in the wire • An open in the wire
15*	PUR	Ignition switch ON (II), select/reset button pressed	Measure the voltage to ground: There should be battery voltage.	• Faulty select/reset/information switch • An open in the wire
		Ignition switch ON (II), select/reset button released	Measure the voltage to ground: There should be less than 1 V.	• Blown No. 24 (10 A) fuse in the under-dash fuse/relay box • Faulty select/reset/information switch • A short to power in the wire • An open in the wire

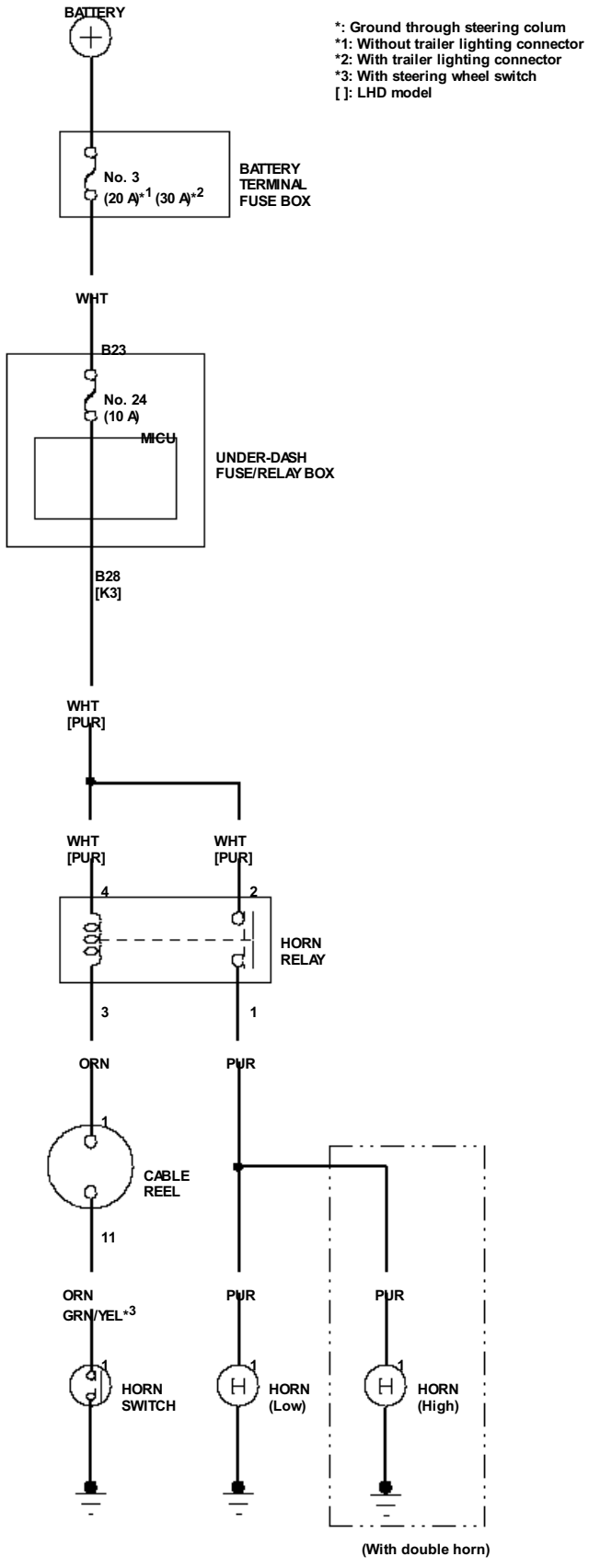
[ ]: LHD model
*: With multi information display

Horns Component Location Index

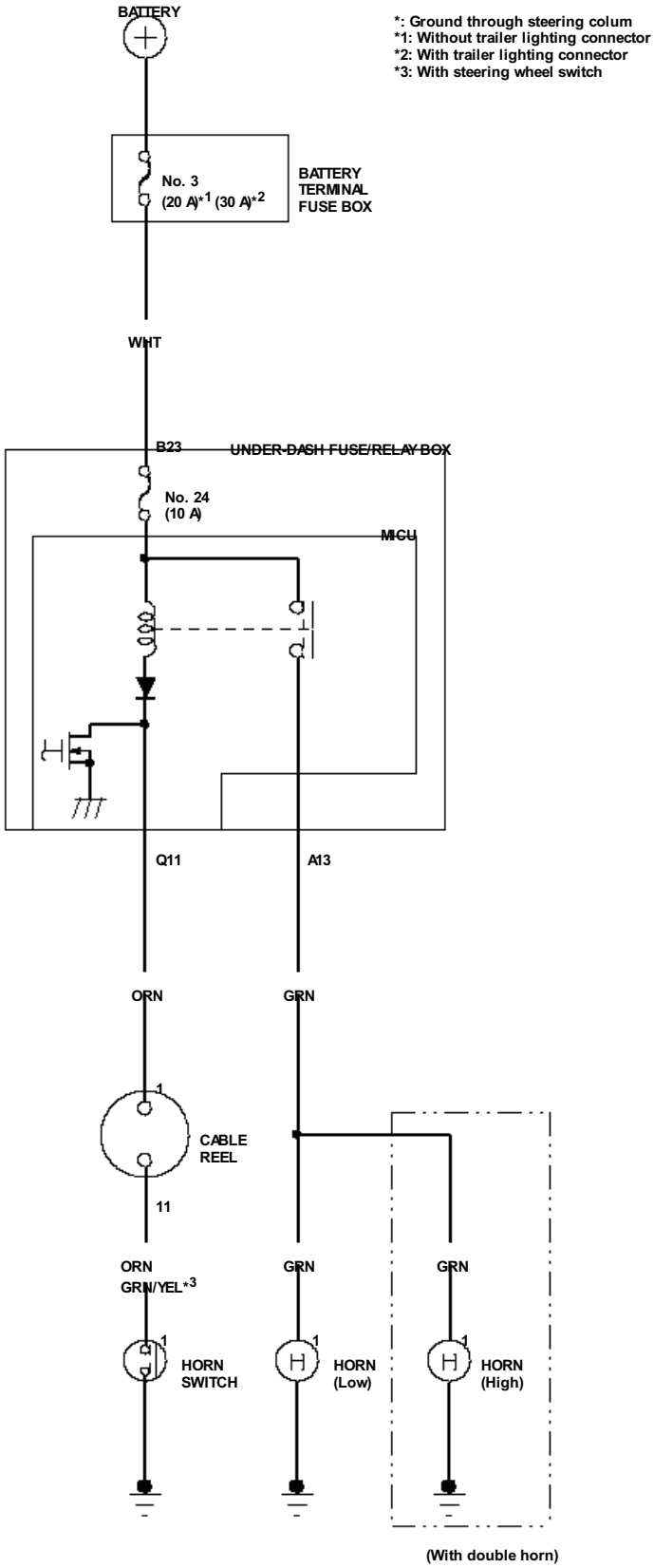


RHD model is shown, LHD model is similar.

Horns Circuit Diagram - With Security

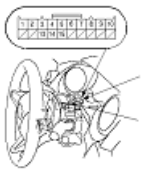


Horns Circuit Diagram - Without Security

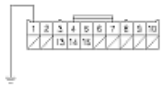


Horn Switch Test

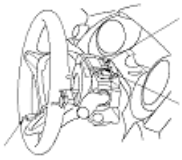
1. Remove the steering column covers.
2. Disconnect the dashboard wire harness 20P connector (A) from the cable reel (B).



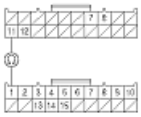
3. Using a jumper wire, connect the dashboard wire harness 20P connector No. 1 terminal to body ground. The horns should sound.
   - If the horn sounds, go to Step 4 .
   - If the horn do not sound, check these items:
     - No. 24 (10 A) fuse in the under-dash fuse/relay box.
     - Horn.
     - Horn relay (with security).
     - MICU (without security).
     - An open in the wire.



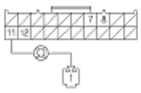
4. Reconnect the dashboard wire harness 20P connector (A) to the cable reel (B).
5. Remove the driver's airbag assembly, and disconnect the horn switch 1P positive terminal (C) from the driver's airbag.



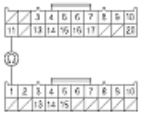
6. Without steering wheel switch:
   Check for continuity between the dashboard wire harness 20P connector No. 1 terminal and the cable reel subharness 20P connector No. 11 terminal.
   - If there is continuity, go to Step 7 .
   - If there is no continuity, replace the cable reel.



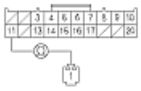
7. Check for continuity between the cable reel subharness 20P connector No. 11 terminal and the horn switch 1P positive terminal.
   - If there is continuity, check the installation of the driver's airbag assembly and the steering wheel. If OK, replace the driver's airbag assembly.
   - If there is no continuity, repair an open in the wire.



8. With steering wheel switch:
   Check for continuity between the dashboard wire harness 20P connector No. 1 terminal and the steering wheel switch 20P connector No. 11 terminal.
   - If there is continuity, go to Step 9 .
   - If there is no continuity, replace the cable reel.

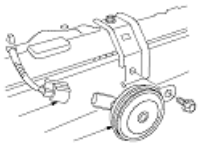


9. Check for continuity between the steering wheel switch 20P connector No. 11 terminal and the horn switch 1P positive terminal.
   - If there is continuity, check the installation of the driver's airbag assembly and the steering wheel. If OK, replace the driver's airbag assembly.
   - If there is no continuity, repair an open in the wire.

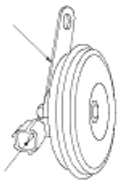


Horn Test/Replacement

1. Remove the front bumper.
2. Disconnect the 1P connector (A) from each horn (B).

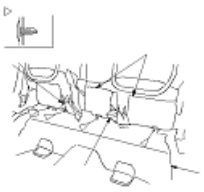


3. Connect the terminal (A) to the battery power, and the bracket (B) to body ground.
4. If the horn does not sound, replace it.



Carpet Replacement

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:



- Put on gloves to protect your hands.
- Take care not to damage, wrinkle or twist the carpet.
- Be careful not to damage the dashboard and other interior trim pieces.
- When removing components, use the trim tools or equivalent.
- RHD model is shown; LHD model is symmetrical.

1. Do the battery terminal disconnection procedure, then wait at least 3 minutes before beginning work.

2. Remove these items:
   - Center console
   - Front seats, both sides
   - Kick panels, both sides
   - Front door sill trim, both sides
   - Center pillar lower trim, both sides:
     - Without side curtain airbags
     - With side curtain airbags
   - Rear door sill trim, both sides
   - Rear seat leg guide cover, both sides

3. From the bottom of the both rear seat-backs (A), detach the clips and release the Velcro fasteners (B) in the rear of the carpet (C). Pull the rear seat belt buckles (D) out through a slit, then pull the carpet out from both cargo area side trim panels.

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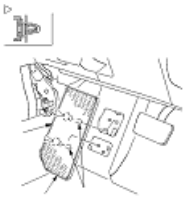
4. Pry up the gap (A) detach the clips and pins (B), then remove the footrest (C). RHD model is shown, LHD model is similar.



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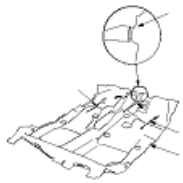
5. Remove the front portion of the carpet (A).
   -1. Cut the carpet in the area (B) shown, then remove the carpet.
   -2. Pull the seat harnesses (C) out through the holes in the carpet.
   RHD model is shown; LHD model is similar.



6. Install the carpet in the reverse order of removal, and note these items:
   - Take care not to damage, wrinkle or twist the carpet.
   - Make sure the seat harnesses are routed correctly.
   - If the clips are damaged or stress-whitened and if necessary, replace them with new ones.
   - Push the Velcro fastener and the clips into place securely.
   - Do the battery terminal reconnection procedure.

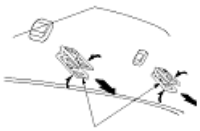
Grab Handle Removal/Installation

NOTE: When removing components, use the trim tools or equivalent.

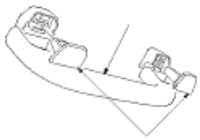
1. Lower the grab handle (A), then pull out the covers (B).

2. While pinching the clips (A), release the hooks (B), then remove the grab handle (C).

3. Using a pair of pliers, remove the clips (A) by pinching the hooks.
4. If the side curtain airbag has deployed, replace the grab handle with a new one.

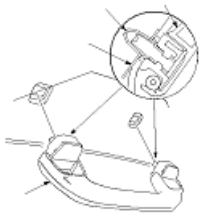


5. If the side curtain airbag has not deployed, to prevent the side curtain airbags from deploying improperly and possibly causing injury, inspect removed pieces and replace them if they have any of these types of damage:
   - Any cracks or damages in the grab handle (A).
   - Any cracks or stress-whitenings in the caps (B).



6. Install the clips (A) to the grab handle (B), then install the caps (C) fully into the clips.

7. Position the grab handle (A) on the bracket (B), and push on the grab handle until the clips (C) snap into place securely.

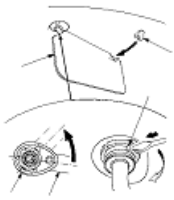


Sunvisor Removal/Installation

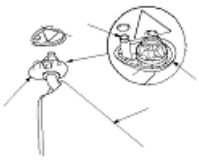
NOTE:

- Put on gloves to protect your hands.
- Take care not to bend or scratch the headliner.
- RHD model is shown; LHD model is symmetrical.

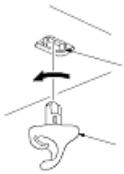
1. Insert a flat-tip screwdriver wrapped with protective tape through the hole in the front side of the bracket cover (A), and push the hook (B). Then make sure the hook is unlocked certainly.



2. While pushing the hook (A) with a flat-tip screwdriver wrapped with protective tape, release the sunvisor (B) from the holder (C), and rotate the sunvisor backward 45 °. Then make sure the hook slides into the bracket cover (D) as the rotating the sunvisor.

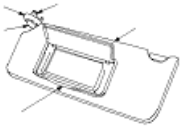


3. Pull the sunvisor (A) down, then release the pin (B) of the bracket cover (C) from the hole in the body.

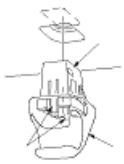


4. Turn the holder (A) 45 ° counterclockwise, and remove it from the holder grommet (B) by pulling the holder down.

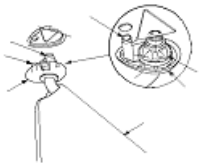
5. Pry out the holder grommet (A) from the body by pinching its hooks (B).
6. If the side curtain airbag has deployed, replace the sunvisor with a new one.



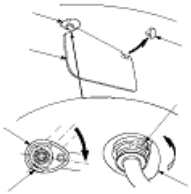
7. If the side curtain airbag has not deployed, to prevent the side curtain airbags from deploying improperly and possibly causing injury, inspect removed sunvisor and replace it, if it has any cracks or breakages:
    - Any cracks in the sunvisor bracket (A)
    - Any cracks in the sunvisor bracket cover (B)
    - Any bends or cracks in the sunvisor stay shaft (C)
    - Any cracks in the sunvisor base (D)
    - Any cracks in the vanity mirror base (E)
8. If the holder grommet is damaged or stress-whitened, replace it with a new one.



9. Install the holder (A) to the holder grommet (B) by turning it 45 ° clockwise, and install them to the body as an assembly by pushing it until the hooks (C) snap into place securely.



10. Set the sunvisor (A) by inserting the bracket (B) and the pin (C) of the bracket cover (D) to the hole in the body.



11. While holding the bracket cover (A), rotate the sunvisor (B) forward until the hook (C) snaps into place. Then make sure the sunvisor does not come off the body by pulling it down. Set the sunvisor to the holder (D).

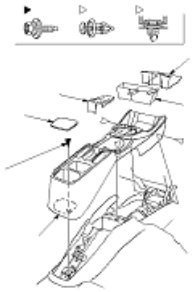
Center Console Removal/Installation - Without Seat Heater

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:

- Take care not to scratch the front seat, dashboard, and related parts.
- When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.
- RHD model is shown; LHD model is symmetrical.

1. M/T model: Remove the shift knob (A).

2. Remove the center console (A).
   -1. Remove the parking brake cover lid (B), separation box (C), and center console lid (D).
   -2. Remove the console box mat (E), then remove the bolt (F) and the clips (G).
   -3. Lift the rear of the console up to detach the clip (H).



3. Install the trim in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.
   - Make sure the wire harness is not pinched.

Center Console Removal/Installation - With Seat Heater

With Seat Heater

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:

- Take care not to scratch the front seat, dashboard, and related parts.
- When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.
- LHD model is shown; RHD model is symmetrical.

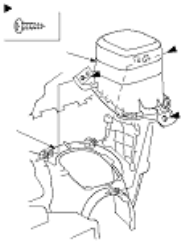
1. M/T model: Remove the shift knob (A).

2. Remove the center console (A).
   -1. Remove the parking brake cover lid (B).
   -2. Remove the switch panel (C), then disconnect the seat heater connector (D).
   -3. Detach the harness clip (E), then remove the switch panel base (F).
   -4. Remove the console box mat (G), then remove the bolt (H) and the clips (I).
   -5. Lift the rear of the console up to detach the clip (J).
3. Install the trim in the reverse order of removal, and note these items:
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the clips into place securely.
   - Make sure the wire harness is not pinched.

Dashboard Beverage Holder Removal/Installation

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the dashboard and its related parts.
- RHD model is shown; LHD model is symmetrical.



1. Remove the dashboard/steering hanger beam.
2. Remove the screws, then remove each side beverage holders (A) from the dashboard (B).
3. Install the beverage holder in the reverse order of removal.

Dashboard Vent Removal/Installation

Side Vent

NOTE:

- Take care not to scratch the dashboard and its related parts.
- RHD model is shown; LHD model is symmetrical.

1. Pull the fin (A) of the side vent (B) toward you and release the hooks (C) and remove the side vent.
2. Install the side outlet in the reverse order of removal and push the hooks into place securely.

Driver's side

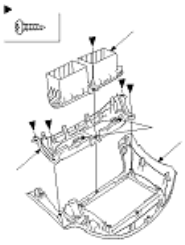
Passenger's side

Center Vent

NOTE:

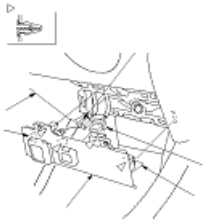
- Take care not to scratch the dashboard and its related parts.
- RHD model is shown; LHD model is similar.

1. Remove the center panel:
   - Without audio system
   - With audio system
2. Remove the screws, then remove the center vent panel (A) from the center panel (B).
3. Release the hooks (C), then remove the center vent (D) from the center vent panel.
4. Install the center vent in the reverse order of removal and push the hooks into place securely.



Dashboard Center Lower Trim Removal/Installation

NOTE:



- Take care not to scratch the dashboard and its related parts.
- When removing components, use the trim tools or equivalent.
- RHD model is shown; LHD model is symmetrical.

1. Remove the center lower cover.
2. Remove the center lower trim (A).
   -1. Use the trim tool to pry the gap between the dashboard (B) and the upper side of the center lower trim partially out and release the clips and hooks (C).
   -2. Pull out the center lower trim slightly toward you and disconnect the accessory power socket connector (D) and USB connector (E) (if equipped).
3. Install the trim in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips and the hooks into place securely.
   - Make sure the connectors are plugged in properly.

Dashboard Center Lower Cover Removal/Installation

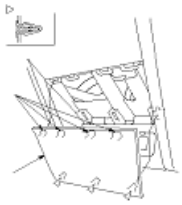
NOTE:

- Take care not to scratch the dashboard and its related parts.
- When removing components, use the trim tools or equivalent.
- RHD model is shown; LHD model is symmetrical.

1. While holding the glove box (A), release the glove box stops (B) on each side from the dashboard by pushing them in, then lower the glove box.

---

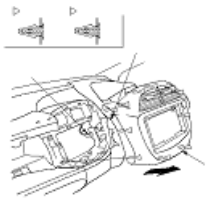
2. Remove the center lower cover (A).
   -1. Insert a hand through the opening of the glove box and push the back side of the cover, and release the clips.
   -2. Release the panel from the hooks (B) and remove it.



3. Install the cover in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips and the hooks into place securely.

Dashboard Center Panel Removal/Installation

Without Audio System



NOTE:

- When removing components, use the trim tool or equivalent.
- Take care not to scratch the dashboard and related parts.

1. Open the passenger's tray lid.
2. Remove the center panel (A).
   -1. While carefully lifting the panel with the appropriate trim tool, insert the trim tool into the gap (B) between the dashboard and the panel.
   -2. Use the trim tool to gently pry the panel up partially to release the clips (C, D), then pull the panel up to remove the panel.
   -3. Disconnect the hazard warning switch connector (E).
3. Install the panel in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.
   - Make sure each connector is plugged in properly.

Dashboard Passenger's Tray Lid Removal/Installation

NOTE:

- Take care not to scratch the dashboard and its related parts.
- RHD model is shown; LHD model is symmetrical.

1. Open the lid.
2. Remove the screws, then remove the passenger's upper tray lid (A).
3. Install the lid in the reverse order of removal.

Dashboard Driver's Undercover Removal/Installation - Without HFT unit

NOTE:

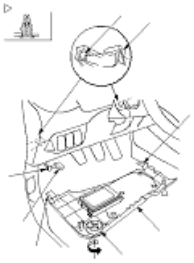
- Take care not to scratch the dashboard and its related parts.
- RHD model is shown; LHD model is symmetrical.

1. Remove the driver's dashboard undercover (A).
   -1. Turn the lock knob (B) 90 °.
   -2. Gently pull down the rear edge to detach the clip.
   -3. Pull the undercover away to release the pins (C) from the kick panel (D).

2. Install the undercover in the reverse order of removal, and note these items:
   - Check if the clip is damaged or stress-whitened, and if necessary, replace it with a new one.
   - Push the clip and pins into place securely.

Dashboard Driver's Undercover Removal/Installation - With HFT unit

With HFT Unit



NOTE:

- Take care not to scratch the dashboard and its related parts.
- LHD model is shown; RHD model is symmetrical.

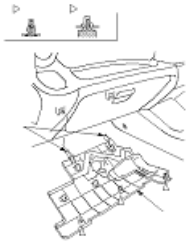
1. Remove the driver's dashboard undercover (A).
   -1. Turn the lock knob (B) 90 °.
   -2. Gently pull down the rear edge to detach the clip.
   -3. Pull the undercover away to release the pins (C) from the kick panel (D).
   -4. Detach the clip (E) and disconnect the HFT unit connector (F), then remove the undercover.

2. Install the undercover in the reverse order of removal, and note these items:
   - If the clip is damaged or stress-whitened, replace it with a new one.
   - Push the clip and pins into place securely.

Dashboard Passenger's Undercover Removal/Installation

NOTE:

- Take care not to scratch the dashboard and its related parts.
- RHD model is shown; LHD model is symmetrical.



1. Remove the passenger's dashboard undercover (A).
   -1. Gently pull down the front edge to detach the clips (B, C).
   -2. Pull the cover away to release the pins (D).

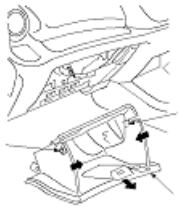
2. Install the cover in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips and the pins into place securely.

Glove Box Removal/Installation

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:

- Take care not to scratch the dashboard and its related parts.
- RHD model is shown; LHD model is symmetrical.

1. Remove the passenger's dashboard undercover.
2. Remove the bolts.



3. While holding the glove box (A), release the glove box stops (B) on both sides from the dashboard by pushing them inside, then remove the glove box.
4. Install the glove box in the reverse order of removal.

Dashboard Glove Box Cover Removal/Installation

NOTE:

- Take care not to scratch the dashboard and its related parts.
- RHD model is shown; LHD model is symmetrical.

1. Remove the dashboard/steering hanger beam.
2. Remove the screws, then remove the dashboard glove box center cover (A) and the dashboard glove box outer cover (B).
3. Install the cover in the reverse order of removal.

Center

Outer

Glove Box Striker Replacement

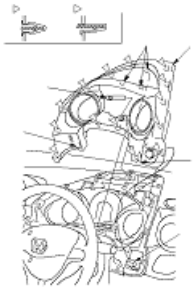
SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:

- Take care not to scratch the dashboard and its related parts.
- RHD model is shown; LHD model is symmetrical.

1. Pull down the glove box.
2. Remove the screws, then remove the glove box striker (A).
3. Install the glove box striker in the reverse order of removal.

Instrument Panel Removal/Installation

NOTE:



- Take care not to scratch the dashboard and its related parts.
- When removing components, use the trim tools or equivalent.
- RHD model is shown; LHD model is symmetrical.

1. Tilt the steering column down.
2. Remove the instrument panel (A).
   -1. Pull out the select/reset knob (B).
   -2. While carefully lifting the panel with the appropriate trim tool, insert the trim tool into the gap (C) between the dashboard and the panel.
   -3. Use the trim tool to gently pry the panel up partially to release the clips (D, E) and the hooks (F), then pull the panel up to release the panel.
   -4. Disconnect the power mirror switch connector (G).
3. Install the panel in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips and the hooks into place securely.
   - Make sure each connector is plugged in properly.
   - Make sure the select/reset knob operate properly.

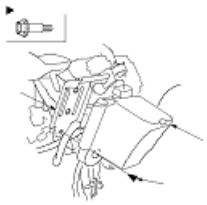
Dashboard Driver's Knee Pad Removal/Installation

NOTE:

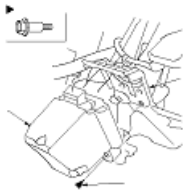
- Take care not to scratch the dashboard and its related parts.
- RHD model is shown; LHD model is symmetrical.

1. Remove the dashboard/steering hanger beam.
2. Remove the bolt, then remove the right driver's knee pad (A) and the left driver's knee pad (B) from the steering hanger beam (C).
3. Install the pad in the reverse order of removal.

Right



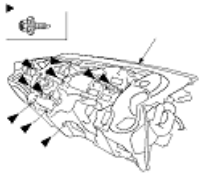
Left



Dashboard/Steering Hanger Beam Disassembly/Reassembly

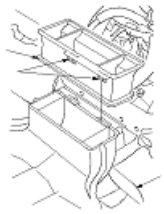
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the dashboard, the body and the other related parts.
- Take care not to bend the brackets.
- When removing components, use the trim tools or equivalent.
- RHD model is shown; LHD model is symmetrical.

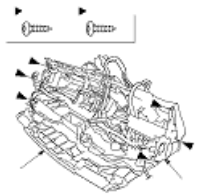


1. Remove the dashboard/steering hanger beam.
2. Remove these items from the dashboard:
   - Instrument panel
   - Gauge control module
   - Driver's dashboard undercover
   - Center panel (without audio system)
   - Audio unit (with audio system)
   - Center lower cover
   - Center lower trim
   - Passenger's tray lid
   - Side vent
   - Passenger's airbag
3. From the front of the dashboard (A), remove the screws.

4. From the back of the dashboard (A), release the hooks (B), and remove the center joint duct (C).

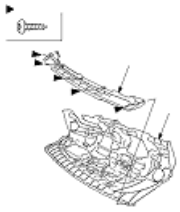


5. From the back of the dashboard (A), remove the screws (B, C), then separate the dashboard from the steering hanger beam (D).



6. Remove the screws, then remove the dashboard duct (A) from the dashboard (B).

7. If necessary, remove the screws, then remove the front def trim (A) from the dashboard (B).
8. Assemble the dashboard and steering hanger beam in the reverse order of removal. Make sure the dashboard wire harness is not pinched.



Interior Trim Removal/Installation - Door Areas

Front Door Sill Area

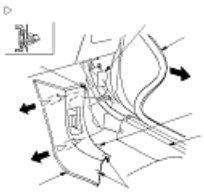
NOTE:

- Put on gloves to protect your hands.
- Take care not to bend or scratch the trim and panels.
- When removing components, use the trim tools or equivalent.
- RHD model is shown; LHD model is symmetrical.

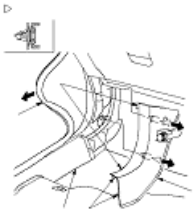
1. Remove the driver's dashboard undercover.

2. Remove the driver's kick panel (A) or the passenger's side kick panel (B).
   -1. Pull out the front door inner seal (C) from the kick panel hooks (D) and the front door opening flange.
   -2. Pull the kick panel back by hand to detach the clips, and to release the hooks (E) from the front door sill trim (F), then remove the panel. On the driver's side, pull the hood opener knob (G) and hold it while removing the panel.

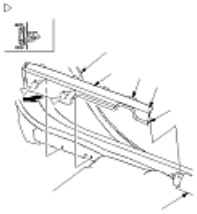
Driver's side



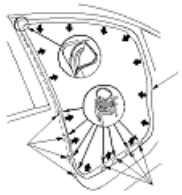
Passenger's side



3. Remove the front door sill trim (A).
   -1. Pull out the front door inner seal (B) from the front door sill trim hooks (C) and the front door opening flange.
   -2. Detach the hook (D) and tab (E) from center pillar lower trim (F), and pull the front door sill trim up by hand to detach the clips.



4. Pull out the front door inner seal (A) from the trim hooks (B) and around the front door opening flange, then remove the seal.

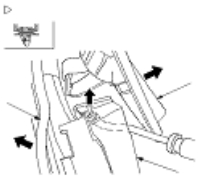


5. Install the trim in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips and hooks into place securely.

Rear Door Sill Area

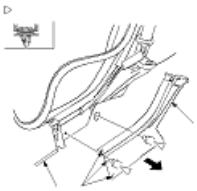
NOTE:

- Put on gloves to protect your hands.
- Take care not to bend or scratch the trim and panels.
- When removing components, use the trim tools or equivalent.
- RHD model is shown; LHD model is symmetrical.

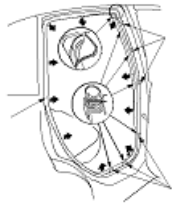


1. Tip-up the rear seat, and pull out the rear door inner seal (A), then carefully slide the luggage area side trim (B), and detach the clip from the rear side sill trim (C) using with a clip remover.

2. Remove the hooks (A) from the center lower trim (B), then detach the lower clips pulling the bottom of the rear side sill trim (C) back by hand and remove it.



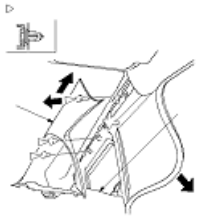
3. Pull out the rear door opening seal (A) from the trim hooks (B) and around the front door opening flange, then remove the seal.



4. Install the trim in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips and hooks into place securely.

Interior Trim Removal/Installation - Pillar Areas - Without Side Curtain Airbags

Front Pillar Trim



NOTE:

- Put on gloves to protect your hands.
- Take care not to bend or scratch the trim and panels.
- When removing components, use the trim tools or equivalent.
- RHD model is shown; LHD model is symmetrical.

1. Pull the front door opening seal away from the front pillar, as needed.
2. Pull the upper portion of the front pillar trim (A) back by hand to detach the clips and pull the trim up, then remove it from the dashboard (B).
3. Install the trim in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.

Center Pillar Upper/Lower Trim

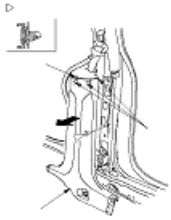
SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.

NOTE:

- Put on gloves to protect your hands.
- Take care not to bend or scratch the trim and panels.
- When removing components, use the trim tools or equivalent.
- RHD model is shown; LHD model is symmetrical.

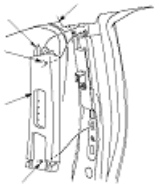
1. Remove these items:
   - Front door sill trim
   - Rear door sill trim
   - Front door opening seal, as needed
   - Rear door opening seal, as needed
2. Slide the front seat forward fully, and put the rear seat in the normal upright position.
3. Remove the seat belt lower anchor bolt (A).

4. Remove the center pillar lower trim (A).
   -1. Pull the upper portion of the trim back to release the upper hooks (B).
   -2. Detach the clip by pulling the trim back by hand.



5. Remove the upper anchor cover (A), and remove the upper anchor bolt (B).

6. Remove the center pillar upper trim (A).
   -1. Pull the bottom of the trim back by hand to detach the lower clip (B).
   -2. Pull the upper of the trim back by hand to detach the upper clip (C).
   -3. Release the upper pin (D) by pulling the top of the center pillar trim and remove it from the headliner (E).



7. Install the trim in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.
   - Apply medium strength type liquid thread lock to the front seat belt upper anchor bolt before reinstallation.
   - Before installing the anchor bolt, make sure there are no twists or kinks in the seat belt.

Quarter Pillar Trim

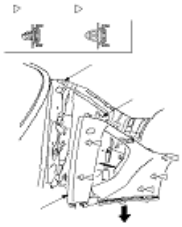
NOTE:

- Put on gloves to protect your hands.
- Take care not to bend or scratch the trim and panels.
- When removing components, use the trim tools or equivalent.
- RHD model is shown; LHD model is symmetrical.

1. Remove these items:
   - Rear door opening seal, as needed
   - Tailgate weatherstrip, as needed
   - Cargo area side trim panel, as needed
2. Remove the upper anchor cover (A) by releasing the hooks (B), then remove the rear seat belt upper anchor bolt (C).

---

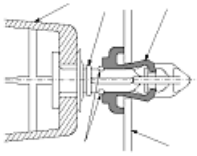
3. Remove the quarter pillar trim (A).
   -1. Pull the bottom of the trim back by hand to detach the clips (B, C).
   -2. Pull the trim down to release the upper hook (D) from the body hole (E).



4. Install the trim in the reverse order of removal, and note these items:
   - Check if the clips and hooks are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips and hooks into place securely.
   - Before installing the anchor bolt, make sure there are no twists or kinks in the seat belt.

Interior Trim Removal/Installation - Pillar Areas - With Side Curtain Airbags

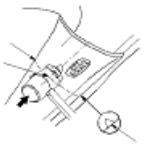
Front Pillar Trim

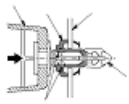


SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:

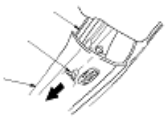
- Follow the front pillar trim installation procedure carefully; improper installation could cause the side curtain airbags to deploy improperly and possibly cause injury.
- Put on gloves to protect your hands.
- When removing components, use the trim tools or equivalent.
- Take care not to scratch the trim and panels.
- The upper clip in the front pillar trim (A) consists of a grommet (B) and a pin (C). The grommet expanded with the pin secures it to the body panel (D). The projections (E) on the pin is broken during removal, so the clip must be replaced with a new one when the trim is reinstalled.

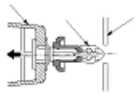
1. Pull the front door opening seal away from the front pillar as needed.
2. Hit the upper clip in the front pillar trim (A) with a rubber mallet. The clip is under the point (B) where the triangle mark (C) on the edge of the trim indicates. Hitting the clip breaks the projections (D) on the pin (E) and pushes it into the grommet (F) and against the body (G).
   NOTE: The clip must be replaced with a new one when the front pillar trim is reinstalled.



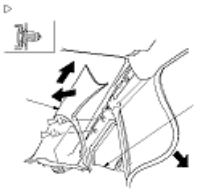


3. Pull the top of the front pillar trim (A) back by hand to remove the upper clip (B) from the body (C).

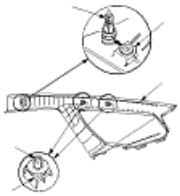




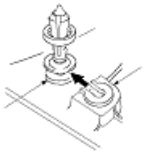
4. Pull the front pillar trim (A) by hand to detach the clips. Pull the trim up from the dashboard (B), then remove it.
5. If the side curtain airbag has deployed, replace the front pillar trim with a new one.



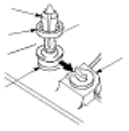
6. If the side curtain airbag has not been deployed, check the front pillar trim (A) and note the following:
   - To prevent the side curtain airbags from deploying improperly and possibly causing injury, inspect the front pillar trim and replace it if it has any of these types of damage:
     - Any cracks, deformations, or stress-whitened areas in the front pillar trim
     - Any cracks or stress-whitening in the clip seating surfaces (B, C)
   - Replace the upper clip (D) with a new one.
   - Check if the clips (E) are damaged or stress-whitened, replace them with new ones.

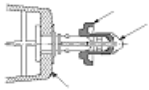


7. Before installing the front pillar trim (A), carefully remove a new upper clip (B).
8. Check the overlap between the headliner and front pillar trim, and if necessary, adjust it.

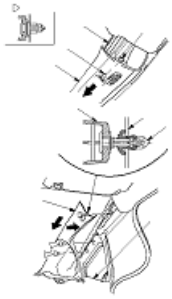


9. Carefully install a new upper clip (A) to the front pillar trim (B). Be sure that the grommet (C) is nearest to the top of the pin (D) as shown.





10. Reinstall the front pillar trim (A).
    -1. Insert the bottom of the trim into the dashboard (B).
    -2. Place the trim over the front pillar (C), and fit its upper clip (D) and lower clips (E) into the holes (F) in the front pillar, then lightly push the trim into place.
    NOTE:
        - Make sure the side curtain airbag isn't tucked down under the clips and the ribs.
        - Push lightly on the upper clip. If you push too hard, the clip will be damaged, and it will not hold the trim properly.



11. Reinstall the front door opening seal.

Center Pillar Upper/Lower Trim

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:

- Put on gloves to protect your hands.
- Take care not to bend or scratch the trim and panels.
- When removing components, use the trim tools or equivalent.

1. Remove these items:
    - Front door sill trim
    - Rear door sill trim
    - Front door opening seal, as needed
    - Rear door opening seal, as needed
2. Slide the front seat forward fully, and put the rear seat in the normal upright position.
3. Remove the seat belt lower anchor bolt (A).

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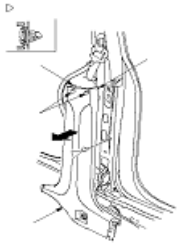
4. Remove the center pillar lower trim (A).
    -1. Pull the upper portion of the trim back to release the upper hooks (B).
    -2. Detach the clip by pulling the trim back by hand.



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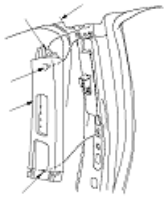
5. Remove the upper anchor cover (A), and remove the upper anchor bolt (B).

---

6. Remove the center pillar upper trim (A).
    -1. Pull the bottom of the trim back by hand to detach the lower clip (B).
    -2. Pull the upper of the trim back by hand to detach the upper clip (C).
    -3. Release the upper pin (D) by pulling the top of the center pillar trim and remove it from the headliner (E).



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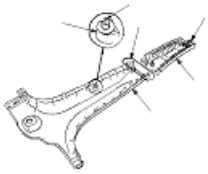
7. Install the trim in the reverse order of removal, and note these items:
   - Check if the clip (A) is damaged or stress-whitened, and if necessary, replace it with a new one.
   - If the side curtain airbag has deployed, replace the center pillar upper and lower trim and all clips on the trim with new ones.
   - To prevent the side curtain airbags from deploying improperly and possibly causing injury, inspect the trim and replace it, if it has any of these types of damage:
     - Any cracks or deformations in the center pillar upper trim (B) and the upper hook (C)
     - Any cracks or deformation in the center pillar lower trim (D), and any breakage in the part (E) fitted with the center pillar upper trim
     - Any cracks or stress-whitened areas seating surfaces (F)
   - Replace any damaged parts with new ones.
   - Make sure the top of the trim overlaps with the headliner correctly.
   - Make sure the trim hook is installed into the body hole securely.
   - Push the clip and hooks into place securely.
   - Before installing the anchor bolt, make sure there are no twists or kinks in the seat belt.



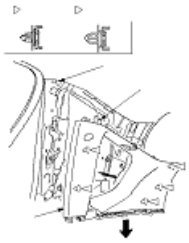
Quarter Pillar Trim

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:

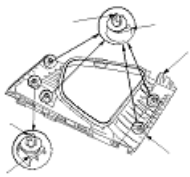
- Put on gloves to protect your hands.
- Take care not to bend or scratch the trim and panels.
- When removing components, use the trim tools or equivalent.
- RHD model is shown; LHD model is symmetrical.

1. Remove these items:
   - Rear door opening seal, as needed
   - Tailgate weatherstrip, as needed
   - Cargo area side trim panel, as needed
2. Remove the upper anchor cover (A) by releasing the hooks (B), then remove the rear seat belt upper anchor bolt (C).

3. Remove the quarter pillar trim (A).
   -1. Pull the bottom of the trim back by hand to detach the clips (B, C).
   -2. Pull the trim down to release the upper hook (D) from the body hole (E).

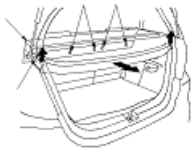


4. Install the trim in the reverse order of removal, and note these items:
   - Replace any stress-whitened or damaged clips (A) with new ones.
   - If the side curtain airbag has deployed, replace the quarter pillar glass trim and all clips on the trim with new ones.
   - To prevent the side curtain airbags from deploying improperly and possibly causing injury, inspect the trim and replace it, if it has any of these types of damage:
     - Any cracks or deformation in the quarter pillar trim (B) and the upper hook (C), and any stress-whitened areas in the upper part of the trim
     - Any cracks or stress-whitened areas in the clips seating surfaces (D)
   - Replace any damaged parts with new ones.
   - Make sure the top of the trim overlaps with the headliner correctly.
   - Make sure the trim hook is installed into the body holes.
   - Push the clip and hooks into place securely.
   - Before installing the seat belt anchor bolt, make sure there are no twists or kinks in the seat belt.



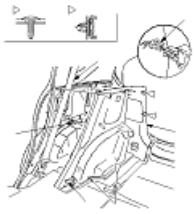
Interior Trim Removal/Installation - Rear Side Areas

NOTE:



- Put on gloves to protect your hands.
- Take care not to bend or scratch the trim and panels.
- When removing components, use the trim tools or equivalent.
- RHD model is shown; LHD model is symmetrical.

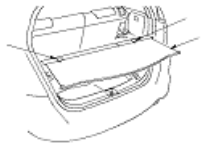
1. Remove these items:
   - Rear door opening seal, as needed
   - Tailgate weatherstrip, as needed
   - Cargo floor
   - Rear trim panel
2. For some models: Release the buttons (A), then remove the rear shelf (B).



3. Remove the cargo area side trim panel (A).
   -1. Release the rear seat belt (B) from the guide (C) of the cargo area side trim panel.
   -2. Detach the clips (D, E), then pull the panel back to remove it from the rear seat back striker (F).
   -3. Left side: Disconnect the cargo area light connector (G).
4. Install the panel in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.
   - Make sure the cargo area light connector is plugged in properly.
   - When installing the panel, make sure there are no pinches in the seat belt.

Interior Trim Removal/Installation - Cargo Areas

NOTE:



- Put on gloves to protect your hands.
- Take care not to bend or scratch the trim and panels.
- When removing components, use the trim tools or equivalent.

Rear Trim Panel

1. Release the hooks (A), then pull up the cargo floor (B) and remove it.
2. Remove the tailgate weatherstrip, as needed.

---

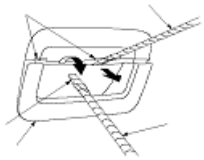
3. Remove the rear trim panel (A).
   -1. Disengage the tabs (B) and hooks (C) on both sides from both cargo area side trim panel (D).
   -2. Detach the clips by pulling the panel up.

4. Install the trim in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips, hooks, and tabs into place securely.

Interior Trim Removal/Installation - Tailgate Areas

NOTE:

- Put on gloves to protect your hands.
- Take care not to bend or scratch the trim and panels.
- When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.



1. Insert a flat-tip screwdriver (A) to the slit (B), the other flat-tip screwdriver (C) into the groove (D), then rotate the flat-tip screwdriver C and remove the pull pocket (E).

---

2. Pull the tailgate lower trim panel (A) back by hand, and detach the clips (B, C, D), then remove it.

3. Install the trim in the reverse order of removal, and note these items:
    - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
    - Push the clips into place securely.

Steering Column Cover Removal/Installation

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the column cover.
- Do not pry the cover surface with any tools.
- RHD model is shown; LHD model is symmetrical.

1. Release the tilt/telescopic lever (A), adjust the steering column to full tilt down position and to the full telescopic pull position.
2. Release the tabs (B) of the upper column cover (C) while pushing the lower column cover (D) from the front side.
   NOTICE
   Carefully release the tabs, and note the hooks (E) may break when the upper column cover is pulled up too hard.
3. Insert a suitable sized screwdriver or equivalent tool (F) into the lever hole (G) in the lower column cover D along the guide rib (H).
4. Release the hook (I) locating on the left side of the upper column cover C. The right side hook (J) of the upper column cover C can't be released from the inside.
5. Remove the upper column cover C by lightly pulling it up by releasing the right side hook J of the cover.

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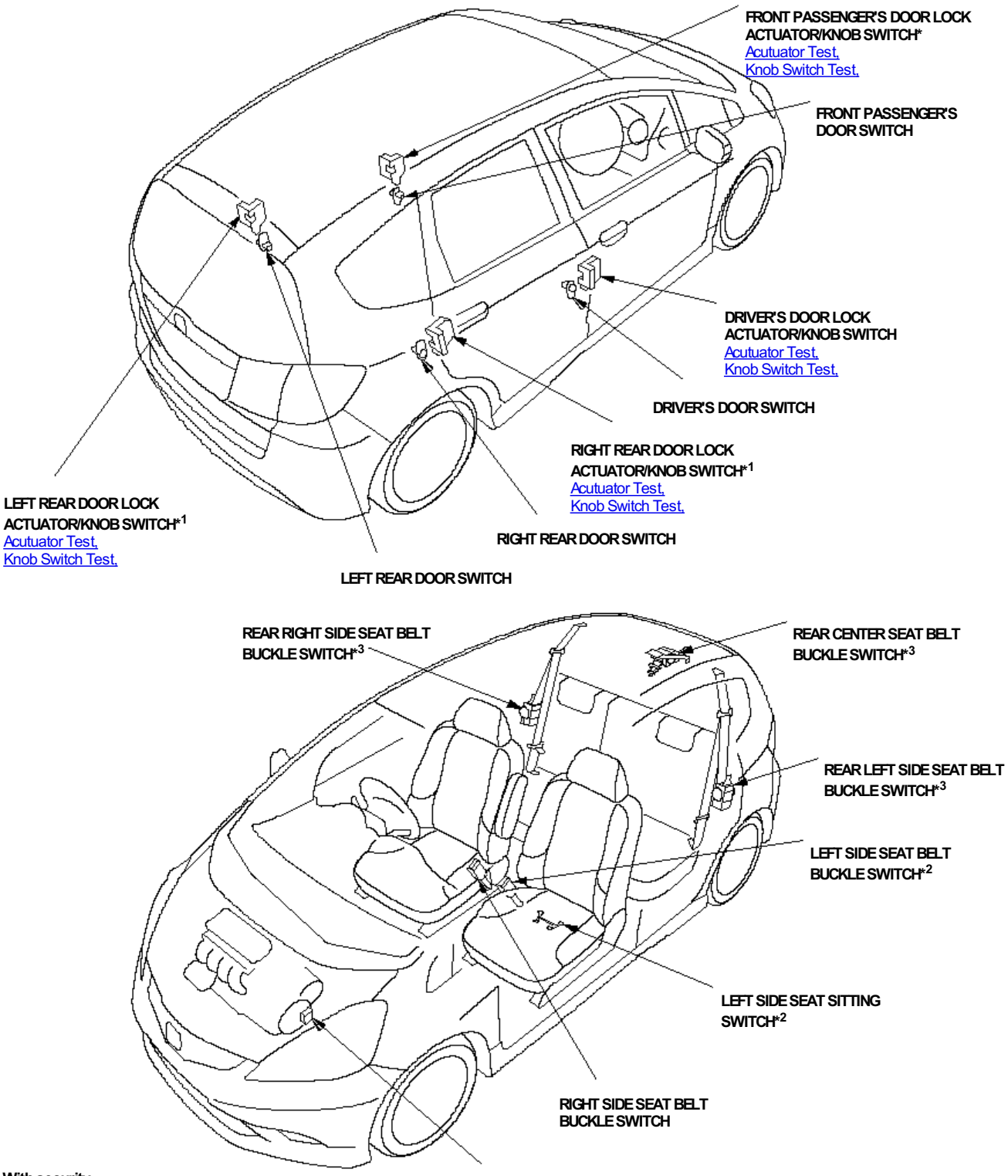
6. Remove the screws, then remove the lower column cover (A).

7. Install the upper and lower column covers in the reverse order of removal, and push the hooks into place securely.

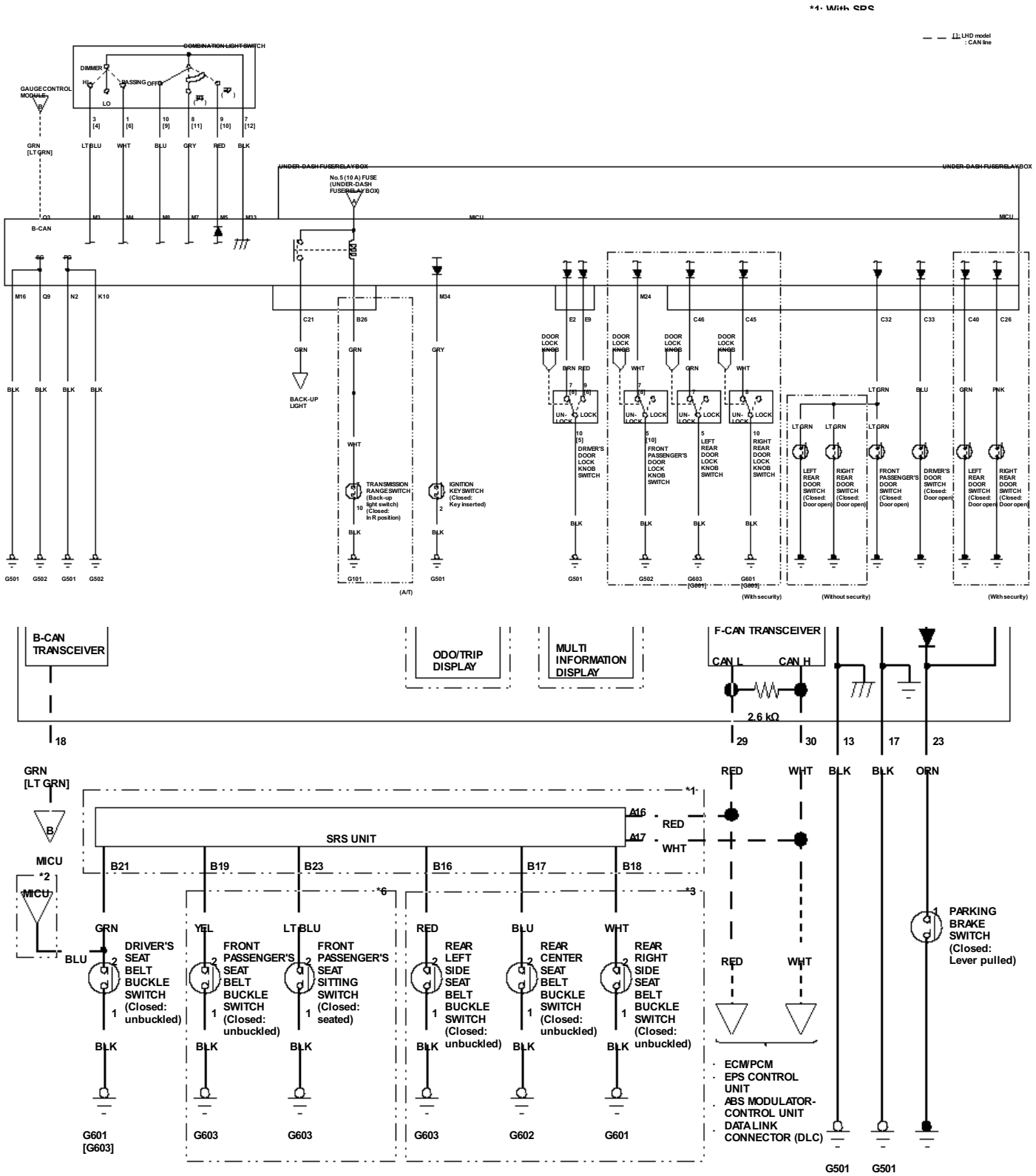
Reminder Systems Component Location Index



***1: With security**
***2: With passenger's seat belt reminder**
***3: With rear seat belt reminder**

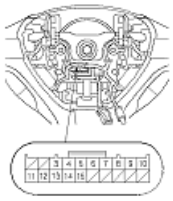
RHD model is shown, LHD model is similar.

Reminder System Circuit Diagram

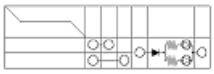


Multi-information Display Select/Reset/Information/Switch Test/Replacement

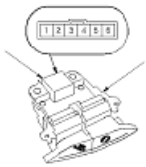
1. Remove the driver's airbag assembly.
2. Disconnect the 20P connector (A) from the cable reel.



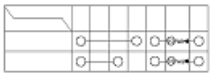
3. Check for continuity between the terminals in each switch position according to the table.
4. Without cruise control: if the check is not as specified, replace the switch. If the switch is OK, but the system does not operate, check for the cable reel.
   With cruise control: if the check is not as specified, go to Step 5 . If the check is OK, but the system does not operate, check for the cable reel.



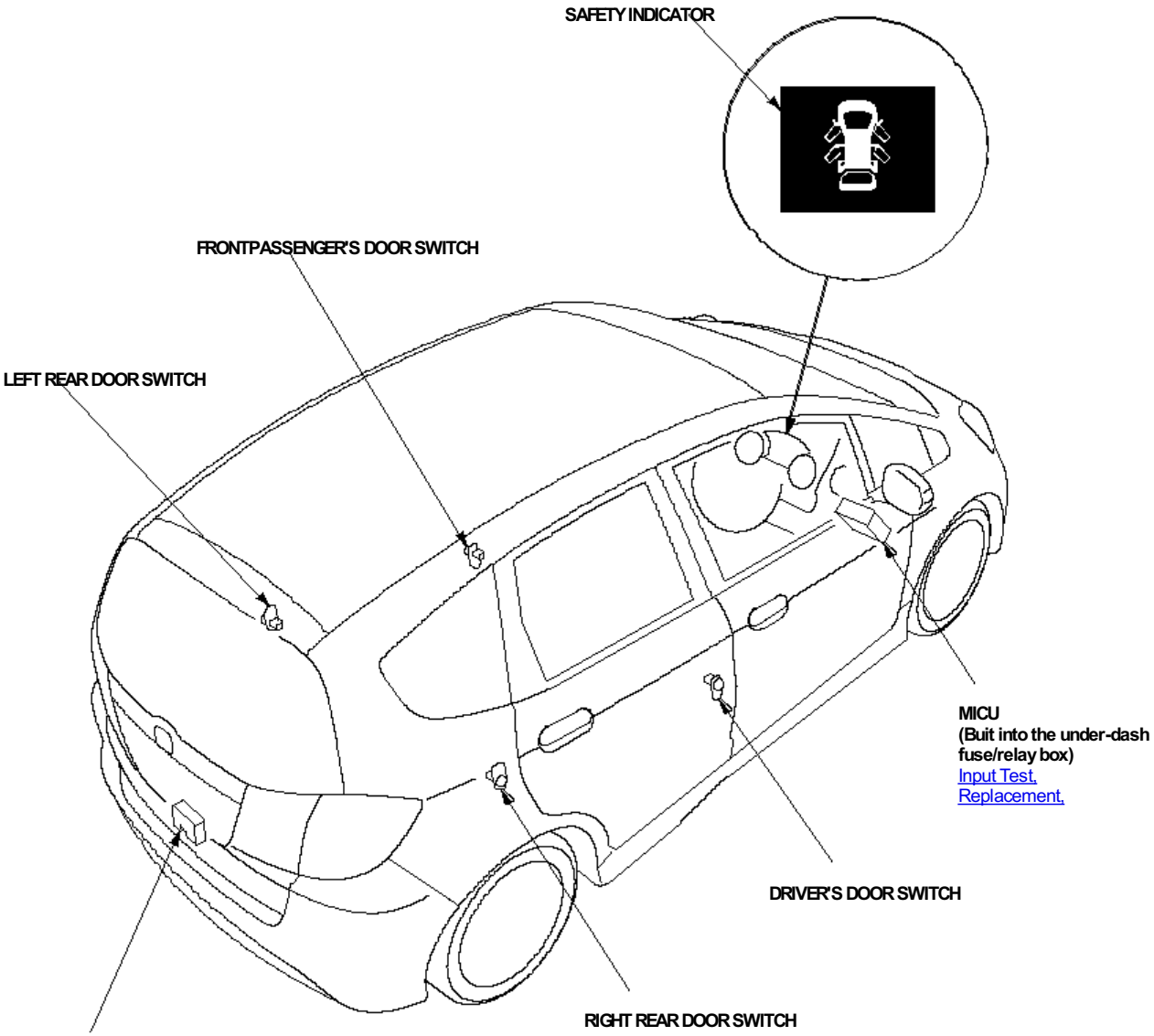
5. Remove the select/reset/information switch (A).



6. Check for continuity between the terminal (B) in each switch position according to the table.
7. If the continuity is not as specified, replace the switch. If the switch is OK, but the system does not operate, check for an open in the wire between the switch and the cable reel.

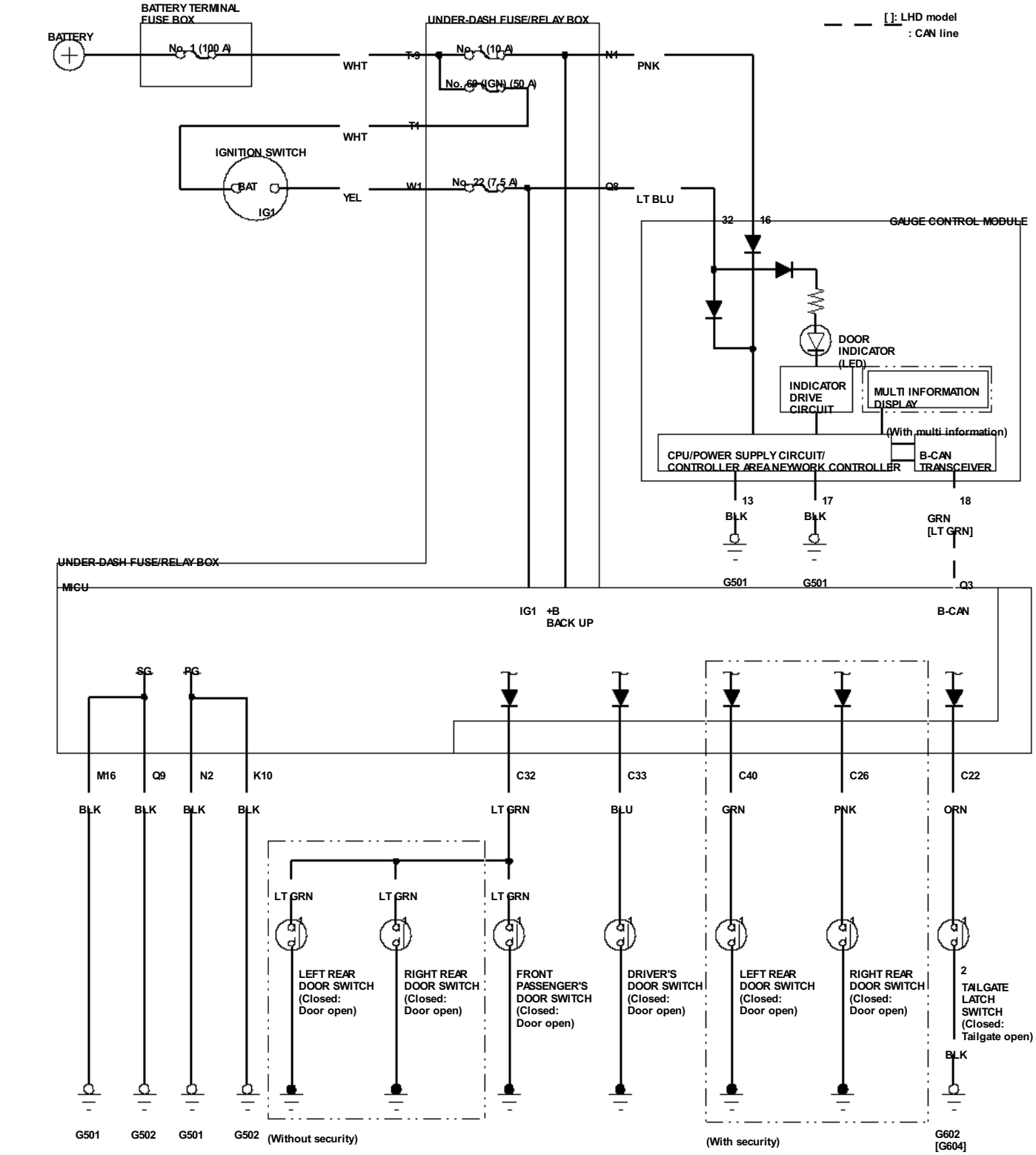


Safety Indicator System Component Location Index



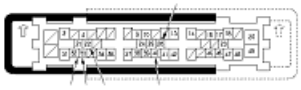
RHD model is shown, LHD model is similar.

Safety Indicator System Circuit Diagram



Safety Indicator System (MICU and Gauge Control Module) Input Test

NOTE: Before testing, do the gauge control module self-diagnostic function to make sure the door indicator LED and B-CAN communication line are OK.



MICU

1. Turn the ignition switch to LOCK (0).
2. RHD model: Remove the fuse lid panel, and remove the driver's dashboard lower cover.
   LHD model: Remove the fuse lid panel.
3. Disconnect under-dash fuse/relay box connectors C, K, M, N, Q, and W.
   NOTE:
   - All connector views are shown from wire side of female terminals.
   - The illustration shows the RHD model and the black portion shows the lock lever. The lock lever for LHD model is shown as the dashed lines.
4. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose, or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to Step 5 .
5. With the connectors still disconnected, make these input tests at the connectors.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to Step 6 .

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
K10	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • An open in the wire
M16	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
N2	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
Q9	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • An open in the wire
W1	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 60 (50 A) fuse in the under-dash fuse/relay box • Faulty ignition switch • An open in the wire
Q3	GRN[LT GRN]	Disconnect the gauge control module 32P connector	Check for continuity between Q3 terminal and the gauge control module 32P connector No. 18 terminal: There should be continuity.	An open in the wire
			Check for continuity to ground: There should be no continuity.	A short to ground in the wire
C33	BLU	Driver's door open	Check for continuity to ground: There should be continuity.	• Faulty driver's door switch • An open in the wire
		Driver's door closed	Check for continuity to ground: There should be no continuity.	• Faulty driver's door switch • A short to ground in the wire
C32	LT GRN	Front passenger's door open	Check for continuity to ground: There should be continuity.	• Faulty front passenger's door switch • An open in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
		Front passenger's door closed	Check for continuity to ground: There should be no continuity.	• Faulty front passenger's door switch • A short to ground in the wire
C32 *2	LT GRN	Left rear door or right rear door open	Check for continuity to ground: There should be continuity.	• Faulty left rear door switch • Faulty right rear door switch • An open in the wire
		Left rear door and right rear door closed	Check for continuity to ground: There should be no continuity.	• Faulty left rear door switch • Faulty right rear door switch • A short to ground in the wire
C40 *1	GRN	Left rear door open	Check for continuity to ground: There should be continuity.	• Faulty left rear door switch • An open in the wire
		Left rear door closed	Check for continuity to ground: There should be no continuity.	• Faulty left rear door switch • A short to ground in the wire
C26 *1	PNK	Right rear door open	Check for continuity to ground: There should be continuity.	• Faulty right rear door switch • An open in the wire
		Right rear door closed	Check for continuity to ground: There should be no continuity.	• Faulty right rear door switch • A short to ground in the wire
C22	ORN	Tailgate open	Check for continuity to ground: There should be continuity.	• Faulty tailgate latch switch • An open in the wire
		Tailgate closed	Check for continuity to ground: There should be no continuity.	• Faulty tailgate latch switch • A short to ground in the wire

*1: With security
*2: Without security

Gauge

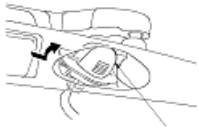
6. Turn the ignition switch to LOCK (0), and remove the instrument panel.
7. Disconnect the gauge control module 32P connector.
8. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose, or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to Step 9 .
9. With the connectors still disconnected, make these input tests at the connectors.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If al the input tests prove OK, go to Step 10 .

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
13	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
17	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
16	PNK	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 1 (10 A) fuse in the under-dash fuse/relay box • An open in the wire
32	LT BLU	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 22 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire

10. Substitute a known-good gauge control module, and recheck the system.
    - If the symptom is gone, the gauge control module is faulty: replace it.
    - If the symptom is still present, the MICU is faulty; replace the under-dash fuse/relay box.

License Plate Light Replacement

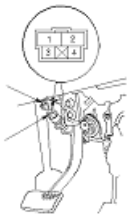
1. Push the retaining spring, and pry out the license plate light (A).
   NOTE: Be careful not to damage the tailgate.



2. Disconnect the 2P connector (A) from the light.
   License Plate Light: 5 W

3. Separate the license plate light lens (B) and the housing (C), then remove the bulb (D).
4. Install the light in the reverse order of removal.

Brake Pedal Position Switch Test



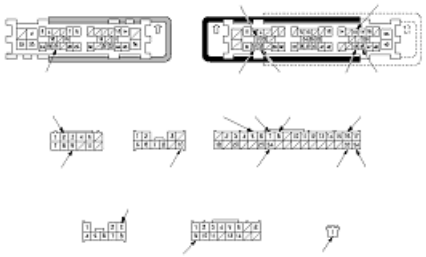
1. Disconnect the 4P connector (A) from the brake pedal position switch (B).
2. Check for continuity between the No. 1 and No. 2 terminals.
   - There should be continuity when the brake pedal is pressed.
   - There should be no continuity when the brake pedal is released.
3. Check for continuity between the No. 3 and No. 4 terminals.
   - There should be no continuity when the brake pedal is pressed.
   - There should be continuity when the brake pedal is released.
4. If necessary, adjust or replace the switch, or adjust the pedal height.

Headlight Replacement

1. Remove the front bumper.
2. Disconnect the connectors (A) from the headlight (B).
   Headlight: 60/55 W
   Front Position Light: 5 W
   Front Turn Signal Light: 21 W
3. Remove the four mounting bolts from the headlight.
4. Remove the bolt and the corner upper beam (C).
5. Install in the reverse order of removal.
6. After replacement, adjust the headlights to local requirements.

Reminder System (MICU and Gauge Control Module) Input Test

NOTE: Before testing, do the gauge control module self-diagnostic function to make sure the beeper and the indicators in the gauge control module work properly, and the B-CAN and F-CAN lines are OK.



MICU

1. Turn the ignition switch to LOCK (0).
2. RHD model: Remove the fuse lid panel, and remove the driver's dashboard lower cover.
   LHD model: Remove the fuse lid panel.
3. Disconnect under-dash fuse/relay box connectors B, C, E, K, M, N, Q, and W.
   NOTE:
   - All connector views are shown from wire side of female terminals.
   - The illustration shows the RHD model and the black portion shows the lock lever. The lock lever for LHD model is shown as the dashed lines.
4. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose, or corroded, repair them as necessary and recheck the system.
   - If the terminals are OK, go to Step 5 .

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
K10	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • An open in the wire
Q9	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • An open in the wire
M16	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
N2	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
Q3	GRN[LT GRN]	Disconnect the gauge control module 32P connector	Check for continuity between Q3 terminal and the gauge control module 32P connector No. 18 terminal: There should be continuity.	An open in the wire
			Check for continuity to ground: There should be no continuity.	A short to ground in the wire
E9	RED	Driver's door lock knob switch in LOCK position	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • Faulty driver's door lock knob switch • An open in the wire
		Driver's door lock knob switch in UNLOCK position	Check for continuity to ground: There should be no continuity.	• Faulty driver's door lock knob switch • A short to ground in the wire
E2	BRN	Driver's door lock knob switch in UNLOCK position	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • Faulty driver's door lock knob switch • An open in the wire
		Driver's door lock knob switch in LOCK position	Check for continuity to ground: There should be no continuity.	• Faulty driver's door lock knob switch • A short to ground in the wire
M24	PUR	Front passenger's door lock knob switch in UNLOCK position	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • Faulty front passenger's door lock knob switch • An open in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
		Front passenger's door lock knob switch in LOCK position	Check for continuity to ground: There should be no continuity.	• Faulty front passenger's door lock knob switch • A short to ground in the wire
C45	WHT	Right rear door lock knob switch in UNLOCK position	Check for continuity to ground: There should be continuity.	• Poor ground (G601) [G603] • Faulty right rear door lock knob switch • An open in the wire
		Right rear door lock knob switch in LOCK position	Check for continuity to ground: There should be no continuity.	• Faulty right rear door lock knob switch • A short to ground in the wire
C46	GRN	Left rear door lock knob switch in UNLOCK position	Check for continuity to ground: There should be continuity.	• Poor ground (G603) [G601] • Faulty left rear door lock knob switch • An open in the wire
		Left rear door lock knob switch in LOCK position	Check for continuity to ground: There should be no continuity.	• Faulty left rear door lock knob switch • A short to ground in the wire

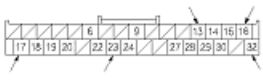
[ ]: LHD model

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
C33	BLU	Driver's door open	Check for continuity to ground: There should be continuity.	• Faulty driver's door switch • An open in the wire
		Driver's door closed	Check for continuity to ground: There should be no continuity.	• Faulty driver's door switch • A short to ground in the wire
C32	LT GRN	Front passenger's door open	Check for continuity to ground: There should be continuity.	• Faulty front passenger's door switch • An open in the wire
		Front passenger's door closed	Check for continuity to ground: There should be no continuity.	• Faulty front passenger's door switch • A short to ground in the wire
C32*	LT GRN	Left rear door or right rear door open	Check for continuity to ground: There should be continuity.	• Faulty left rear door switch • Faulty right rear door switch • An open in the wire
		Left rear door and right rear door closed	Check for continuity to ground: There should be no continuity.	• Faulty left rear door switch • Faulty right rear door switch • A short to ground in the wire
C40	GRN	Left rear door open	Check for continuity to ground: There should be continuity.	• Faulty left rear door switch • An open in the wire
		Left rear door closed	Check for continuity to ground: There should be no continuity.	• Faulty left rear door switch • A short to ground in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
C26	PNK	Right rear door open	Check for continuity to ground: There should be continuity.	• Faulty right rear door switch • An open in the wire
		Right rear door closed	Check for continuity to ground: There should be no continuity.	• Faulty right rear door switch • A short to ground in the wire
M34	GRY	Ignition key inserted into the ignition switch	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • Faulty ignition key switch • An open in the wire
		Ignition switch LOCK (0), and the ignition key removed from the ignition switch	Check for continuity to ground: There should be no continuity.	• Faulty ignition key switch • A short to ground in the wire
M8· M33	BLU· BLK	Combination light switch OFF	Check for continuity to ground: There should be continuity.	• Faulty combination light switch • An open in the wire
		Combination light switch in any other position than OFF	Check for continuity to ground: There should be no continuity.	• Faulty combination light switch • A short to ground in the wire
M7· M33	GRY· BLK	Combination light switch (PARKING position) ON	Check for continuity to ground: There should be continuity.	• Faulty combination light switch • An open in the wire
		Combination light switch OFF	Check for continuity to ground: There should be no continuity.	• Faulty combination light switch • A short in the wire
M5· M33	RED· BLK	Combination light switch (Headlight position) ON	Check for continuity to ground: There should be continuity.	• Faulty combination light switch • An open in the wire
		Combination light switch OFF	Check for continuity to ground: There should be no continuity.	• Faulty combination light switch • A short in the wire
B26	GRN	Transmission range switch in R position	Check for continuity to ground: There should be continuity.	• Poor ground (G101) • Faulty transmission range switch • An open in the wire
		Transmission range switch in any other position than R position	Check for continuity to ground: There should be no continuity.	• Faulty transmission range switch • A short in the wire

*: Without security

Gauge Control Module



5. Turn the ignition switch to LOCK (0).
6. Remove the gauge control module, and disconnect the 32P connector from it.
7. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals are OK, go to Step 8 .
8. With the connectors still disconnected, make these input tests at the connectors.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to Step 9 .

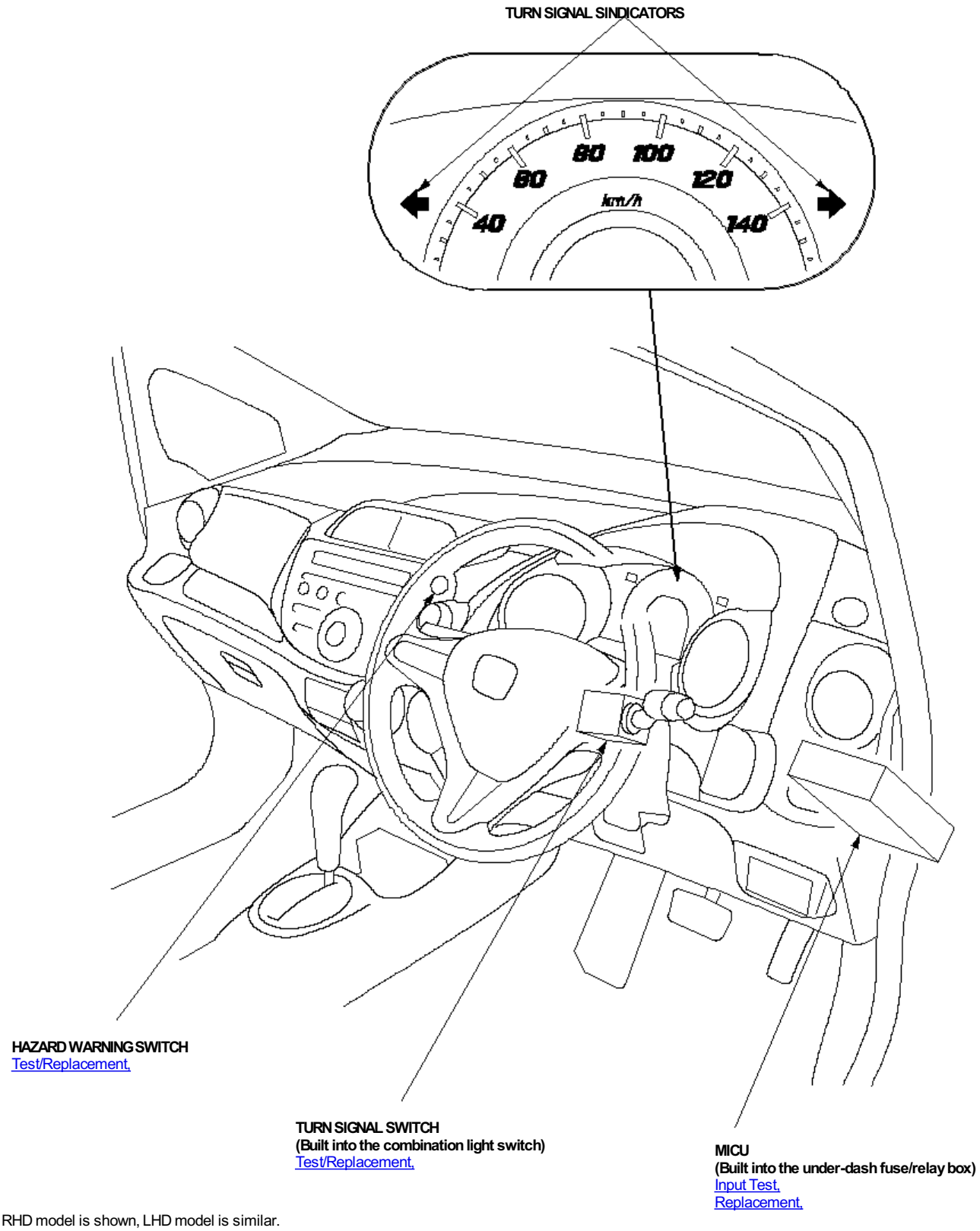
Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
13	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
16	PNK	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 1 (10 A) fuse in the under-dash fuse/relay box • An open in the wire
17	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
23	ORN	Parking brake switch ON (Lever pulled)	Measure the voltage to ground: There should be less than 1 V.	• Faulty parking brake switch • An open in the wire
		Parking brake switch OFF (Lever released)	Measure the voltage to ground: There should be 5 V or more.	• Faulty parking brake switch • A short to ground in the wire
29	RED	Disconnect SRS unit connector A (39P)	Check for continuity between the No. 29 terminal and SRS unit connector A (39P) No. 16 terminal: There should be continuity.	An open in the wire
			Check for continuity between the No. 29 terminal and ground: There should be no continuity.	A short to ground in the wire
30	WHT	Disconnect SRS unit connector A (39P)	Check for continuity between the No. 30 terminal and SRS unit connector A (39P) No. 17 terminal: There should be continuity.	An open in the wire
			Check for continuity between the No. 30 terminal and ground: There should be no continuity.	A short to ground in the wire
32	LT BLU	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 22 (7.5 A) fuse in the under-dash fuse/relay box • Faulty ignition switch • An open in the wire

9. If the lights-on reminder has a problem, substitute a known-good under-dash fuse/relay box, and recheck the system. If the seat belt reminder has a problem, check for SRS DTCs and check the seat belt buckle switch. If all the tests prove OK, go to Step 10 .

10. Substitute a known-good gauge control module, and recheck the system.
    - If the symptom is gone, the gauge control module is faulty; replace it.
    - If the symptom is still present, the MICU is faulty; replace the under-dash fuse/relay box.

Turn Signal/Hazard Warning Lights Component Location Index



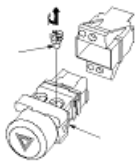
RHD model is shown, LHD model is similar.

Hazard Warning Switch Test/Replacement

1. Remove the audio panel.
   - With audio unit.
   - Without audio unit.
2. Remove the two screws and the hazard warning switch (A).

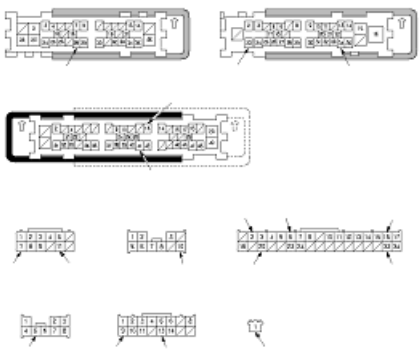
3. Check for continuity between the terminals in each switch position according to the table.

4. If the continuity is not as specified, replace the switch (A) or bulb (B).
5. Install the switch in the reverse order of removal.



Turn Signal/Hazard Warning Lights (MICU) Input Test

NOTE: Before testing, check the No. 1 (10 A), No. 22 (7.5 A), and No. 23 (10 A) fuse in the under-dash fuse/relay box.



1. Turn the ignition switch to LOCK (0).
2. RHD model: Remove the fuse lid panel , and remove the driver's dashboard lower cover.
   LHD model: Remove the fuse lid panel.
3. Disconnect the under-dash fuse/relay box connectors A, B, C, E, K, M, N, Q, and W.
   NOTE:
   - All connector views are shown from wire side of female terminals.
   - The illustration shows the RHD model and the black portion shows the lock lever. The lock lever for LHD model is shown as the dashed lines.
4. With the connectors still disconnected, make these input tests at the appropriate connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the MICU must be faulty; replace the under-dash fuse/relay box.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
K10	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • An open in the wire
N2	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
M16	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
Q9	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • An open in the wire
B23	WHT	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 3 (20 A *4 /30 A *3) fuse in the battery terminal fuse box • An open in the wire
W1	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 60 (50 A) fuse in the under-dash fuse/relay box • Faulty ignition switch • An open in the wire
A28	WHT	Connect B23 terminal to A28 terminal with a jumper wire.	Check the turn signal lights operation: The right front turn signal light and right side turn signal light *1 should come on.	• Poor ground (G202, G301) [G401, G451] • Blown bulb • An open in the wire
C41	WHT	Connect B23 terminal to C41 terminal with a jumper wire.	Check the turn signal light operation: The right rear turn signal light should come on.	• Poor ground (G602) • Blown bulb • An open in the wire
B34	BLU	Connect B23 terminal to B34 terminal with a jumper wire.	Check the turn signal lights operation: The left front turn signal light and left side turn signal light *1 should come on.	• Poor ground (G401) [G202, G302] • Blown bulb • An open in the wire
C13	BLU [WHT]	Connect B23 terminal to C13 terminal with a jumper wire.	Check the turn signal light operation: The left rear turn signal light should come on.	• Poor ground (G604) • Blown bulb • An open in the wire

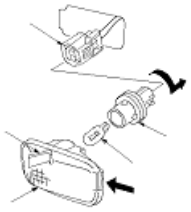
Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
Q6	WHT	Connect B23 terminal to Q6 termanal with a jumper wire.	Check the turn signal lights operation: The right side turn signal light *2 and/or right turn signal indicator should come on.	• Poor ground (G501) [G502] • Faulty LED *2 • Faulty gauge control module • Faulty indicator • An open in the wire
M20	BLU	Connect B23 terminal to M20 terminal with a jumper wire.	Check the turn signal lights operation: The left side turn signal light *2 and/or left turn signal indicator should come on.	• Poor ground (G502) [G501] • Faulty LED *2 • Faulty gauge control module • Faulty indicator • An open in the wire
E11 *5	WHT	Connect B23 terminal to E11 terminal with a jumper wire.	Check the turn signal light operation: The right side turn signal light *2 should come on.	• Poor ground (G501) • Faulty LED *2 • An open in the wire
E7 *6	BLU	Connect B23 terminal to E7 terminal with a jumper wire.	Check the turn signal light operation: The left side turn signal light *2 should come on.	• Poor ground [G501] • Faulty LED *2 • An open in the wire

*1: Fender type
*2: Mirror type
*3: With trailer lighting connector
*4: Without trailer lighting connector
*5: RHD model
*6: LHD model
[ ]: LHD model

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
N5 · Q13	YEL · PNK	Hazard warning switch pressed	Check for continuity between N5 and Q13 terminals:There should be continuity.	• Faulty hazard warning switch • An open in the wire
		Hazard warning switch released	Check for continuity between N5 and Q13 terminals:There should be no continuity.	• Faulty hazard warning switch • A short in the wire
M2 · M33	LT GRN · BLK	Turn signal switch in LEFT position	Check for continuity between M2 and M33 terminals: There should be continuity	• Faulty combination light switch • An open in the wire
		Turn signal switch in RIGHT or neutral position	Check for continuity between M2 and M33 terminals: There should be no continuity.	• Faulty combination light switch • A short in the wire
M6 · M33	BRN · BLK	Turn signal switch in RIGHT position	Check for continuity between M6 and M33 terminals: There should be continuity.	• Faulty combination light switch • An open in the wire
		Turn signal switch in LEFT or neutral position	Check for continuity between M6 and M33 terminals: There should be no continuity.	• Faulty combination light switch • A short in the wire

Side Turn Signal Light Replacement

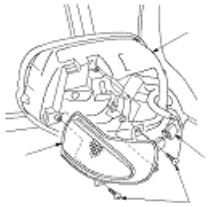
Fender type



NOTE: Be careful not to damage the fender.

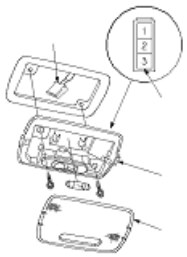
1. Push the retaining spring (A), and pry out the side turn signal light (B).
   Side Turn Signal Light: 5 W
2. Disconnect the 2P connector (C) from the side turn signal light.
3. Turn the bulb socket (D) counterclockwise to remove it from the bulb (E).
4. Install a new bulb in the reverse order of removal.

Mirror Type



1. Remove the mirror holder.
2. Remove the skullcap.
3. Remove the two screws (A) and remove the side turn signal light (B) from the housing (C).
4. Disconnect the 2P connector (D) from the side turn signal light.
5. Install the light in the reverse order of removal.

Ceiling Light Test/Replacement



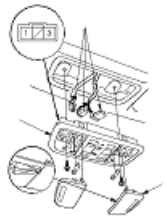
1. Turn the ceiling light switch OFF.
2. Carefully pry the lens (A) off with a small screwdriver.
   Ceiling Light: 8 W
3. Remove the screws, then remove the ceiling light (B).
4. Disconnect the 3P connector (C) from the ceiling light.
5. Check for continuity between the terminals.
   - There should be continuity between the No. 1 and No. 2 terminals with the switch in the MIDDLE position.
   - There should be continuity between the No. 2 and No. 3 (Body ground) terminals with the switch in the ON position.
   - There should be no continuity between the No. 1 and No. 2 terminals, and between the No. 2 and No. 3 (Body ground) terminals with the switch in the OFF position.
6. If the continuity is not as specified, check the bulb. If the bulb is OK, replace the ceiling light.
7. Install the light in the reverse order of removal.

Individual Map Light Test/Replacement - Without Sunshade

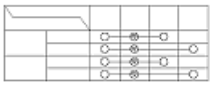
1. Turn the individual map light switch OFF.
2. Carefully pry the lens (A) off with a small screwdriver.
   Individual Map Light: 8 W x 2
3. Remove the screws, then remove the individual map light (B).
4. Disconnect the connector (C) from the individual map light.
5. Check for continuity between the terminals.
   - There should be continuity between the No. 1 terminal and ground terminal with the switch in the ON position.
   - There should be no continuity between the No. 1 terminal and ground terminal with the switch in the OFF position.
6. If the continuity is not as specified, check the bulb. If the bulb is OK, replace the individual map light.
7. Install the light in the reverse order of removal.

Front Individual Map Light Test/Replacement - With Sunshade

With sunshade



1. Turn the map light switch OFF.
2. Carefully pry the lens (A) off with a small screwdriver.
   Front Map Light: 8 W x 2
3. Remove the screws, then remove the map lights (B).
4. Disconnect the connectors (C) from the map lights.

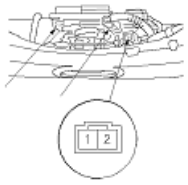


5. Check for continuity between the terminals.
6. If the continuity is not as specified, check the bulb(s). If the bulb(s) are OK, replace the map light.
7. Install the light in the reverse order of removal.

Cargo Area Light Test/Replacement

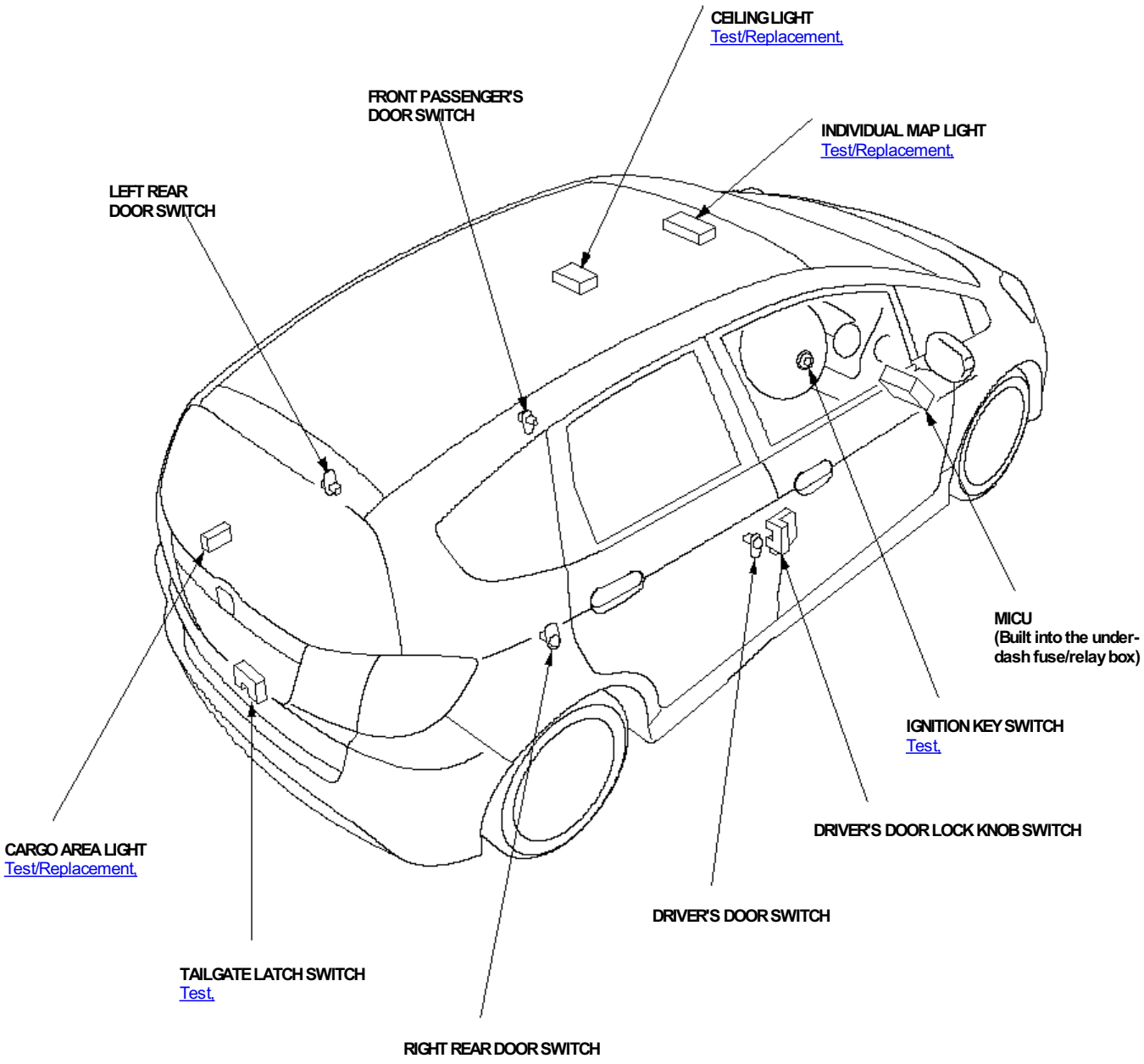
1. Open the tailgate.
2. Carefully pry out the cargo area light (A).
   Cargo Area Light: 5 W
3. Disconnect the 2P connector (B) from the light.
4. Check for continuity between the No. 1 (+) and No. 2 (−) terminals. There should be continuity. If there is no continuity, check the bulb. If the bulb is OK, replace the cargo area light assembly.
5. Install the light in the reverse order of removal.

Tailgate Latch Switch Test



1. Open the tailgate.
2. Remove the tailgate lower trim panel.
3. Disconnect the 2P connector (A) from the tailgate latch assembly (B).
4. Check for continuity between the No. 1 and No. 2 terminals.
   - There should be continuity with the trunk lid open.
   - There should be no continuity with the trunk lid closed.
5. If the continuity is not as specified, replace the trunk lid latch assembly.

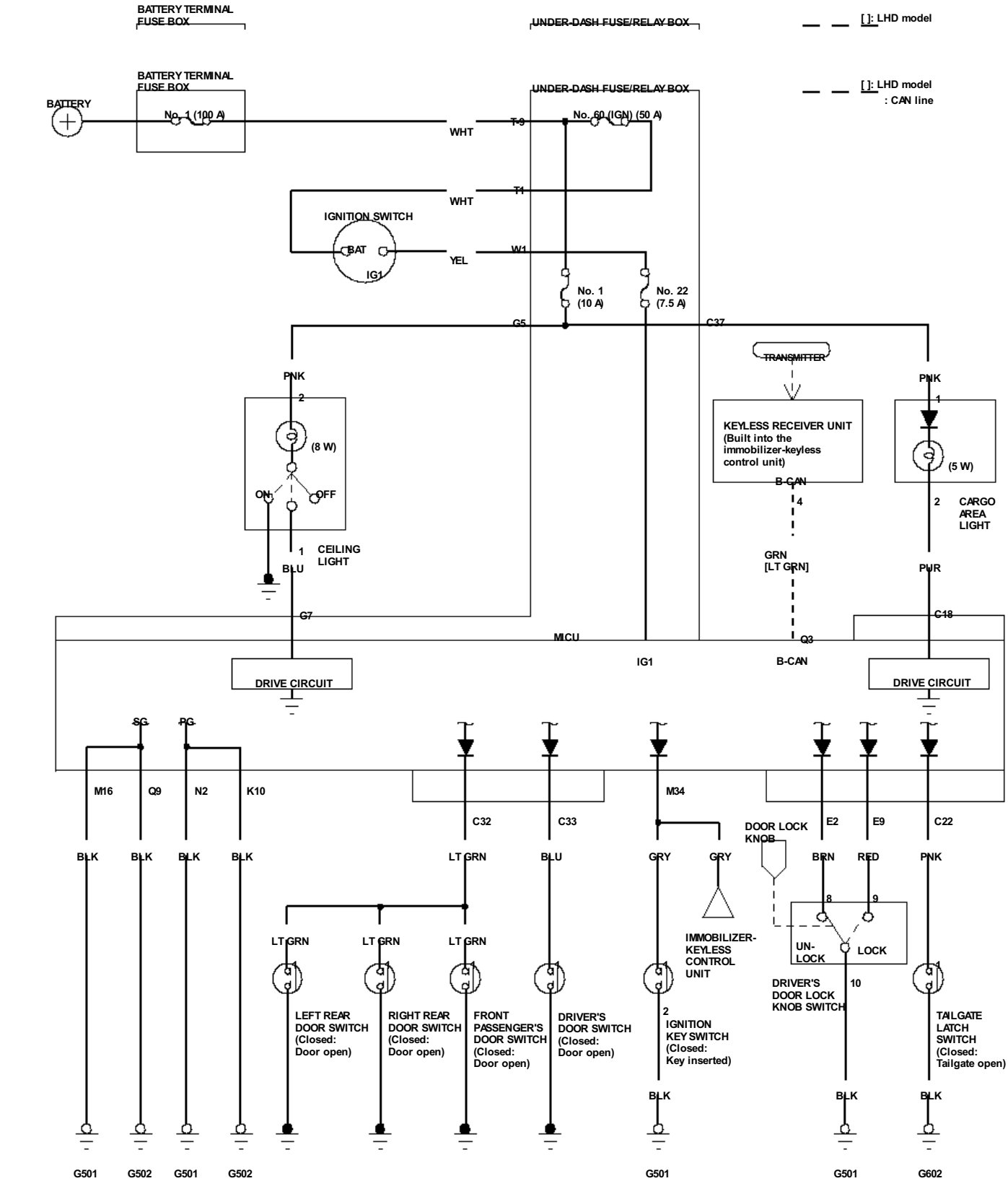
Entry Lights Control System Component Location Index



RHD model is shown, LHD model is similar.

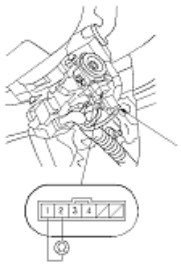
Entry Lights Control System Circuit Diagram

With security



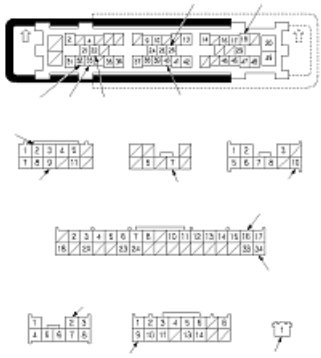
Ignition Key Switch Test

1. Remove the steering column upper and lower covers.
2. Disconnect the 6P connector (A).
3. Check for continuity between the No. 1 and No. 2 terminals.
   - There should be continuity with the key in the ignition switch.
   - There should be no continuity with the key removed.
4. If the continuity is not as specified, replace the ignition switch.



Entry Lights Control System (MICU) Input Test

NOTE: Before testing, check for No. 22 (7.5 A) fuse in the under-dash fuse/relay box.



1. Turn the ignition switch to LOCK (0).
2. RHD model: Remove the fuse lid panel , and remove the driver's dashboard lower cover.
   LHD model: Remove the fuse lid panel.
3. Disconnect the under-dash fuse/relay box connectors C, E, G, K, M, N, Q, and W.
   NOTE:
   - All connector views are shown from wire side of female terminals.
   - The illustration shows the RHD models and the black portion shows the lock lever. The lock lever for LHD model is shown as the dashed lines.
4. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to Step 5 .
5. With the connectors still disconnected, make these input tests at the connectors.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to Step 6 .

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
K10	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • An open in the wire
M16	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
N2	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
Q9	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • An open in the wire
W1	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 60 (50 A) fuse in the under-dash fuse/relay box • Faulty ignition switch • An open in the wire
C33	BLU	Driver's door open	Check for continuity to ground: There should be continuity	• Faulty driver's door switch • An open in the wire
		Driver's door closed	Check for continuity to ground: There should be no continuity	• Faulty driver's door switch • A short to ground in the wire
C32	LT GRN	Front passenger's door open	Check for continuity to ground: There should be continuity	• Faulty front passenger's door switch • An open in the wire
		Front passenger's door closed	Check for continuity to ground: There should be no continuity	• Faulty front passenger's door switch • A short to ground in the wire
C32 *2	LT GRN	Left rear door or right rear door open	Check for continuity to ground: There should be continuity	• Faulty left rear door switch • Faulty right rear door switch • An open in the wire
		Left rear door and right rear door closed	Check for continuity to ground: There should be no continuity	• Faulty left rear door switch • Faulty right rear door switch • A short to ground in the wire
C40 *1	GRN	Left rear door open	Check for continuity to ground: There should be continuity	• Faulty left rear door switch • An open in the wire
		Left rear door closed	Check for continuity to ground: There should be no continuity	• Faulty left rear door switch • A short to ground in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
C26 *1	PNK	Right rear door open	Check for continuity to ground: There should be continuity	• Faulty right rear door switch • An open in the wire
		Right rear door closed	Check for continuity to ground: There should be no continuity	• Faulty right rear door switch • A short to ground in the wire
C22	ORN	Tailgate open	Check for continuity to ground: There should be continuity	• Poor ground (G602) • Faulty tailgate latch switch • An open in the wire
		Tailgate closed	Check for continuity to ground: There should be no continuity	• Faulty tailgate latch switch • A short to ground in the wire

*1:With security
*2:Without security

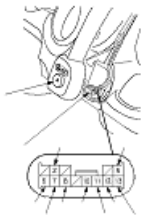
Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
M34	GRY	Ignition key inserted into the ignition switch	Check for continuity to ground: There should be continuity	• Poor ground (G501) • Faulty ignition key switch • An open in the wire
		Ignition switch in LOCK (0) position, and the ignition key removed from the ignition switch	Check for continuity to ground: There should be no continuity	• Faulty ignition key switch • A short to ground in the wire
E2	BRN	Driver's door lock knob switch in UNLOCK	Check for continuity to ground: There should be continuity	• Poor ground (G501) • Faulty driver's door lock knob switch • An open in the wire
		Driver's door lock knob switch in neutral or LOCK	Check for continuity to ground: There should be no continuity	• Faulty driver's door lock knob switch • A short to ground in the wire
E9	RED	Driver's door lock knob switch in LOCK	Check for continuity to ground: There should be continuity	• Poor ground (G501) • Faulty driver's door lock knob switch • An open in the wire
		Driver's door lock knob switch in neutral or UNLOCK	Check for continuity to ground: There should be no continuity	• Faulty driver's door lock knob switch • A short to ground in the wire

6. Reconnect the connectors to the under-dash fuse/relay box, and make these input tests at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, replace the under dash fuse relay box.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
G7	BLU	Ceiling light switch in middle position	Connect G7 terminal and body ground with a jumper wire: The ceiling light should come on.	• Blown No. 1 (10 A) fuse in the under-dash fuse/relay box • Faulty ceiling light • Blown bulb • An open in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
C18	PUR	Under all conditions	Connect C18 terminal and body ground with a jumper wire: The cargo area light should come on.	• Blown No. 1 (10 A) fuse in the under-dash fuse/relay box • Faulty cargo area light • Blown bulb • An open in the wire

Power Mirrors Function Test



1. Remove the instrument panel.
2. Disconnect the 13P connector (A) from the power mirror switch (B).
3. Choose the appropriate test based on the symptom:
   - Both mirrors don't work, go to Step 4 .
   - Right mirror doesn't work, go to Step 6 .
   - Left mirror doesn't work, go to Step 7 .
   - Retractable mirrors don't work, go to Step 8 .

Both mirrors

4. Measure the voltage between the No. 2 terminal and body ground with the ignition switch ON (II). There should be battery voltage.
   - If there is no battery voltage, check for:
     - Blown No. 10 (7.5 A) fuse in the under-dash fuse/relay box.
     - An open in the BRN wire.
   - If there is battery voltage, go to Step 5 .
5. Check for continuity between the No. 6 terminal and body ground.
   There should be continuity.
   - If there is no continuity, check for:
     - An open in the BLK wire.
     - Poor ground (G501).
   - If there is continuity, check the power mirror switch.

Right mirror

6. Connect the No. 2 terminal to the No. 11 terminal, and the No. 5 (then No. 13) terminal to the No. 6 terminal with jumper wires, and turn the ignition switch to ON (II). The right mirror should tilt down (then swing left).
   - If the mirror does not tilt down (or does not swing left), check for an open in the GRN (or BLU) wire between the right mirror and the power mirror switch 13P connector. If the wire is OK, check the right mirror actuator.
   - If the mirror neither tilts down nor swings left, repair an open in the LT GRN wire.
   - If the mirror works properly, check the power mirror switch.

Left mirror

7. Connect the No. 2 terminal to the No. 10 terminal, and the No. 5 (then No. 12) terminal to the No. 6 terminal with jumper wires, and turn the ignition switch to ON (II). The left mirror should tilt down (then swing left).
   - If the mirror does not tilt down (or does not swing left), check for an open in the GRN (or PNK) wire between the left mirror and the power mirror switch 13P connector. If the wire is OK, check the left mirror actuator.
   - If the mirror neither tilts down nor swings left, repair an open in the ORN wire.
   - If the mirror works properly, check the power mirror switch.

Retractable Power Mirror

8. Connect the No. 2 and No. 7 (or No. 8) terminals and the No. 8 (or No. 7) and the No. 6 terminals with jumper wires, and turn the ignition switch to ON (II). The both mirror should retract (or extend).
   - If both mirrors do not work, check for:
     - Blown No. 10 (7.5 A) fuse in the under-dash fuse/relay box.
     - An open in the GRY or YEL wire.
     - Poor ground (G501).
   - If only one fails to work, check its retractable mirror actuator.
   - If both work, check the power mirror switch.

Power Mirror Replacement

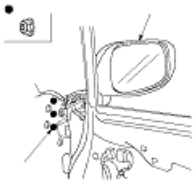
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the door and related parts.
- RHD model is shown; LHD model is symmetrical.

1. Carefully pull the bottom edge of the mirror mount cover (A) out to release the hooks (B), and remove the cover by lifting it upward to release the hooks (C, D).
2. Remove the front door panel.

3. Remove the plastic cover as needed, then disconnect the connector (A).

4. While holding the mirror (A), remove the nuts.

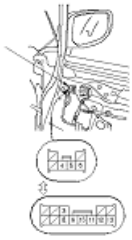


5. While holding the mirror (A), detach the clip (B) and pull the harness (C) out through the hole in the door. Take care not to scratch the door.

6. Install the mirror in the reverse order of removal, and note these items:
   - Make sure the connector is plugged in properly.
   - Check if the clip is damaged or stress-whitened, and if necessary, replace it with a new one.
   - Push the clip and hooks into place securely.

Power Mirror Actuator Test

1. Remove the door panel.
2. Disconnect the power mirror 13P (or 6P) connector (A) .



3. Check actuator operation by connecting power and ground according to the table.
4. If the mirror fails to work properly, replace the power mirror actuator.

Power Mirror Actuator

	⊕ ⊖	⊖ ⊕	
	⊖	⊕	
		⊕ ⊖	⊖ ⊕

Retract Actuator

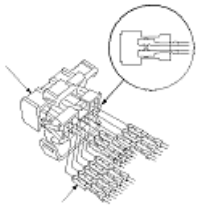
	⊕ ⊖	⊖ ⊕

Power Mirror Actuator Replacement

Removal

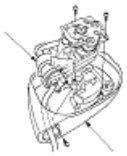
1. Remove the power mirror holder, and the power mirror.
2. Remove the two screws (A) and the side turn signal light (B) from the housing (C).
3. Disconnect the 2P connector (D) from the side turn signal light.
4. Record the power mirror connector terminals location and the wire harness colors.

5. Disassemble the power mirror connector (A), and remove the terminals (B) from the connector.



6. Remove the gasket (A) and cover (B).
7. Remove the three screws, and separate the mirror housing (C) from the bracket (D).

8. Remove the three screws and the power mirror actuator (A) from the housing (B).



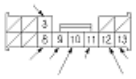
9. Remove the four screws, and separate the power mirror actuator (A) and the retract actuator (B).

Installation

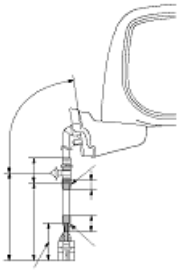
6P CONNECTOR

10. Route the wire harness of the new actuator through the hole in the bracket and gasket, then install the parts in the reverse order of removal.
11. Insert the new actuator terminals into the connector in the original arrangement.

13P CONNECTOR

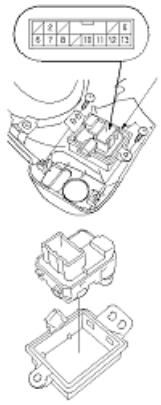


12. Apply tapes (A), (B) to seal the wire harness.
13. Reassemble in the reverse order of disassembly. Be careful not to break the mirror holder when reinstalling it to the actuator.
14. Reinstall the mirror assembly on the door.
15. Operate the power mirror to ensure smooth operation.



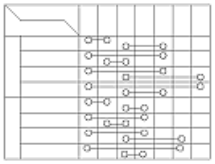
Power Mirror Switch Test/Replacement

1. Remove the instrument panel.
2. Disconnect the 13P connector from the power mirror switch (A).

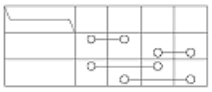


3. Check for continuity between the terminals in each switch position according to the table.
4. If the continuity is not as specified, remove the screws and the covers and replacement the switch.
5. Install in the reverse order of removal.

Power Mirror Switch



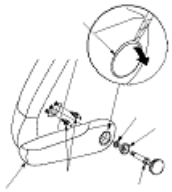
Retract Switch



Front Seat Armrest Replacement

NOTE:

- Take care not to tear the seams or damage the seat covers.
- When removing components, use the trim tools or equivalent.



1. Using a trim tool, remove the cap (A).
2. Remove the center pin (B), bushing (C) and washer (D), then remove the armrest (E).
3. If necessary, remove the pins (F) from the seat-back.
4. Install the armrest in the reverse order of removal.

Front Seat Frame Replacement

Passenger's Seat

NOTE

- Put on gloves to protect your hands.
- Apply oil to the pivot portions of the slide locks.
- Apply multipurpose grease to the sliding portions of the seat tracks.
- RHD model is shown; LHD model is similar.
- If the side airbag has deployed, replace the seat frame and related parts with new ones.

1. Remove the front seat.
2. Remove these items:
   - Front seat recline covers
   - Front seat belt buckle
   - Front seat-back cover/pad
   - Front seat cushion cover/pad
   - Recline inner covers
   - For some models: OPDS unit
   - For some models: Side airbag module
3. Install the new seat frame in the reverse order of removal.

Driver's Seat

NOTE

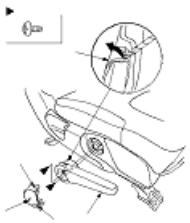
- Put on gloves to protect your hands.
- Apply oil to the pivot portions of the slide locks.
- Apply multipurpose grease to the sliding portions of the seat tracks.
- RHD model is shown; LHD model is similar.
- If the side airbag has deployed, replace the seat frame and related parts with new ones.

1. Remove the front seat.
2. Remove these items:
   - Front seat recline covers
   - Front seat belt buckle
   - Front seat-back cover/pad
   - Front seat cushion cover/pad
   - Recline inner covers
   - For some models: Side airbag module
3. Install the new seat frame in the reverse order of removal.

Front Seat Recline Cover Removal/Installation

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:

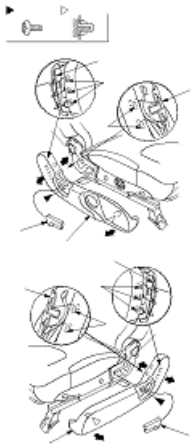
- Put on gloves to protect your hands.
- Take care not to tear the seams or damage the seat covers.
- When removing components, use the trim tools or equivalent.
- RHD model is shown; LHD model is similar.



Outer recline cover

1. Remove the front seat.
2. Manual height adjustable seat: Pull back the cap (A) to release the hooks (B), and remove the screws, then remove the height handle (C).

3. Remove the recline outer cover (A).
   -1. Fold back the seat to fully.
   -2. Remove the recline knob (B), and remove the screw.
   -3. Using a trim tool, and release the hooks (C) of the outer cover from the recline inner cover (D).
   -4. Detach the clip by pulling the outer cover back by hand.
   -5. Gently pull out the outer cover and remove it.

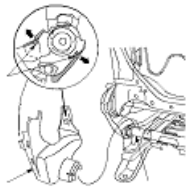


Inner recline cover

4. Remove the front seat cushion cover/pad.
5. Remove the recline inner cover (A).
   -1. Release the hooks (B) of the recline inner cover from the seat cushion frame.
   -2. Pull out the cover by removing the holder of the cover from the seat cushion frame pipe (C).
6. When installing the inner cover; securely fit the hooks on the seat cushion frame first, next fit the holder of the cover on the cushion pipe.

Driver's seat

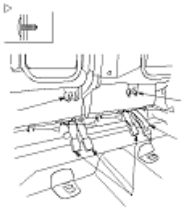
Passenger's seat



Rear Seat Removal/Installation

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the trim and panels.
- Have an assistant help you when removing and installing the rear seat.



1. Pull the rear seat belt buckles (A) and rear center seat belt detachable anchor or rear center lap seat belt (B) out through each elastic straps (C) on both seat cushions.
2. Lift both rear seat cushions up.
3. Detach the clips from the seat-back hinge. Slip the sea belt buckles and seat belt detachable anchor or seat belt.
4. Fold both rear seat-backs.

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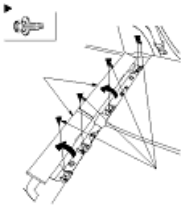
5. Open the cargo floor lids (A) and remove the bolts securing both rear seats.



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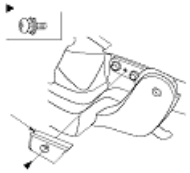
6. Remove the right rear seat (A) and the left rear seat (B) through both rear door opening.

7. Install the seats in the reverse order of removal, and note these items:
   - Apply medium strength type liquid thread lock to the seat mounting bolts before reinstallation.
   - Push the clips into place securely.
   - After installing, fix the seat belt buckles and the detachable anchor with elastic bands on both seat cushions.
   - If the clips are damage or stress-whitened, replace them with new ones.

Rear Seat Disassembly/Reassembly

NOTE:

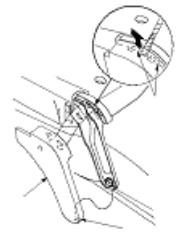
- When removing components, use the trim tools or equivalent.
- Take care not to tear the seams or damage the seat covers.
- Put on gloves to protect your hands.
- The left rear seat is shown, the right rear seat is similar.

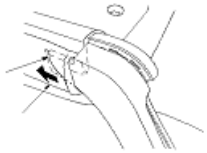


Seat-back cover removal

1. Remove the rear seat assembly.
2. Remove the head restraints.
3. Remove the screw, then remove the recline upper cover (A).

4. Remove the center cover (A).
   -1. Using a trim tool, and release the upper hooks (B) of the cover.
   -2. Release the lower hook (C) of the cover, then remove the center cover.
   NOTE: When installing the center cover, insert the upper portion (D) of the cover into the seat cushion cover (E) securely.

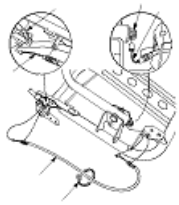




5. Remove the bolts and nut, then separate the rear seat-back (A) and the rear seat cushion (B).
6. If necessary, remove the bushing (C) and pivot washer (D).
7. Reassemble the seat-back and seat cushion in reverse order of disassembly, and note these items:
   - Apply medium strength type liquid thread lock to the bolts before reinstallation.
   - Apply multipurpose grease to the moving portions of the recline adjusters.
   - Replace any damaged or stress-whitened bushing and pivot washer with new ones.
   - Make sure the bushing and pivot washer are installed correctly.

Rear Seat Control Cable Replacement

NOTE:



- Take care not to tear the seams or damage the seat covers.
- Put on gloves to protect your hands.
- Take care not to kink the cable.
- The left rear seat cushion is shown, the right rear seat cushion is similar.

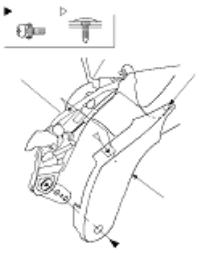
1. Remove the rear seat assembly.
2. Remove the rear seat cushion.
3. Remove the rear seat cushion cover/pad and the silencer.
4. Fold the leg, and remove the wire tie (A).
5. Disconnect the control cable (B) from the leg end (C) and cable bracket (D) of the seat cushion frame.
6. Install the cable in the reverse order of removal, and note these items:
   - Replace the wire tie you removed with new ones.
   - Make sure the control cable is routed properly and connected securely.
   - Fix at the original position in the end of the cable on the cable bracket securely. And check the rear seat tip-up operation:
     Make sure the rear seat cushion unlocks by lifting the leg. If necessary, adjust the position of the cable end.

Rear Seat Cushion Cover/Pad Replacement

NOTE:

- When removing components, use the trim tools or equivalent.
- Take care not to tear the seams or damage the seat covers.
- Put on gloves to protect your hands.
- The left rear seat cushion is shown, the right rear seat cushion is similar.

1. Remove the rear seat.
2. Remove the rear seat cushion.
3. Remove the screw and clip, then release the lib (A) and remove the recline cover (B).



4. Lift the leg (A), and remove the rear seat under cover cap (B).

Left rear seat cushion

Right rear seat cushion

5. Remove the screws and knobs (A). Release the hook strip (B) of the seat cushion cover (C) from the edge of the rear seat under cover (D) all the way around.

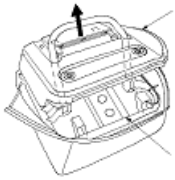
Left rear seat cushion

Right rear seat cushion

6. Remove the rear seat under cover (A) from the seat cushion frame (B).

Left rear seat cushion

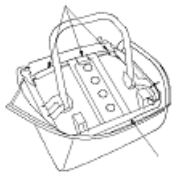
Right rear seat cushion



7. Release the hooks (A) from the seat-back frame (B).

Left rear seat cushion

Right rear seat cushion



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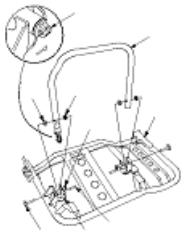
8. Remove the rear seat cushion cover/pad (A) and the silencer (B) from the rear seat cushion frame (C).
9. Install the rear seat cushion cover/pad in the reverse order of removal. To prevent wrinkles when installing a seat-back cover, make sure the material is stretched evenly over the pad before securing the hooks.

Rear Seat Cushion Leg Replacement



NOTE:

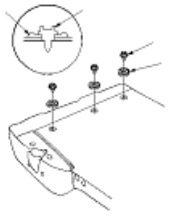
- Take care not to tear the seams or damage the seat covers.
- Put on gloves to protect your hands.
- Take care not to kink the cable.
- The left rear seat cushion is shown, the right rear seat cushion is similar.

1. Remove the rear seat assembly.
2. Remove the rear seat cushion.
3. Remove the rear seat cushion cover/pad and the silencer.
4. Remove the leg (A) from the seat cushion frame (B):
   -1. Disconnect the control cable.
   -2. Release the push nuts (C), then remove the set pins (D).
   -3. Remove the leg.
   -4. If necessary, remove the bushings (E), the cable hook (F), and the spring pins (G).
5. Install the leg in the reverse order of removal, and note these items:
   - Replace the push nuts and spring pins you removed with new ones.
   - Make sure the control cable is connected securely.
   - Apply multipurpose grease to the inside surfaces of the brackets (H).

Rear Seat-back Cover/Pad Replacement

NOTE:

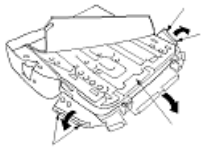
- When removing components, use the trim tools or equivalent.
- Take care not to tear the seams or damage the seat covers.
- Put on gloves to protect your hands.
- The left rear seat is shown, the right rear seat is similar.



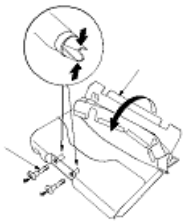
1. Remove the rear seat assembly.
2. Remove the seat-back.
3. Remove the these items:
   - Latch cover
   - Striker hole cover
4. If equipped, remove the shelf hooks (A) and shelf holder covers (B) from the back of the seat-back.

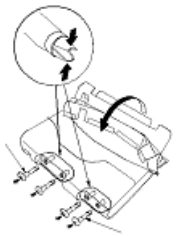
5. Release the hook strip (A), and unzip the seat-back cover and pull back the cover (B).

6. Release the hooks (A) from the seat-back frame (B).

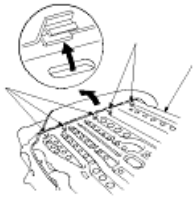


7. Pull out the seat-back cover/pad (A) from the frame, then pull out the head restraint guides (B) and center head restraint guides (C) (for some model) while pinching the end of the guides, and remove them.

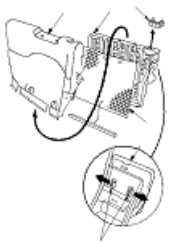




8. Release the hooks (A) from the seat-back frame (B).



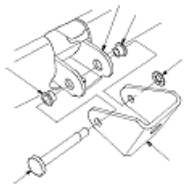
9. Remove the seat-back cover/pad (A) and the silencer (B) from the seat-back frame (C). If necessary, release the hooks (D) and remove the latch lever inner cover (E).
10. Install the seat-back cover/pad in the reverse order of removal. To prevent wrinkles when installing a seat-back cover, make sure the material is stretched evenly over the pad before securing the hooks.



Rear Seat-back Hinge Replacement

NOTE:

- Take care not to tear the seams or damage the seat covers.
- Put on gloves to protect your hands.

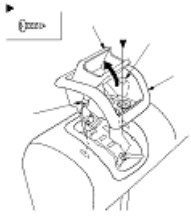


1. Remove the rear seat assembly.
2. Release the push nut (A) from the pivot pin (B).
3. Remove the pivot pin, pivot collars (C), and hinge (D) from the seat-back frame (E). The inside hinge of each seat-back frame is shown. The outside hinges of them are symmetrical.
4. Reassemble the hinge in the reverse order of disassembly, and note these items:
   - Apply multipurpose grease to the moving portions of the hinge.
   - Replace any push nuts you removed with new ones.

Rear Seat-back Latch Replacement

NOTE:

- When removing components, use the trim tools or equivalent.
- Take care not to tear the seams or damage the seat covers.
- Put on gloves to protect your hands.
- The left rear seat is shown, the right rear seat is similar.



1. While pulling the latch lever (A), and remove the screw.
2. Release the hooks (B), and pull up the latch cover (C) from the rear seat-back.

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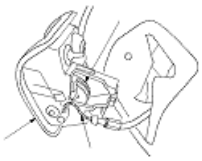
3. Disconnect the control cable (A) from the latch lever (B), and remove the latch cover (C). Take care not to bend the cable.



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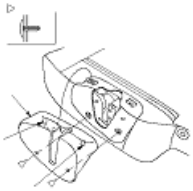
4. Detach the clips and hooks (A), then remove the striker hole cover (B).



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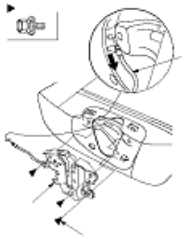
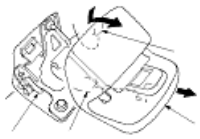
5. Remove the bolts securing the seat-back latch (A).
6. Carefully pull out the seat-back latch and cable (B) out through the striker hole in the seat-back cover.
7. Reassemble the seat-back latch and cable in reverse order of disassembly, and not these items:
   - If the clips are damage or stress-whitened, replace them with new ones.
   - Make sure the seat-back cable is routed properly.
   - Make sure the seat-back cable is connected securely.
   - Make sure the rear seat locks and unlocks properly.

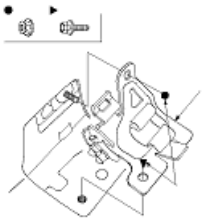


Rear Seat Leg Guide Replacement

1. Push the leg guide cover (A) to release the hook (B), then pull out the cover from the attaching plate (C) of the foot guide (D).



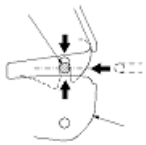
2. Remove the nut and bolt, then remove the foot guide (A).
3. Install the foot guide in the reverse order of removal.



Rear Seat-back Striker Replacement

1. Remove the cargo area side trim panel.
2. Remove the bolts, then remove the rear seat-back striker (A).

3. Install the striker in the reverse order of removal, and more the striker (A) up or down until it is centered in the seat-back latch (B).



Immobilizer System Symptom Troubleshooting Index

1. Troubleshoot the immobilizer system by the order of the priority shown:

Order of Priority	Symptom	Possible cause
1	Immobilizer indicator blinks after the ignition switch turned to LOCK (0).	Symptom troubleshooting.
2	Engine does not start with the immobilizer key.	Symptom troubleshooting.
3	Immobilizer indicator does not come on.	Check the MIL indication. • If the MIL comes on, go to the Fuel and Emission MIL circuit troubleshooting. • If the MIL does not come on, go to the gauge control module self-diagnostic function.
4	Immobilizer indicator does not go off.	Symptom troubleshooting.

How to Troubleshoot the Immobilizer System

General Check before Troubleshooting

Before troubleshooting the immobilizer system, check the following general items and solve any if applicable:

- The battery is low; charge the battery fully, then troubleshoot the immobilizer system.
- The ignition key is not a genuine Honda part; use the Honda-approved key blank, register the key, then troubleshoot the immobilizer system.
- A key ring, or keys, or a key case is used; remove the key from it, and troubleshoot the immobilizer system with a key only.
- An aftermarket electrical part is attached; remove it, then troubleshoot the immobilizer system.

Symptom Troubleshooting by the Immobilizer Indicator Lighting Pattern

The pattern of the immobilizer indicator can help troubleshoot the condition of the immobilizer system. Following are descriptions of the four possible patterns:

Normal operation

If the immobilizer code is identified, the immobilizer indicator comes on for 2 seconds, then goes off after turning the ignition switch to ON (II).
The immobilizer indicator does not come on when the ignition switch is turned to LOCK (0).

Immobilizer code is not identified

If the immobilizer code is not identified, the immobilizer indicator comes on for 2 seconds, then blinks after turning the ignition switch to ON (II).
The immobilizer indicator blinks ten times, then goes off when the ignition switch is turned to LOCK (0).

Immobilizer indicator does not come on

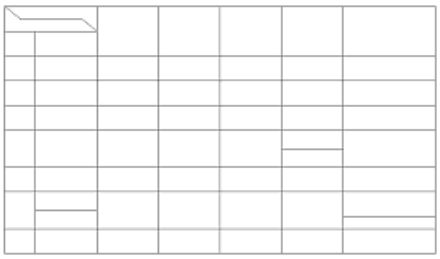
If the immobilizer indicator does not come on after turning the ignition switch to ON (II), an open or short in the F-CAN lines between the ECM/PCM and the gauge control module. Watch the malfunction indicator lamp (MIL). If the MIL stays on, go to the PGM-FI system troubleshooting.

Immobilizer indicator does not go off

If the immobilizer indicator does not go off after turning the ignition switch to ON (II), do the gauge control module self-diagnostic function. If the indicator drive circuit is OK, do the SYSTEM CHECK with the HDS. Before troubleshooting the immobilizer system, check the following general points and solve any if applicable.

Symptom Troubleshooting Using Malfunctioning Circuit Functions

If a malfunction occurs in the immobilizer circuit, use the table to cross-reference the malfunctioning function to the line(s) that should be checked:



System Check

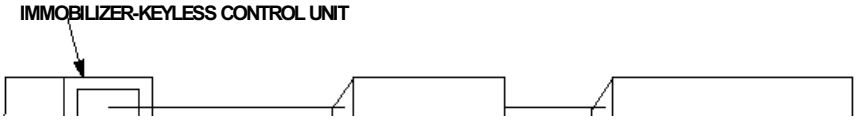
NOTE: The HDS can be used to:

- Check the state of the immobilizer key registration and the S-NET line by doing a SYSTEM CHECK.
- Check the number of times the immobilizer-keyless control unit doesn't permit the engine to run by checking the STATUS LOG.

1. Connect the HDS to the data link connector, then turn the ignition switch to ON (II) and follow the prompts to the MAIN MENU.
   NOTE: If the HDS does not communicate with the vehicle, go to the DLC circuit troubleshooting.
2. At the MAIN MENU, enter IMMOBILIZER, then select the IMMOBILIZER SETUP.
3. Do the SYSTEM CHECK. If there is a system check number, do the troubleshooting for the item indicated.
4. Check the status log using the HDS. Troubleshooting the line with the highest counts first. If all the lines are “0" zero, the problem may not be caused by the immobilizer system, check for ignition or fuel problems.
   NOTE: Once repaired, clear the status log by removing the No. 1 (10 A) fuse in the under-dash fuse/relay box or disconnecting the immobilizer-keyless control unit.

Immobilizer System Description

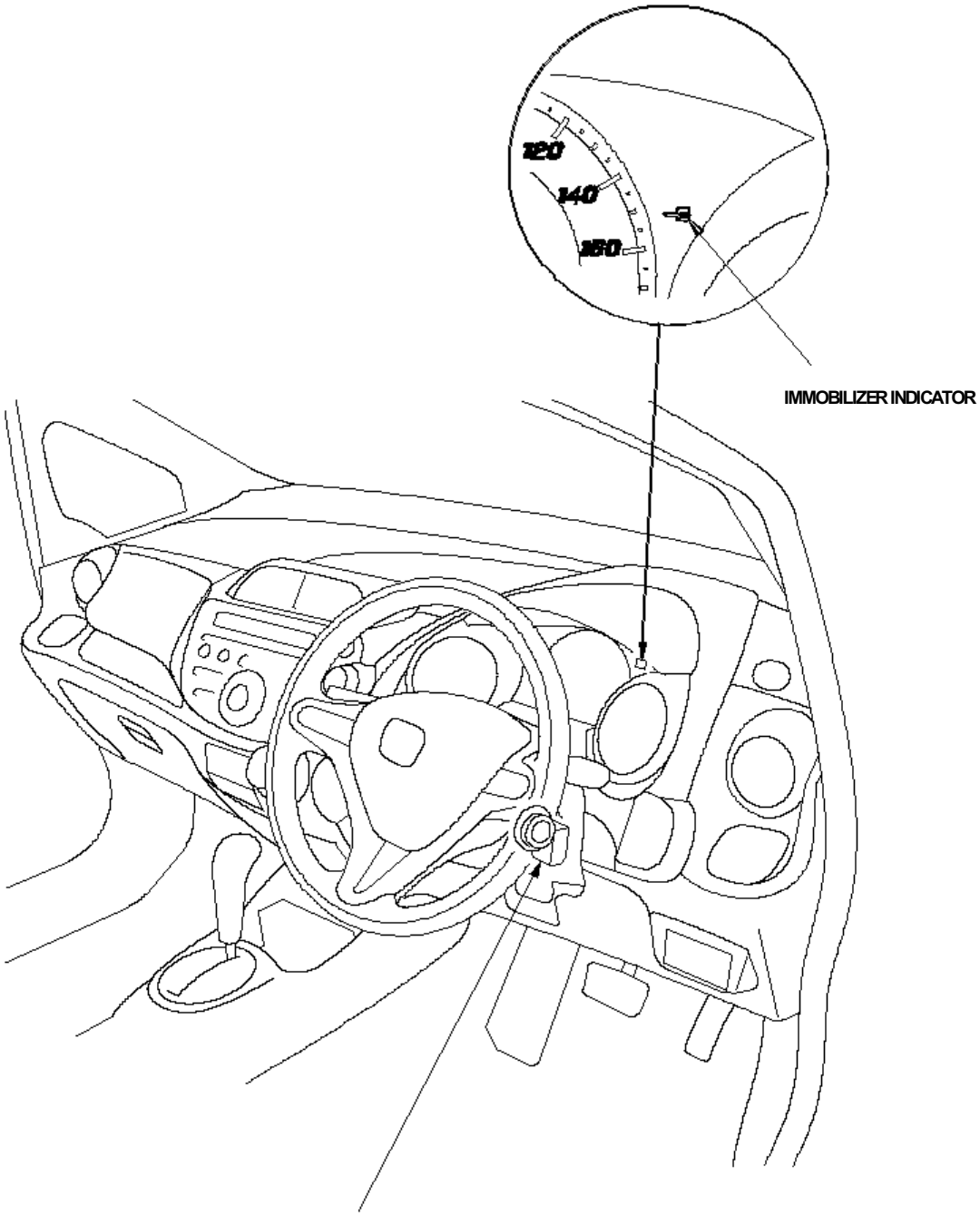
The vehicle is equipped with an immobilizer system that will disable the vehicle unless a programmed ignition key is used.
This system consists of a transponder located in the ignition key, an immobilizer-keyless control unit, an indicator, and the ECM/PCM.
When the key is inserted in the ignition switch and turned to the ON (II) position, the immobilizer-keyless control unit sends power to the transponder in the ignition key. The transponder then sends a coded signal back through the immobilizer control unit-receiver to the ECM/PCM. The code is a rolling type embedded in the receiver instead of the ECM/PCM.
A communication agreement with the HDS is required at the ECM/PCM after repair or replacement. When replacing the immobilizer-keyless control unit, all keys are required to be registered into the new control unit. Any keys that were not registered in the control unit will not start the vehicle.



IMMOBILIZER INDICATOR BLINKING PATTERN

IGNITION SWITCH		ON (II) / LOCK (0)
PROGRAMMED KEY INSERTED	INDICATOR	ON / OFF — 2 sec., 5 sec., 1 Hz
WRONG KEY INSERTED	INDICATOR	ON / OFF — 1 sec.

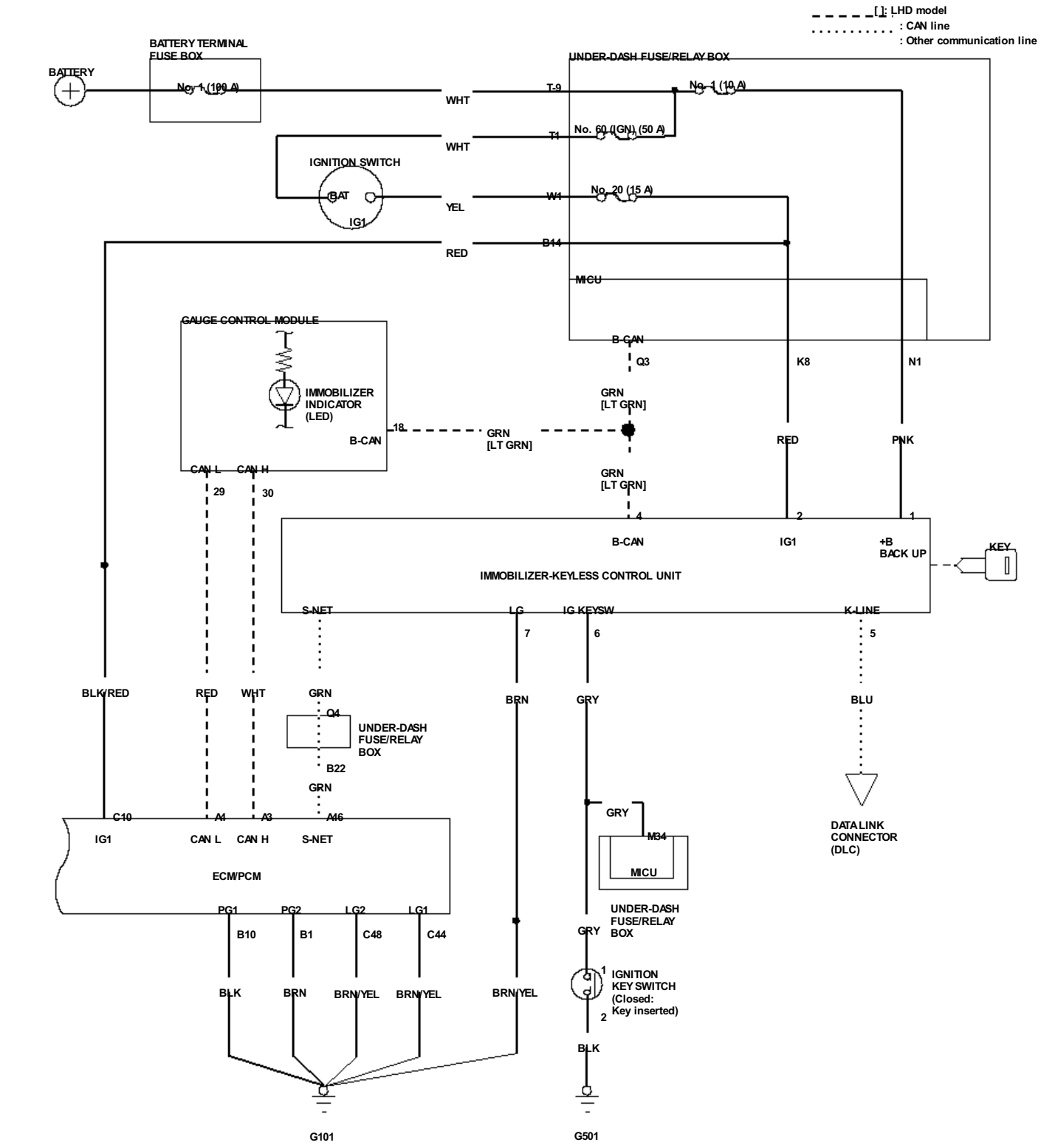
Immobilizer System Component Location Index



IMMOBILIZER-KEYLESS CONTROL UNIT
Symptom Troubleshooting,

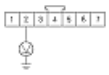
Replacement,
Registration for Immobilizer System,

Immobilizer System Circuit Diagram



Immobilizer indicator blinks

NOTE: Before troubleshooting, check the items listed in ‘‘General Check before Troubleshooting".



1. Turn the ignition switch to LOCK (0).
2. Connect the HDS, then turn the ignition switch to ON (II).
3. Enter the IMMOBILIZER, then select the IMMOBILIZER SETUP.
4. Select the SYSTEM CHECK.

   Is the SYSTEM CHECK indicated?
   YES - Troubleshoot the immobilizer system according to the result of the SYSTEM CHECK.■
   NO - Go to Step 5 .
5. Turn the ignition switch to LOCK (0).
6. Enter the vehicle, and remove the ignition key from the ignition switch, then close all the doors.
7. Operate the keyless transmitter LOCK and UNLOCK several times in the vehicle.

   Do the door lock actuators work normally?
   YES - Go to Step 8 .
   NO - Check for a poor ground (G101) and/or an open in the wire between the immobilizer-keyless control unit 7P connector No. 7 terminal and body ground (G101).■
8. Turn the ignition switch to ON (II).
9. Measure the voltage between the immobilizer-keyless control unit 7P connector No. 2 terminal and body ground.

   Is there battery voltage?
   YES - Go to Step 10 .
   NO - Repair an open in the RED wire between the under-dash fuse/relay box and the immobilizer-keyless control unit.■

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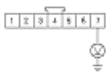
10. Measure the voltage between the immobilizer-keyless control unit 7P connector No. 7 terminal and body ground.



    Is there 0.5 V or more?
    YES - Repair an open or poor connection between the immobilizer-keyless control unit 7P connector No. 7 terminal and G101.■
    NO - Replace the immobilizer-keyless control unit .■

Engine does not start with the immobilizer key

NOTE: Before troubleshooting, check the items listed in "General Check before Troubleshooting".

1. Turn the ignition switch to LOCK (0).
2. Turn the ignition switch to ON (II), and check the immobilizer indicator indication.

   Does the indicator come on for 2 seconds, then go off?
   YES - Go to the immobilizer indicator blinks troubleshooting. ■
   NO - Go to Step 3 .
3. Turn the ignition switch to START (III).

   Does the starter motor run?
   YES - Go to Step 4 .
   NO - Go to Starting System and check the starter motor.■
4. Try to start the engine with the immobilizer key.

   Does the engine start?
   YES - Go to Step 5 .
   NO - Go to the Fuel and Emissions System Symptom Troubleshooting.■
5. Wait for a few minutes with the engine running.

   Does the engine stop?
   YES - Go to the Fuel and Emissions System Symptom Troubleshooting.■
   NO - The system is OK at this time.■

Immobilizer indicator does not go off

1. Turn the ignition switch to LOCK (0).
2. Connect the HDS to the data link connector.
3. Turn the ignition switch to ON (II).
4. Enter the IMMOBILIZER, then select the IMMOBILIZER INFORMATION.
5. Do the SYSTEM CHECK with the HDS.

Is N-1 OK indicated?

YES - Replace the gauge control module. ■

NO - Substitute a known-good immobilizer-keyless control unit , then register it and recheck. If the symptom goes away, replace the original immobilizer-keyless control unit .■

Immobilizer System Check

1. Connect the HDS to the data link connector.
2. Turn the ignition switch to ON (II).
3. Monitor the System Check in the Immobilizer Info with the HDS.
4. If the HDS displays the ‘‘Immobilizer system is normal", the immobilizer system is OK. If the HDS displays any other messages, check as follows:

System Check No.	System Check	Possible Failures
N-1	Normal	———
A-1	The key is not registered	• This key is not registered in the immobilizer-keyless control unit. Try to register keys by using ‘‘KEYS". • The communication was not good between the antenna and the immobilizer key by influence of metal such as key chains. • The communication was not good between the antenna and the immobilizer key by battery voltage low.
A-2	Communication error between the key and immobilizer-keyless control unit	• Intermittent interruption between transponder and immobilizer-keyless control unit. • The immobilizer key type is different. It is not for this vehicle but for another one or for other company's one. • Key failure (transponder failure) • The communication was not good between the antenna and the immobilizer key by influence of metal such as key chains. • The communication was not good between the antenna and the immobilizer key by battery voltage low.
A-3	No communication between the key and immobilizer-keyless control unit	• The ignition switch was turned to ON (II) with a non-immobilizer key. • The immobilizer key type is different. It is not for this vehicle but for another one or for other company's one. • Key failure (transponder failure) • The communication was not good between the antenna and the immobilizer key by influence of metal such as key chains. • The communication was not good between the antenna and the immobilizer key by battery voltage low. • Immobilizer-keyless control unit failure
B-1	The ECM/PCM is not registered	• The ECM/PCM was not registered. Try to register the ECM/PCM by using ‘‘REPLACE ECM/PCM". • The communication was not good between the ECM/PCM and the immobilizer-keyless control unit by battery voltage low. • The communication was not good between the immobilizer-keyless control unit and the ECM/PCM by influence of some noise.
B-2	Error of communication format in ECM/PCM	• The ECM/PCM was not registered. Try to register the ECM/PCM by using ‘‘REPLACE ECM/PCM". • The communication was not good between the ECM/PCM and the immobilizer-keyless control unit by battery voltage low. • The communication was not good between the immobilizer-keyless control unit and the ECM/PCM by influence of some noise.
D-1	S-net line short	• Harness short from the ECM/PCM to the immobilizer-keyless control unit. (IMOCD/S-NET line short) • The communication was not good between the ECM/PCM and the immobilizer-keyless control unit by battery voltage low. • The communication was not good between the immobilizer-keyless control unit and the ECM/PCM by influence of some noise. • Immobilizer-keyless control unit failure • ECM/PCM failure
D-3	No communication between the ECM/PCM and immobilizer-keyless control unit	• Blown fuse • Harness open from the ECM/PCM to the immobilizer-keyless control unit. • The communication was not good between the ECM/PCM and the immobilizer-keyless control unit by battery voltage low. • The communication was not good between the immobilizer-keyless control unit and the ECM/PCM by influence of some noise. • Immobilizer-keyless control unit failure • ECM/PCM failure
E-1	Initial registration of immobilizer-keyless control unit is not completed	The key was not registered. Try to register keys by using ‘‘REPLACE IMMOBILIZER-KEYLESS CONTROL UNIT".
E-2		The ECM/PCM was not registered. Try to register the ECM/PCM by using ‘‘REPLACE ECM/PCM".
E-3		The MICU was not registered. Try to register the MICU by using ‘‘REPLACE MICU".

System Check No.	System Check	Possible Failures
E-4		The immobilizer-keyless control unit was not registered. Try to register the IMMOBILIZER-KEYLESS CONTROL UNIT by using ‘‘REPLACE IMMOBILIZER-KEYLESS CONTROL UNIT".
E-5		• The MICU was not registered. Try to register the MICU by using ‘‘REPLACE MICU". • MICU failure
F-1	Special mode	Immobilizer system is under registration mode. Turn the ignition switch to lock (0) and ON (II) so as to change normal mode.
F-2		
F-3		
F-4		
F-5		
F-6		

Immobilizer Key Registration

NOTE:

- The HDS is required for registration of the immobilizer keys.
- Check for aftermarket electrical equipment that can cause problems with transponder operation.
- The immobilizer control unit-receiver can store up to six immobilizer Keys.

Replace any of the keys

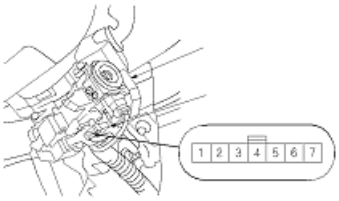
NOTE: If any of the registered keys were lost, do the following procedure to delete the lost registered key.

1. Have at least one original key, all other keys to be registered and the immobilizer ECM/PCM code.
2. Connect the HDS to the data link connector.
3. Turn the ignition switch to ON (II).
4. Select ‘‘IMMOBILIZER" from the ‘‘SYSTEM SELECTION MENU".
5. Select ‘‘KEYS" from the ‘‘IMMOBILIZER MENU", then select ‘‘REWRITE KEYS".
6. Select ‘‘REWRITE KEYS" from the ‘‘KEYS".
7. Do the registration according to the instruction of HDS screen.
8. Check if the engine can be started by all the registered keys.

All keys are lost

1. Prepare all new keys and have the immobilizer ECM/PCM code.
2. Connect the HDS to the data link connector.
3. Turn the ignition switch to ON (II).
4. Select ‘‘IMMOBILIZER" from the ‘‘SYSTEM SELECTION MENU".
5. Select ‘‘KEYS" from the ‘‘IMMOBILIZER MENU", then select ‘‘REWRITE KEYS".
6. Select ‘‘ALL KEYS LOST" from the ‘‘KEYS".
7. Do the registration according to the instruction of HDS screen.
8. Check if the engine can be started by all the registered keys.

Immobilizer-Keyless Control Unit Input Test



1. Remove the steering column covers.
2. Disconnect the 7P connector (A) from the immobilizer-keyless control unit (B).
3. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to Step 4 .
4. With the connector still disconnected, make these input tests at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the immobilizer-keyless control unit must be faulty; replace it.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
1	PNK	Under all conditions	Measure the voltage between the immobilizer-keyless control unit 7P connector No. 1 terminal and body ground: There should be battery voltage.	• Blown No. 1 (10 A) fuse in the under-dash fuse/relay box • An open in the wire
2	RED	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 20 (15 A) fuse in the under-dash fuse/relay box • An open in the wire
7	BRN	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G101) • An open in the wire
6	GRY	Ignition key inserted into the ignition switch	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • Faulty ignition key switch • An open in the wire
		Ignition key removed form the ignition switch	Check for continuity: There should be no continuity.	• Faulty ignition key switch • A short to ground in the wire

Immobilizer-Keyless Control Unit Replacement

1. Remove the steering column covers.
2. Disconnect the 7P connector (A) from the immobilizer-keyless control unit (B).
3. Remove the two screws and the immobilizer-keyless control unit.
4. Install the immobilizer-keyless control unit in the reverse order of removal.
5. After replacement, register the immobilizer-keyless control unit, and make sure the immobilizer system works properly.

Keyless/Power Door Locks/Security System Symptom Troubleshooting Index

Power Door Locks/Keyless

1. Check for B-CAN DTCs. If any B-CAN DTCs are indicated, troubleshoot and resolve them first.
2. If the door lock system and the keyless operation do not work, troubleshoot the door locks first.
   NOTE: The system does not function when the ignition switch is ON (II).

No.	Symptom	Check Items
1	All the doors will not lock or unlock. *	• Poor ground (G501, G502) • Driver's door key cylinder switch test • Door switch test (check the door switch ON/OFF information with the HDS) • Door lock switch test (check the door switch ON/OFF information with the HDS)
2	Driver's and right[left] rear doors, and fuel lid will not lock or unlock.	• Poor ground (G501, G502) • Blown No. 27 (30 A) fuse in the under-dash fuse/relay box • Blown No. 36 (15 A) and/or No. 50 (15A) fuse in the under-dash fuse/relay box • MICU input test
3	Front passenger's and left[right] rear doors, and tailgate will not lock or unlock.	• Poor ground (G501, G502) • Blown No. 27 (30 A) fuse in the under-dash fuse/relay box • Blown No. 35 (15 A) and or No. 49 (15 A) fuse in the under-dash fuse/relay box • MICU input test
4	Keyless operation does not work (LOCK, UNLOCK).	Symptom troubleshooting
5	Doors will not unlock with the transmitter, but will unlock with the door lock switch and the door key cylinder switch.	• Symptom troubleshooting • Door lock switch test (check the door switch ON/OFF information with the HDS)
6	Doors will not lock with the transmitter, but will lock with the door lock switch and the door key cylinder switch.	• Symptom troubleshooting • Door lock switch test (check the door switch ON/OFF information with the HDS)
7	Doors automatically relock 30 seconds after being unlocked with the transmitter even though a door has been opened.	Symptom troubleshooting
8	Only driver's door will unlock or door locks relock immediately after unlocking with the remote.	Driver's door lock knob switch test
9	Keyless operation will work even though the ignition key is in the ignition switch.	Ignition key switch test

[ ]: LHD model

*: If only one door is not working properly, check that door's lock actuator first, then check the other items listed in this table.

Keyless/Power Door Locks/Security System Description

Security Alarm System
Keyless Entry System
Ultrasonic System
Door Lock System

Keyless/Power Door Locks/Security System Symptom Troubleshooting - Doors will not unlock (or lock) with the transmitter, but will unlock (lock) with the door switch

Doors will not unlock (or lock) with the transmitter, but will unlock (lock) with the door switch

NOTE: Before troubleshooting, check the B-CAN DTCs. If any DTC is indicated, troubleshoot the indicated DTC first.

1. Turn the ignition switch to LOCK (0).
2. Remove the ignition key from the ignition switch.
3. Close and lock the doors.
4. Try to lock/unlock the doors with the keyless transmitter.

   Do the door lock actuators work normally?
   YES - Intermittent failure, the system is OK at this time.■
   NO - Go to Step 5 .
5. Open the driver's door.

   Does the key-in reminder chime sound?
   YES - Faulty ignition key switch , or short to ground on the ignition switch wire. Repair as necessary.■
   NO - Go to Step 6 .
6. Do the transmitter test.

   Is the transmitter OK?
   YES - Substitute a known-good under-dash fuse/relay box and recheck. If there is still a problem, substitute a known-good immobilizer-keyless control unit and recheck.■
   NO - Replace the transmitter.■

Keyless/Power Door Locks/Security System Symptom Troubleshooting - Doors automatically relock 30 second after being unlocked with the transmitter even though a door has been opened

Doors automatically relock 30 seconds after being unlocked with the transmitter even though a door has been opened

NOTE: Before troubleshooting, check the B-CAN DTCs. If any DTC is indicated, troubleshoot the indicated DTC first.

1. Place the ceiling light switch in the DOOR position.
2. Turn the ignition switch to ON (II).
3. Watch the ceiling light and the door indicators on the gauge control module.

Do the ceiling light and door indicators come on when the door is open, and go off when the door is closed?

YES - Substitute a known-good under-dash fuse/relay box and recheck. If the symptom goes away, replace the original under-dash fuse/relay box.■

NO - Repair an open in the wire between the MICU and each door switch. If the wire is OK, replace the door switch.■

Keyless/Power Door Locks/Security System Symptom Troubleshooting - Keyless operation does not work (LOCK, UNLOCK)

Keyless operation does not work (LOCK, UNLOCK)

NOTE:

- Before troubleshooting, check the B-CAN DTCs. If any DTC is indicated, troubleshoot the indicated DTC first.
- Before troubleshooting, do the keyless transmitter test.

1. Turn the ignition switch to ON (II).
2. Try to start the engine.

   Does the engine start?
   YES - The immobilizer system is OK, go to Step 3 .
   NO - Go to the immobilizer symptom troubleshooting. ■
3. Turn the ignition switch to LOCK (0).
4. Test the transmitter.

   Is the transmitter OK?
   YES - Replace the immobilizer-keyless control unit .■
   NO - Replace the transmitter.■

Security Alarm Function Test

Ultrasonic sensor

1. Open the driver's window.
2. Close all doors.
3. Lock the doors with the transmitter or the key cylinder.
4. Wait 25 seconds for activate the security system.
   The hazard warning lights and the security indicator blink when the security system is armed.
5. Put your hand into the cabin.
   - If the siren sounds and hazard warning lights blink, go to Step 6 .
   - If the system siren doesn't sound and the hazard warning lights don't blink, replace the ultrasonic sensor.

Internal battery of alarm control siren

6. Open the hood.
7. Disconnect the terminals from the battery.
   - If the siren sounds continuously, internal battery is OK.
   - If the siren turns off, replace the alarm control siren.

   NOTE:
   - The alarm control siren is self-powered system with internal Ni-MH battery back-up. Even if the voltage of vehicle's battery drops, the alarm control siren works properly.
   - If the lock knob is pushed before the door is closed, the buzzer sounds 1 time and ultrasonic system doesn't work.

Security Alarm Tripped Sensor Recall

The security system stores information on the last tripped sensor if the security system has been violated. The information can be retrieved using the HDS.
To retrieve the last tripped sensor data:

1. Select HISTORY DATA from the security system test mode menu.
2. Select CURRENT DATA.
3. Confirm that MaRIS matches the Vehicle then press the enter button.
4. Scroll through the data list.
    - Sensors that were violated will indicate DETECT.
    - Sensors that were not violated will indicate NONE.
5. Inspect the DETECT circuit for:
    - Misadjusted or damaged switch.
    - Loose or corroded connections.
    - Intermittent shot to ground.

Security Alarm Control Siren Input Test

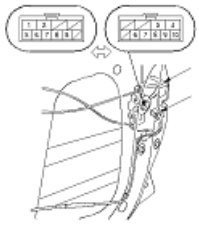
1. Remove the right cargo area side trim panel.
2. Disconnect the 6P connector (A) from the alarm control siren (B).
3. Inspect connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bend, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to Step 4 .
4. Make these input tests at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to Step 5 .

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
5	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G604) • An open in the wire
4	GRN	Ultrasonic sensor 3P connector disconnected	Check for continuity between the No. 4 terminal and No. 2 terminal of the ultrasonic sensor: There should be continuity.	An open in the wire
			Check for continuity to ground: There should be no continuity.	A short to ground in the wire
3	LT GRN	Under-dash fuse/relay box connector C (49P) disconnected	Check for continuity between the No. 3 terminal and C25 terminal of the under-dash fuse/relay box: There should be continuity.	An open in the wire
			Check for continuity to ground: There should be no continuity.	A short to ground in the wire
2	PNK	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 1 (10 A) fuse in the under-dash fuse/relay box • An open in the wire

5. Substitute a known-good alarm control siren and recheck the system.
   - If the symptom goes away, the alarm control siren is faulty; replace it.
   - If the symptom is still present, the MICU is faulty; replace the under-dash fuse/relay box.

Door Key Cylinder Switch Test

With security

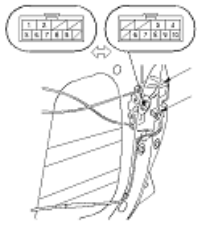


1. Remove the driver's door panel.
2. Disconnect the 10P connector (A) from the key cylinder switch (B).
3. Check for continuity between the terminals.
   - There should be continuity between the No. 8 [No. 7] and No. 10 [No. 5] terminals when the door key cylinder switch is in UNLOCK position.
   - There should be no continuity between the No. 8 [No. 7] and No. 10 [No. 5] terminals when the door key cylinder switch is in the neutral or LOCK position.
   - There should be continuity between the No. 9 [No. 6] and No. 10 [No. 5] terminals when the door key cylinder switch is in LOCK position.
   - There should be no continuity between the No. 9 [No. 6] and No. 10 [No. 5] terminals when the door key cylinder switch is in the neutral or UNLOCK position.

   [ ]: LHD model
4. If the continuity is not as specified, replace the door lock actuator assembly.

Door Lock Actuator Test - Without Super Locking

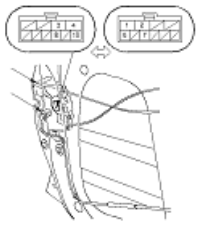
Driver's Door



1. Remove the driver's door panel.
2. Disconnect the 10P connector (A) from the actuator (B).

3. Check actuator operation by connecting power and ground according to the table. To prevent damage to the actuator, apply battery voltage only momentarily.
4. If the actuator does not operate as specified, replace it.

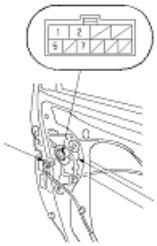
Front Passenger's Door



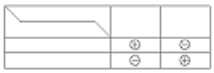
1. Remove the front passenger's door panel.
2. Disconnect the 10P connector (A) from the actuator (B).

3. Check actuator operation by connecting power and ground according to the table. To prevent damage to the actuator, apply battery voltage only momentarily.
4. If the actuator does not operate as specified, replace it.

Left Rear Door

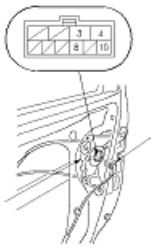


1. Remove the left rear door panel.
2. Disconnect the 10P connector (A) from the actuator (B).



3. Check actuator operation by connecting power and ground according to the table. To prevent damage to the actuator, apply battery voltage only momentarily.
4. If the actuator does not operate as specified, replace it.

Right Rear Door

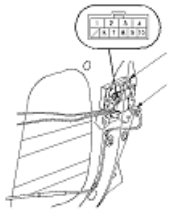


1. Remove the right rear door panel.
2. Disconnect the 10P connector (A) from the actuator (B).

3. Check actuator operation by connecting power and ground according to the table. To prevent damage to the actuator, apply battery voltage only momentarily.
4. If the actuator does not operate as specified, replace it.

Door Lock Actuator Test - With Super Locking

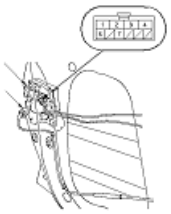
Driver's Door with Super Locking



1. Remove the driver's door panel.
2. Disconnect the 10P connector (A) from the actuator (B).

3. Check actuator operation by connecting power and ground according to the table. To prevent damage to the actuator, apply battery voltage only momentarily.
4. If the actuator does not operate as specified, replace it.

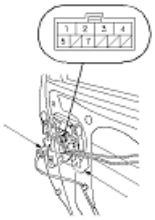
Front Passenger's Door with Super Locking



1. Remove the front passenger's door panel.
2. Disconnect the 10P connector (A) from the actuator (B).

3. Check actuator operation by connecting power and ground according to the table. To prevent damage to the actuator, apply battery voltage only momentarily.
4. If the actuator does not operate as specified, replace it.

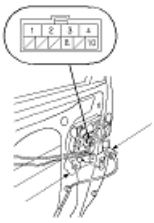
Left Rear Door with Super Locking



1. Remove the left rear door panel.
2. Disconnect the 10P connector (A) from the actuator (B).

3. Check actuator operation by connecting power and ground according to the table. To prevent damage to the actuator, apply battery voltage only momentarily.
4. If the actuator does not operate as specified, replace it.

Right Rear Door with Super Locking

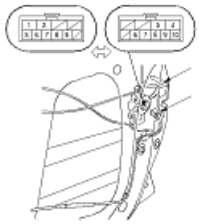


1. Remove the right rear door panel.
2. Disconnect the 10P connector (A) from the actuator (B).

3. Check actuator operation by connecting power and ground according to the table. To prevent damage to the actuator, apply battery voltage only momentarily.
4. If the actuator does not operate as specified, replace it.

Door Lock Knob Switch Test

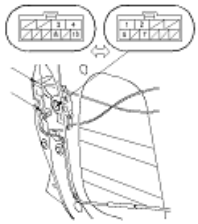
Driver's Door



1. Remove the driver's door panel.
2. Disconnect the 10P connector (A) from the actuator (B).
3. Check for continuity between the terminals.
   - There should be continuity between the No. 9 [No. 6] and No. 10 [No. 5] terminals when the door lock knob switch is in the LOCK position and no continuity when the switch is in the UNLOCK position.
   - There should be continuity between the No. 8 [No. 7] and No. 10 [No. 5] terminals when the door lock knob switch is in the UNLOCK position and no continuity when the switch is in the LOCK position.

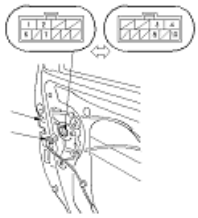
   [ ]: LHD model
4. If the continuity is not as specified, replace the door lock actuator.

Front Passenger's Door (With security)



1. Remove the passenger's door panel.
2. Disconnect the 10P connector (A) from the actuator (B).
3. Check for continuity between the terminals.
   There should be continuity between the No. 7 [No. 8] and No. 5 [No. 10] terminals when the door lock knob switch in the UNLOCK position and no continuity when the switch is in the LOCK position.
   [ ]: LHD model
4. If the continuity is not specified, replace the door lock actuator.

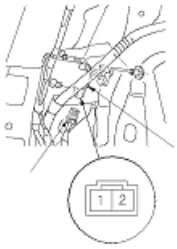
Rear Door (With security)



1. Remove the left or right rear door panel.
2. Disconnect the 10P connector (A) from the actuator (B).
   NOTE: The illustration shows the left rear door.
3. Check for continuity between the terminals.
   There should be continuity between the No. 7 [No. 8] and No. 5 [No. 10] terminals when the door lock knob switch is UNLOCK position and no continuity when the switch is in the LOCK position.
   [ ]: Right rear door
4. If the continuity is not as specified, replace the door lock actuator.

Fuel Lid Lock Actuator Test

1. Open the tailgate, then remove the lid cover from the left cargo area side trim panel.
2. Disconnect the 2P connector (A) from the actuator (B).



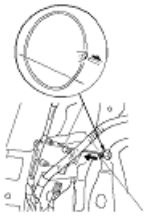
3. Check actuator operation by connecting power and ground according to the table. To prevent damage to the actuator, apply battery voltage only momentarily.
4. If the actuator does not operate as specified, replace it.

Fuel Lid Lock Actuator Replacement

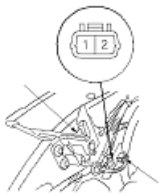
1. Open the tailgate, then remove the lid cover from the left cargo area side trim panel.
2. Disconnect the 2P connector (A) from the actuator (B).
3. Loosen the mounting screws (C).
4. Move an actuator at the back, and remove the actuator.
5. Install in the reverse order or removal.

Fuel Lid Lock Actuator How to Cope in the Trouble

1. Open the tailgate, then remove the lid cover from the left cargo area side trim panel.
2. Move the rod (A) by hand in the direction that the arrow shows, and release the lock.



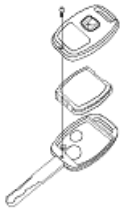
Security Alarm Hood Switch Test



1. Open the hood.
2. Disconnect the 2P connector (A) from the hood switch (B).
3. Check for continuity between the terminals.
   - There should be continuity between the No. 1 and No. 2 terminals when the hood is opened (lever released).
   - There should be no continuity between the No. 1 and No. 2 terminals when the hood is closed (lever pushed down).
4. If the continuity is not as specified, replace the hood latch assembly.

Keyless Entry Transmitter Test

Special Tools Required

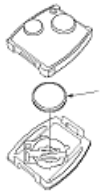


Keyless entry checker
07MAJ-SP00400
NOTE:

- If the doors unlock or lock with the transmitter, but the LED on the transmitter does not come on, the LED is faulty; replace the transmitter.
- If any door is open, you cannot lock the doors with the transmitter.
- If you unlocked the doors with the transmitter, but do not open any of the doors within 30 seconds, the doors relock automatically.
- The doors do not lock or unlock with the transmitter if the ignition key is inserted in the ignition switch.

With HDS

1. Press the lock or unlock button five or six times to reset the transmitter.
   - If the locks work, the transmitter is OK.
   - If any of the transmitter buttons do not work, replace the transmitter, then register the transmitter programming.
   - If the locks don't work, go to Step 2 .
2. Connect the HDS to the data link connector.
3. Select the KEYLESS from the BODY ELECTRICAL menu, then enter the KEYLESS CHECK.
4. Press lock, unlock, trunk, or panic button and check the response on the screen of the HDS.
   NOTE: The door lock actuators may or may not cycle when receiving input from the transmitter.
   - If KEYLESS ENTRY TRANSMITTER CODE IS RECEIVED is indicated, the transmitter is OK.
   - If DIFFERENT KEYLESS ENTRY TRANSMITTER CODE IS RECEIVED is indicated, the transmitter is not registered to the vehicle. If necessary, reprogram and register the transmitter.
   - If KEYLESS ENTRY TRANSMITTER CODE IS NOT RECEIVED is indicated, go to Step 5 .
5. Open the transmitter and check for water damage.
   - If you find any water damage, replace the transmitter, then register it.
   - If there is no water damage, go to Step 6 .

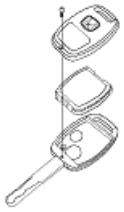


6. Replace the transmitter battery (A) with a new one, and press lock or unlock button and check the receive condition on the screen of the HDS.
   - If KEYLESS ENTRY TRANSMITTER CODE IS RECEIVED is indicated, the transmitter is OK.
   - If KEYLESS ENTRY TRANSMITTER CODE IS NOT RECEIVED is indicated, go to Step 7 .
7. Use a different known-good keyless transmitter assembly and repeat Step 3 and 4.
   NOTE: The keyless transmitter does not need to be programmed to the vehicle for this test.
   - If (DIFFERENT) KEYLESS ENTRY TRANSMITTER CODE IS RECEIVED is indicated, replace the keyless transmitter and do the immobilizer system registration.
   - If KEYLESS ENTRY TRANSMITTER CODE IS NOT RECEIVED is indicated, the immobilizer-keyless control unit is faulty, replace it and do the immobilizer system registration.

   NOTE: As the keyless transmitter is combined with the immobilizer transponder, so when the transponder is registered by the HDS, the keyless transmitter is also registered automatically.

Without HDS

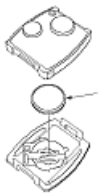
1. Put on the transmitter (A) behind the keyless entry checker (B).
2. Press the door lock button.
   - If the indicator light (C) comes on, the transmitter is OK.
   - If the indicator light does not come on, check for;
     -A dead or low battery, go to Step 3 .
     -Faulty transmitter.



3. Open the transmitter and check for water damage.
   - If you find any water damage, replace the transmitter.
   - If there is no water damage, go to Step 4 .

---

4. Replace the transmitter battery (A) with a new one, and try to lock and unlock the doors with the transmitter by pressing the lock or unlock button five or six times.
    - If the doors lock and unlock, the transmitter is OK.
    - If the doors don't lock and unlock, go to Step 5 .

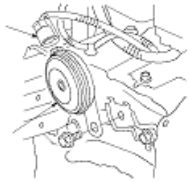


5. Reprogram and register the transmitter, then try to lock and unlock the doors.
    - If the doors lock and unlock, the transmitter is OK.
    - If the doors don't lock and unlock, substitute a known-good transmitter and recheck. If still not operating, replace the immobilizer-keyless control unit.

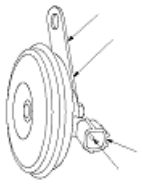
    NOTE: As the keyless transmitter is combined with the immobilizer transponder, so when the transponder is registered by the HDS, the keyless transmitter is also registered automatically.

Security Horn Test/Replacement

1. Remove the front bumper.
2. Disconnect the 1P connector (A) from horn (B).

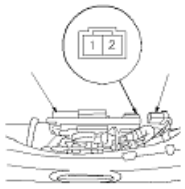


3. Test the horn by connecting battery power to the terminal (A) and grounding the bracket (B). The horn should sound.
4. If it fails to sound, replace it.

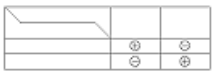


Tailgate Lock Actuator Test

With Keyless Entry

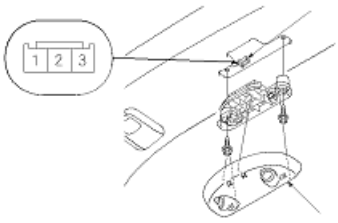


1. Open the tailgate.
2. Remove the tailgate lower trim panel.
3. Disconnect the 2P connector (A) from the tailgate lock actuator (B).



4. Check actuator operation by connecting power and ground according to the table. To prevent damage to the actuator, apply battery voltage only momentarily.
5. If the actuator does not operate as specified, replace it.

Ultrasonic Sensor Input Test



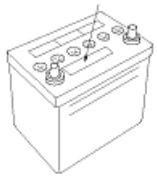
1. Carefully pry off the ultrasonic sensor cover (A) with a small screwdriver.
2. Remove the mounting screws.
3. Disconnect the 3P connector (B) from the ultrasonic sensor.
4. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bend, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to Step 5 .
5. With the connector still disconnected, make these input tests at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the ultrasonic sensor must be faulty, replace it.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
1	PNK	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 1 (10 A) fuse in the under-dash fuse/relay box • An open in the wire
2	GRN	Alarm control siren 6P connector disconnected	Check for continuity between the No. 2 terminal and No. 4 terminal of the alarm control siren: There should be continuity.	An open in the wire
			Check for continuity to ground: There should be no continuity.	A short to ground in the wire
3	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G602) • An open in the wire

Battery Test

⚠WARNING

A battery can explode if you do not follow the proper procedure, causing serious injury to anyone nearby.
Follow all procedures carefully and keep sparks and open flames away from the battery.
The battery contains sulfuric acid (electrical) which is highly corrosive and poisonous.
Getting electrolyte in your eyes or on your skin can cause serious burns.
Wear protective clothing and eye protection when working on or near battery.
Swallowing electrolyte can cause fatal poisoning if immediate action is not taken.



NOTE: To get accurate results, the temperature of the electrolyte must be between 21 and 38 °C (70 and 100 °F) before testing.

Test Equipment Required

- Battery Tester with:
  Voltmeter with 0−18 V scale, ammeter with 0−100 A and 0−500 A scales, and a carbon pile with 0−300 W
- 12 V Battery Charger:
  Fast charge capability of 50 A and slow charge capability of 5 A

Test Procedure

⚠CAUTION

Regarding the battery check and battery charge method.

- If battery has description, follow it.
- When you charge the battery, you must remove the battery from vehicle.

1. Check for damage: If the case is cracked or the terminals are loose, replace the battery.
2. Check the test indicator window:
   If the test indicator window indicates the shortage of battery liquid, go to Step 3 .
   If the test indicator window indicates a low, go to Step 4 .
3. Remove the tape and caps, and add distilled water. After refill the distilled water, apply the tape and caps.
4. Test battery load capacity by connecting a battery tester, and applying a load of three times the battery ampere hour rating.
   When the load has been applied for exactly 15 seconds, the battery voltage reading should stay above 9.6 V.
   - If the reading stays above 9.6 V, the battery is OK; clean its terminals and case, and reinstall it.
   - If the reading is between 6.5 and 9.6 V, connect a battery charger and charge the battery for 3 minutes at an initial rate of 40 amps.

   ⚠WARNING

   Since the main body of the battery is transformed or might be exploded by gas generated when charging it, loosen the cap of each cell of the battery completely when you charged battery.

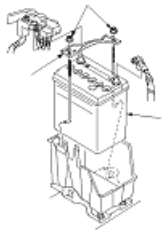
   ⚠CAUTION

   Amperage will drop as voltage increases; do not increase the amperage to compensate or you may damage the battery.

   - Watch the battery voltage during the entire 3 minutes; the highest reading should stay below 15.5 V.
     - If the reading stays below 15.5 V, the battery is OK; clean its terminals and case, and reinstall it.
     - If the reading exceeds 15.5 V any time during the 3 minutes of fast charge, the battery is not good; replace it.
   - If the reading drops below 6.5 V, slow-charge the battery by connecting a battery, and charge at 5 amps for no more than 24 hours (or until the indicator shows full charge, or the specific gravity of the electrolyte is at least 1.270).
     Then test load capacity again.
     - If the voltage stays above 9.6 V, the battery is OK; clean its terminals and case, and reinstall it.
     - If the voltage still drops below 6.5 V, the battery is not good; replace it.

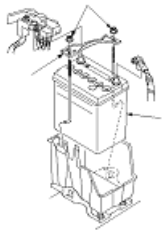
Battery Removal/Installation

NOTE: The battery terminal disconnection/reconnection procedure must be done before and after doing this procedure. Some systems store data in memory that is lost when the battery is disconnected.



Removal

1. Do the battery terminal disconnection procedure.
2. Remove the two nuts (A) securing the battery setting plate (B), then remove the battery setting plate and the battery (C).



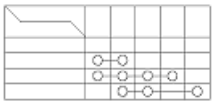
Installation

1. Install the battery (A), then install the battery setting plate (B).
2. Tighten the two nuts (C) equally until the battery is stable.
   NOTE: Do not deform the battery setting plate by tightening the nuts too much.
3. Do the battery terminal reconnection procedure.
   NOTE: Make sure the positive terminal and the negative terminal are not reverse-connected.

Ignition Switch Test

SRS components are located in the area. Review the SRS component locations, and precautions and procedures before performing repairs or servicing.

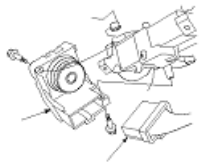
1. Do the battery terminal disconnection procedure.
2. Remove the steering column covers.
3. Disconnect the 7P connector (A) from the ignition switch (B).



4. Check for continuity between the terminals in each switch position according to the table.
5. If the continuity does not agree with the table, replace the ignition switch.
6. Do the battery terminal reconnection procedure.

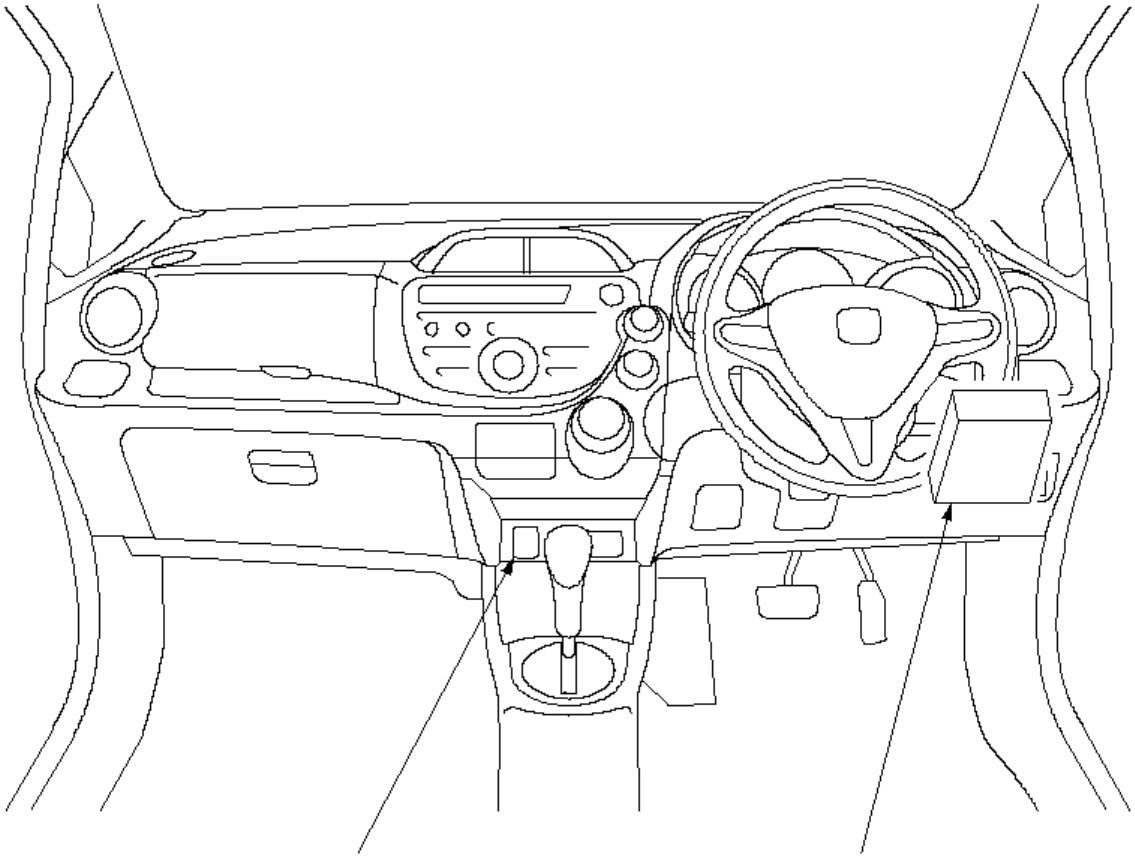
Ignition Switch Replacement

SRS components are located in the area. Review the SRS component locations, and precautions and procedures before performing repairs or servicing.



1. Do the battery terminal disconnection procedure.
2. Remove the steering column covers.
3. Disconnect the 7P connector (A) from the ignition switch (B).
4. Remove the two screws and the ignition switch.
5. Install in the reverse order of removal.
6. Do the battery terminal reconnection procedure.

Accessory Power Socket Component Location Index

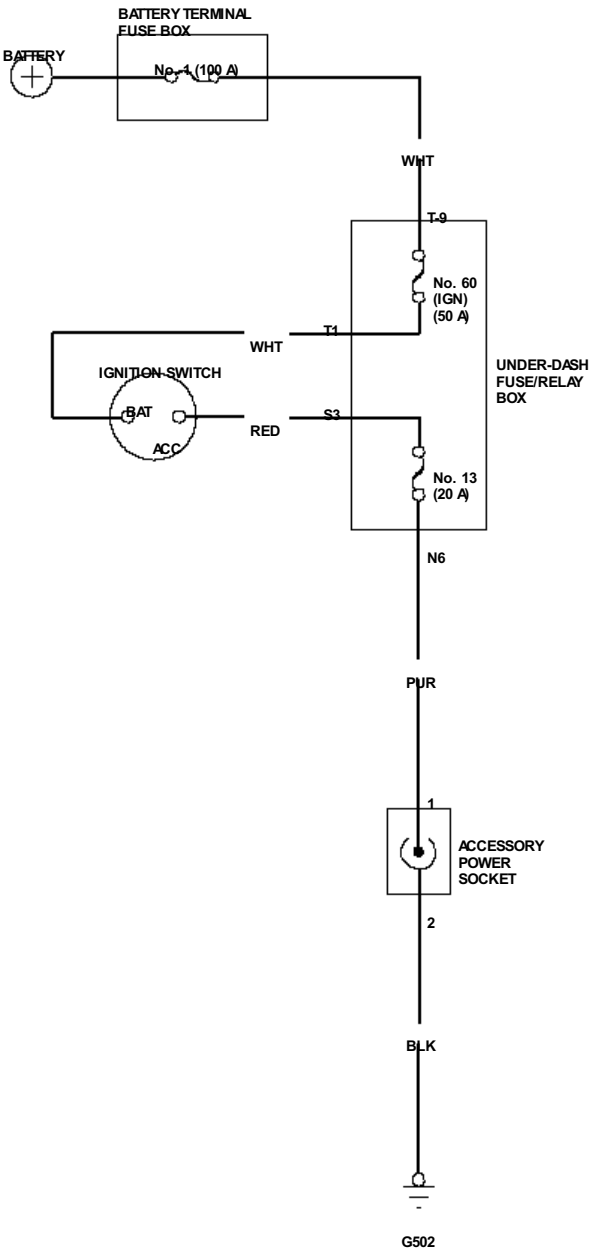


ACCESSORY POWER SOCKET
Test/Replacement,

UNDER-DASH FUSE/RELAY BOX

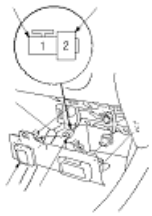
RHD model is shown, LHD model is similar.

Accessory Power Socket Circuit Diagram



Accessory Power Socket Test/Replacement

NOTE: If the accessory power socket does not work, check the No. 13 (20 A) fuse in the under-dash fuse/relay box and ground (G502) first.



1. Remove the center lower trim.
2. Disconnect the 2P connector (A) from the accessory power socket (B).
3. Inspect the connector terminals to be sure they are all making good contact.
   - If the terminals are bent, loose, or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to Step 4 .
4. Turn the ignition switch to ACC (I).
5. Measure the voltage between the accessory power socket 2P connector No. 1 terminal and body ground. There should be battery voltage.
   - If there is battery voltage, go to Step 6 .
   - If there is no battery voltage, check for an open in the wire.
6. Check for continuity between the accessory power socket No. 2 terminal and body ground. There should be continuity.
   - If there is continuity, go to Step 7 .
   - If there is no continuity, check for an open in the wire.

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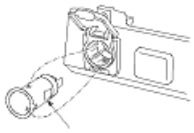
7. Remove the socket (A).



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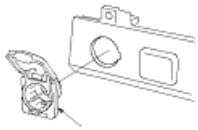
8. Remove the housing (A) from the panel.
9. Install the power socket in the reverse order of removal.



Under-dash Fuse/Relay Box Removal and Installation

SRS components are located in this area. Review the SRS component locations , and precautions and procedures before performing repairs or servicing.

Removal

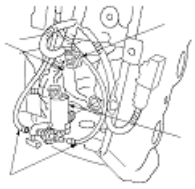
1. Make sure the ignition switch is in LOCK (0).
2. Disconnect the negative battery cable, then disconnect the positive cable, and wait at least 3 minutes.
3. RHD model: Remove the fuse lid panel, and remove the driver's dashboard lower cover. LHD model: Remove the fuse lid panel.
4. Disconnect the connectors from the front side of the under-dash fuse/relay box (A).
5. Remove the mounting bolts, and the terminal (B).
6. Release the lock (C) and pull the fuse/relay box away from the body.
7. Disconnect the connectors from the back side of the under-dash fuse/relay box, then remove the under-dash fuse/relay box.
8. Carefully remove the relays by prying under the base of the relay.
   NOTE: Do not use pliers. Pliers will damage the relays, which could cause the engine to stall or not start.

Installation

1. Install the relays and connect the connectors to the under-dash fuse/relay box, then install the under-dash fuse/relay box in the reverse order of removal.
2. Install the removed parts in the reverse order of removal.
3. Connect the positive cable to the battery, then connect the negative cable to the battery.
4. Set the clock (if equipped).
5. Make sure that all systems work properly.

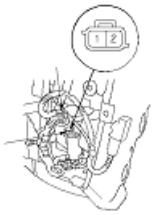
Washer Reservoir Replacement

1. Remove the right inner fender.
2. Disconnect the 2P connector (A) and tubes (B) from the washer motor (C).
   Washer Reservoir Capacity:
   2.5 L (2.6 US qt, 2.2 Imp qt)
3. Remove the washer motor from the washer reservoir (D).



4. Remove the two bolts (A) and clip (B), then remove the washer reservoir (C).
5. Install the reservoir in the reverse order of removal. Check the washer motor operation.

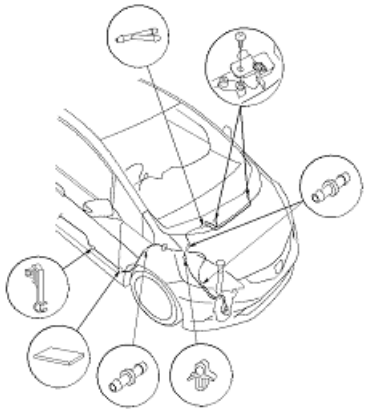
Washer Motor Test

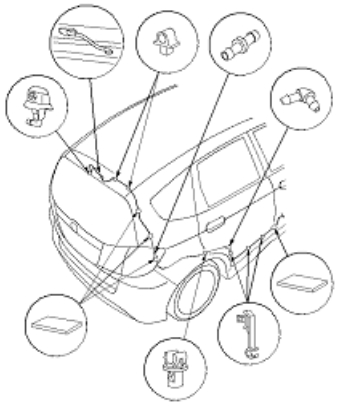


1. Remove the right inner fender.
2. Disconnect the 2P connector (A) from the washer motor (B).
3. Test the motor by connecting battery power to the No. 1 (or No. 2) terminal, and ground the No. 2 (or No. 1) terminal of the washer motor. The motor should run.
   - If the motor does not run, or fails to run smoothly, replace it.
   - If the motor runs smoothly, but little or no washer fluid is pumped, check for a disconnected or blocked washer hose, or a clogged washer motor outlet.

Washer Tube/Nozzle Replacement

1. Remove the right inner fender.
2. Remove the washer nozzles and clips, then remove the tubes.
3. Install in the reverse order of removal. Take care not to pinch the washer tubes. Check the washer operation.



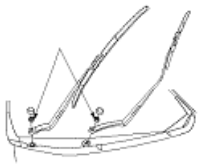


Wiper Arm Replacement

NOTE: Set the wiper arms to the auto-stop position before removal and installation.

Windshield

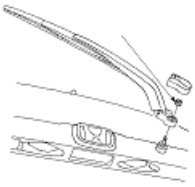
NOTE: Always pull up the driver's side wiper blade first.



1. Remove the caps, the nuts, and the wiper arms.

Rear Window

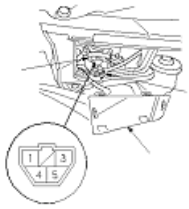
NOTE: Be careful not to damage the tailgate.



1. Remove the cover, the nut, and the wiper arm.

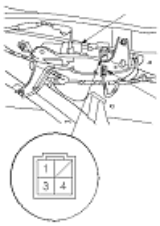
Wiper Motor Test

Windshield



1. Remove the wiper arms, and cowl lid (A).
2. Disconnect the 5P connector (B) from the wiper motor (C).
3. Test the motor by connecting battery power to the No. 4 [No. 3] terminal and ground the No. 5 [No. 4] terminal of the wiper motor 5P connector. The motor should run at low speed. If the motor does not run, or fails to run smoothly, replace the motor.
4. Test the motor by connecting battery power to the No. 1 [No. 5] terminal and ground the No. 5 [No. 4] terminal of the wiper motor 5P connector. The motor should run at high speed. If the motor does not run, or fails to run smoothly, replace the motor.
5. Connect an analog ohmmeter to the No. 3 [No. 1] and No. 5 [No. 4] terminals, and run the motor at low or high speed. The needle of the ohmmeter should pulse. If it does not, replace the motor.
   [ ]: LHD model

Rear Window



NOTE: If there is malfunction of the rear windshield wiper operation, and no DTCs are detected, check the rear windshield wiper motor and an open in the ground circuit of the rear windshield wiper.

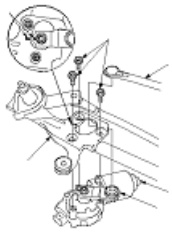
1. Open the tailgate, and remove the tailgate lower trim panel.
2. Disconnect the 4P connector (A) from the wiper motor (B).
3. Test the motor by connecting battery power to the No. 1 terminal and ground the No. 3 terminal of the wiper motor. The motor should run. If the motor does not run or fails to run smoothly, replace the motor.
4. Connect an analog ohmmeter between the rear window wiper motor 4P connector No. 3 and No. 4 terminals. The ohmmeter should indicate continuity and no continuity alternately. If it does not, replace the motor.

Wiper Motor Replacement

Windshield

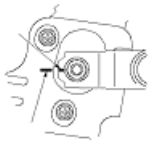
NOTE: Be careful not to scratch or damage the hood and the body.

1. Remove the windshield wiper arms.
2. Remove the under-cowl panel and hood hinge cover.
3. Disconnect the 5P connector (A) from the windshield wiper motor (B).
4. Remove the bolts and the wiper linkage assembly (C).



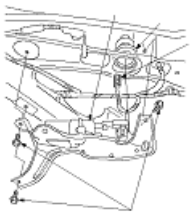
5. Mark lines (A) to show the original adjustment, then remove the connection rod (B) from the linkage (C).
6. Remove the three bolts and the separate the windshield wiper motor (D) from the linkage assembly (E) through the hole.

Installation



1. Before installing the motor, connect the 5P connector to the wiper motor, and turn the windshield wiper/washer switch ON to LO or HI position, then OFF to return the motor shaft to the park position.
   NOTE:
   - Do not use the windshield wiper/washer switch INT position in this step.
   - Apply multipurpose grease to the moving parts.
2. Install the wiper motor to the wiper linkage assembly in the reverse order of removal.
3. Install the linkage to the wiper motor shaft, then align the mark (A) of the linkage and the mark (B) of the wiper linkage assembly.
4. After installation, adjust the wiper arms.

Rear Window



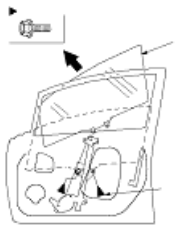
NOTE: Be careful not to scratch or damage the tailgate.

1. Remove the rear window wiper arm.
2. Open the tailgate, and remove the tailgate lower trim panel.
3. Remove the cap (A), and disconnect the 4P connector (B) from the rear window wiper motor (C).
4. Remove the three bolts and the rear window wiper motor.
5. Install in the reverse order of removal, and note these items:
   - Grease the moving parts.
   - Before reinstalling the wiper arm, turn the rear window wiper switch ON, then OFF to return the wiper shaft to the park position.
   - Check the wiper motor operation.

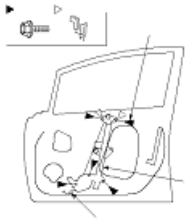
Front Door Glass and Regulator Replacement

NOTE:

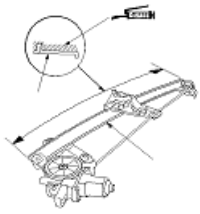
- Put on gloves to protect your hands.
- Take care not to scratch the door and related parts.
- RHD model is shown; LHD model is symmetrical.



1. Remove the these items:
   - Door panel
   - Speaker
2. Disconnect the power door lock actuator connector.
3. Remove the plastic cover.
4. Carefully raise the glass (A) until you can see the bolts, then remove them. Carefully pull the glass out through the window slot.
   NOTE: Take care not to drop the glass inside the door.



5. Disconnect the connector (A) from the regulator (B).
6. Remove the bolts, and release the hooks, then remove the regulator through the hole in the door.



7. Apply multipurpose grease to all the sliding surfaces of the regulator (A) where shown.
8. Install the glass and regulator in the reverse order of removal, and note these items:
   - Raise and lower the glass to see if it moves freely without binding.
   - Make sure that there is no clearance between the glass and glass run channel when the glass is closed.
   - Adjust the position of the glass as necessary.
   - Do the power window control unit reset procedure.
   - When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.
   - Check for water leaks.
   - Test-drive and check for wind noise and rattles.
   - Make sure the power door locks, windows and power mirror operate properly.

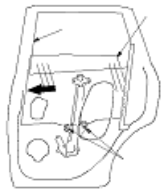
Door Glass Adjustment

NOTE: Check the weatherstrips and glass run channel for damage or deterioration, and replace them if necessary.

1. Place the vehicle on a firm, level surface.
2. Remove these items:
   - Door panel:
     - Front door
     - Rear door
   - Plastic cover:
     - Front door
     - Rear door
3. Carefully move the glass (A) until you can see the glass mounting bolts (B), then loosen them.
4. Push the glass against the channel (C), then tighten the glass mounting bolts.
5. Check that the glass moves smoothly.

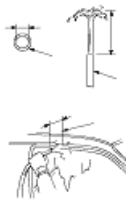
Front door

Rear door



6. Raise the glass fully, and check for gaps. Also check that the glass (A) contacts the glass run channel (B) evenly.
7. Attach the plastic cover making sure it is sealed around its outside perimeter to seal out water.

8. Check for water leaks. Run water over the roof and on the sealing area as shown, and note these items:
   - Use a 12 mm (0.47 in.) diameter hose (A).
   - Adjust the rate of water flow as shown (B).
   - Do not use a nozzle.
   - Hold the hose about 300 mm (12 in.) away from the door (C).
9. Reinstall the door panel:
   - Front door
   - Rear door



Front Corner Glass Replacement

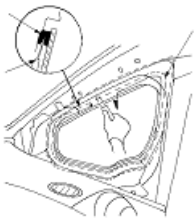
NOTE:

- Put on gloves to protect your hands.
- Wear eye protection while cutting the glass adhesive.
- Use seat covers to avoid damaging any surfaces.
- The front corner trim and the front corner glass clips will need replacement because they will be damage during glass removal.

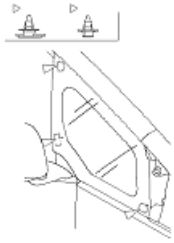
1. Remove these items:
   - Front pillar corner trim
   - Front pillar trim:
     -Without side curtain airbags
     -With side curtain airbags

2. Remove the front corner trim (A).
   -1. From inside the vehicle, use a utility knife to cut through the adhesive (B) of the front corner trim.
   -2. Pull out the upper edge of the front corner trim.
   -3. Pull out the lower edge of the front corner trim, then remove it.
   NOTE: Replace the front corner trim with a new one.

3. From inside the vehicle, use a utility knife (A) to cut through the front corner glass adhesive (B) all the way around. Apply protective tape along the edge of the entire front corner glass opening flange.



4. From inside the vehicle, cut through the clips (A, B) of the front corner glass with a utility knife.



5. Carefully remove the front corner glass.

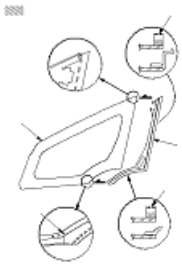
6. With a putty knife, scrape the old adhesive smooth to a thickness of about 2 mm (0.08 in.) on the bonding surface around the entire front corner glass opening flange:
   - Do not scrape down to the painted surface of the body; damaged paint will interfere with proper bonding.
   - Remove the clips and the rubber dams from the body

7. Clean the body bonding surface with a sponge dampened in isopropyl alcohol. After cleaning, keep oil, grease and water from getting on the surface.

8. If the old front corner glass is to be reinstalled, use a putty knife to scrape off all of the old adhesive and clips from the front corner glass. Clean the inside face of the front corner glass and the edge of the glass with isopropyl alcohol where new adhesive is to be applied. Make sure the bonding surface is kept free of water, oil and grease.

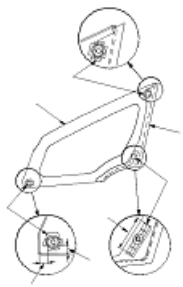
9. Attach the front corner trim (A) with adhesive tape to the inside face of the front corner glass (B) as shown. Before installing the front corner trim, apply primer to the inside face of the front corner glass:
   - Be careful not to touch the glass where adhesive will be applied.
   - The front corner trim must be replaced with a new one.
   - Be sure the bottom edge of the front corner trim lines up with the alignment mark (C).
   - Be sure the top edge of the front corner trim lines up with the top edge of the glass.

   Front corner trim adhesive tape:
   Thickness 0.8 mm (0.03 in.)
   Width 5 mm (0.197 in.)

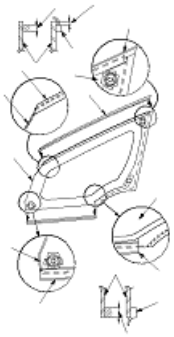


10. Attach the clip A (A), the clip B (B, C) with adhesive tape to the inside face of the front corner glass (D) as shown:
    - Be careful not to touch the glass where adhesive will be applied.
    - Be sure the clip B (B) lines up with the inner shape of the front corner trim (E).
    - Be sure the side portion (F) of the clip A lines up with the front corner trim.

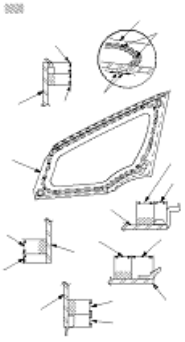
    Clip A adhesive tape:
    Thickness 1.2 mm (0.047 in.)
    Width 8 mm (0.315 in.)
    Clip B adhesive tape:
    Thickness 1.2 mm (0.047 in.)
    Width 16 mm (0.63 in.)



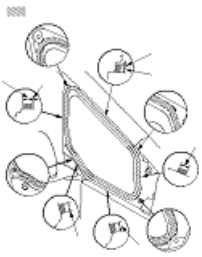
11. Attach the rubber dam (A, B) with adhesive tape to the inside face of the front corner glass (C) as shown.
    Before installing the rubber dam, apply primer to the inside face of the front corner glass.
    NOTE: Be careful not to touch the front corner glass where adhesive will be applied.
    Rubber dam adhesive tape:
    Thickness 0.2 mm (0.0079 in.)
    Width 3 mm (0.12 in.)



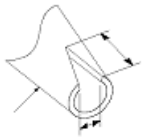
12. With a sponge, apply a light coat of glass primer to the inside face of the front corner glass (A) as shown, then lightly wipe it off with gauze or cheesecloth:
    - With the printed dots (B) on the front corner glass as a guide, apply the glass primer to the corner portions of the front corner glass.
    - Do not apply body primer to the front corner glass, and do not get body and glass primer sponges mixed up.
    - Never touch the primed surfaces with your hands. If you do, the adhesive may not bond to the front corner glass properly, causing a leak after the front corner glass is installed.
    - Keep water, dust, and abrasive materials away from the primed surface.



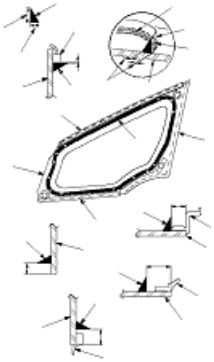
13. With a sponge, apply a light coat of body primer to any exposed paint or metal around the flange where new adhesive will be applied. Let the body primer dry for at least 10 minutes:
    - Do not apply glass primer to the body, and be careful not to mix up glass and body primer sponges.
    - Do not apply body primer to any remaining original adhesive on the flange.
    - Never touch the primed surfaces with your hands.
    - Mask off the dashboard before painting the flange.



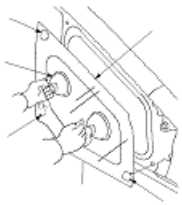
14. Cut a “V" in the end of the nozzle (A) on the adhesive cartridge as shown.



15. Put the cartridge in a caulking gun, and run a bead of adhesive (A) around the edge of the front corner glass (B) and along the rubber dam (C, D) and front corner trim (E) as shown:
    - With the printed dots (F) on the front corner glass as a guide, apply the adhesive to the corner portions of the front corner glass.
    - Apply the adhesive within 30 minutes after applying the glass primer. Make a slightly thicker bead at each corner.



16. Use suction cups (A) to hold the front corner glass (B) over the opening, align it with the clips (C, D), and set it down on the adhesive. Lightly push on the front corner glass until its edges are fully seated on the adhesive all the way around.
    NOTE: Do not open or close any of the doors for about an hour until the adhesive is dry.



17. Scrape or wipe the excess adhesive off with a putty knife or towel. To remove adhesive from a painted surface or the front corner glass, use a soft shop towel dampened with isopropyl alcohol.

18. After the adhesive has dried, spray water over the front corner glass and check for leaks. Mark the leaking areas and let the front corner glass dry, then seal with sealant. Let the vehicle stand for at least 4 hours after front corner glass installation. If the vehicle has to be used within the first 4 hours, it must be driven slowly.

19. Reinstall all remaining removed parts.
    NOTE: Advise the customer not to do the following things for 2 to 3 days:
    - Slam the doors with all the windows rolled up.
    - Twist the body excessively (such as when going in and out of driveways at an angle or driving over rough, uneven roads).

Quarter Glass Replacement

NOTE:

- Put on gloves to protect your hands.
- Wear eye protection while cutting the glass adhesive with a piano wire.
- Use seat covers to avoid damaging any surfaces.

1. Remove the quarter pillar trim.
   - Without side curtain airbags
   - With side curtain airbags
2. Remove the rubber dam (A) from the front edge of the quarter glass (B). If necessary, cut the rubber dam with a utility knife.
3. Apply protective tape to along the inside and outside edges of the body. Using an awl, make a hole through the adhesive from inside the vehicle. Push a piece of piano wire through the hole, and wrap each end around a piece of wood.

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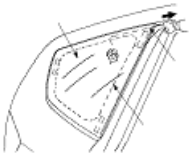
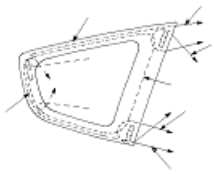
4. With a helper on the outside, pull the piano wire (A) back and forth in a sawing motion. Hold the piano wire as close to the quarter glass (B) as possible to prevent damage to the body, and carefully cut through the adhesive (C) around the entire quarter glass.
5. Carefully remove the quarter glass.
6. With a putty knife, scrape the old adhesive smooth to a thickness of about 2 mm (0.08 in.) on the bonding surface around the entire quarter glass opening flange:
   - Do not scrape down to the painted surface of the body; damaged paint will interfere with proper bonding.
   - Remove the clips and rubber dams from the body.
7. Clean the body bonding surface with a sponge dampened in isopropyl alcohol. After cleaning, keep oil, grease and water from getting on the surface.
8. If the old quarter glass is to be reinstalled, use a putty knife to scrape off all of the old adhesive, clips and the rubber dams from the quarter glass. Clean the inside face and the edge of the quarter glass with isopropyl alcohol where new adhesive is to be applied. Make sure the bonding surface is kept free of water, oil and grease.



Cutting positions



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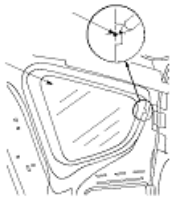
9. Set the quarter glass (A) in the opening, and center it. From inside the vehicle, make alignment mark (B) to the quarter glass where the rear clip will be installed with a grease pencil. Be careful not to touch the glass where adhesive will be applied.
10. Remove the quarter glass.



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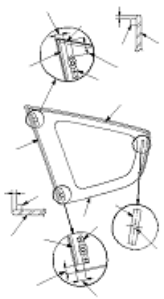
11. Attach the rubber dam A, rubber dam B, upper clip (C), lower clip (D), and rear clip (E) with adhesive tape to the inside face of the quarter glass (F) as shown:
    - Align the center of the rear clip with the alignment mark (G) you made in step 9.
    - Be careful not to touch the quarter glass where adhesive will be applied.
    - Be sure the rubber dam B contacts the rubber dam A.

    Rubber dam A adhesive tape:
    Thickness 0.16 mm (0.006 in.)
    Width 3 mm (0.12 in.)
    Rubber dam B adhesive tape:
    Thickness 0.16 mm (0.006 in.)
    Width 3 mm (0.12 in.)
    Upper clip adhesive tape:
    Thickness 1.3 mm (0.051 in.)
    Width 10 mm (0.3937 in.)
    Lower clip adhesive tape:
    Thickness 1.3 mm (0.051 in.)
    Width 11 mm (0.433 in.)

    Rear clip adhesive tape:
    Thickness 0.4 mm (0.016 in.)
    Width 7.5 mm (0.30 in.)



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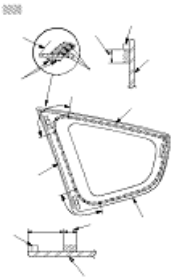
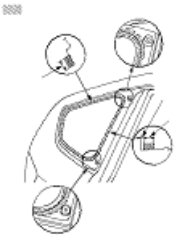
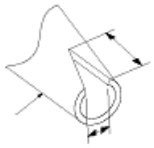
12. With a sponge, apply a light coat of glass primer along the edge of the quarter glass (A) and rubber dams (B) as shown, then lightly wipe it off with gauze or cheesecloth:
    - With the printed dots (C) on the quarter glass as a guide, apply the glass primer to the corner portions of the quarter glass.
    - Do not apply body primer to the quarter glass, and do not get body and glass primer sponges mixed up.
    - Never touch the primed surfaces with your hands. If you do, the adhesive may not bond to the quarter glass properly, causing a leak after the quarter glass is installed.
    - Keep water, dust, and abrasive materials away from the primed surfaces.



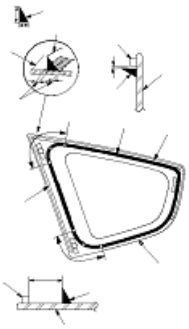
13. With a sponge, apply a light coat of body primer to any exposed paint or metal around the flange where new adhesive will be applied. Let the body primer dry for at least 10 minutes:
    - Do not apply body primer to any remaining original adhesive on the flange.
    - Be careful not to mix up the body and glass primer sponges.
    - Never touch the primed surfaces with your hands.



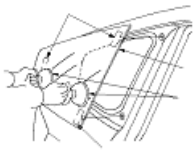
14. Cut a “V" in the end of the nozzle (A) on the adhesive cartridge as shown.



15. Put the cartridge in a caulking gun, and run a bead of adhesive (A) around the edge of the quarter glass (B) and along the rubber dams (C) as shown. With the printed dots on the quarter glass as a guide, apply the adhesive to the corner portions of the quarter glass. Apply the adhesive within 30 minutes after applying the glass primer. Make a slightly thicker bead at each corner.



16. Use suction cups (A) to hold the quarter glass (B) over the opening, align it with the clips (C) and set it down on the adhesive. Lightly push on the quarter glass until its edges are fully seated on the adhesive all the way around.
    NOTE: Do not open or close any of the doors for about an hour until the adhesive is dry.



17. Scrape or wipe the excess adhesive off with a putty knife or towel. To remove adhesive from a painted surface or the quarter glass, use a soft shop towel dampened with isopropyl alcohol.

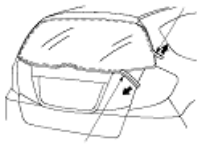
18. After the adhesive has dried, spray water over the quarter glass and check for leaks. Mark the leaking areas, let the quarter glass dry, then seal with sealant. Let the vehicle stand for at least 4 hours after quarter glass installation. If the vehicle has to be used within the first 4 hours, it must be driven slowly.

19. Reinstall all remaining removed parts.
    NOTE: Advise the customer not to do the following things for 2 to 3 days:
    - Slam the doors with all the windows rolled up.
    - Twist the body excessively (such as when going in and out of driveways at an angle or driving over rough, uneven roads).

Rear Window Replacement

NOTE:

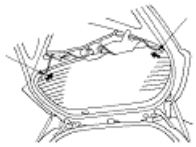
- Put on gloves to protect your hands.
- Wear eye protection while cutting the glass adhesive with a piano wire.
- Use seat covers to avoid damaging any surfaces.
- Do not damage the rear window defogger grid lines and terminals.



1. Remove these items:
   - Tailgate lower trim panel
   - High mount brake light
   - Rear window wiper arm
2. Remove the rubber dam (A, B) from the edge of the rear window. If necessary, cut the rubber dam with a utility knife.

---

3. Disconnect the rear window defogger connectors (A).



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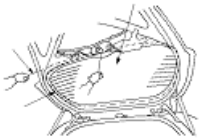
4. If the old rear window is to be reinstalled, make alignment marks (A) across the glass and body with a grease pencil.

5. Apply protective tape along the inside and outside edges of the tailgate. Using an awl, make a hole through the adhesive from inside the vehicle at the corner portion of the rear window. Push the piano wire through the hole, and wrap each end around a piece of wood.

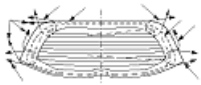
---

6. With a helper on the outside, pull the piano wire (A) back and forth in a sawing motion. Hold the piano wire as close to the rear window (B) as possible to prevent damage to the tailgate, and carefully cut through the adhesive (C) around the entire rear window.



7. Carefully remove the rear window.
8. With a putty knife, scrape the old adhesive smooth to a thickness of about 2 mm (0.08 in.) on the bonding surface around the entire rear window opening flange:
   - Do not scrape down to the painted surface of the body; damaged paint will interfere with proper bonding.
   - Remove the fasteners from the tailgate.

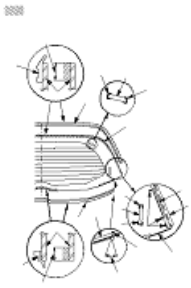
Cutting positions



9. Clean the tailgate bonding surface with a sponge dampened in isopropyl alcohol. After cleaning, keep oil, grease and water from getting on the surface.
10. If the old rear window is to be reinstalled, use a putty knife to scrape off all of the old adhesive, the fasteners and the rubber dams from the rear window. Clean the inside face and the edge of the rear window with isopropyl alcohol where new adhesive is to be applied. Make sure the bonding surface is kept free of water, oil and grease.

---

11. Attach the rubber dam A, the rubber dam B, the rubber dam D (C), fasteners A (D), and fasteners B (E) with adhesive tape to the inside face of the rear window (F) as shown. Before installing the rubber dam A, the rubber dam B, apply primer to the inside face of the rear window.
    - Be sure the rubber dams and fasteners line up with alignment marks (G).
    - Be careful not to touch the rear window where adhesive will be applied.
    - Before installing the rubber dam D, apply primer to the area where its adhesive tape will be stuck in the rubber dam A.
    - Cut both ends of the rubber dam B as shown.

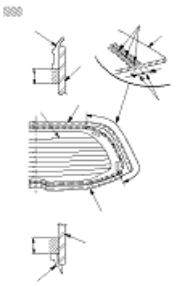


Fasteners adhesive tape:
Thickness 0.6 mm (0.024 in.)
Width 7.5 mm (0.30 in.)
Rubber dam A adhesive tape:
Thickness 0.4 mm (0.016 in.)
Width 7 mm (0.276 in.)
Rubber dam B adhesive tape:
Thickness 0.2 mm (0.008 in.)
Width 3 mm (0.12 in.)
Rubber dam D adhesive tape:
Thickness 0.2 mm (0.008 in.)
Width 3 mm (0.12 in.)

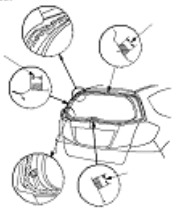
12. Attach the fasteners (A, B) with adhesive tape to the tailgate as shown.
    Fasteners adhesive tape:
    Thickness 0.6 mm (0.024 in.)
    Width 7.5 mm (0.30 in.)

13. Set the rear window (A) in the opening, and center it. Make alignment marks (B) across the rear window and body with a grease pencil at the four points shown. Make sure the fasteners B (C) contact with the holes of the tailgate corner. Be careful no to touch the rear window where adhesive will be applied.
14. Remove the rear window.

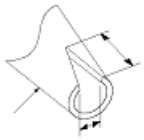
15. With a sponge, apply a light coat of glass primer around the edge of the rear window (A) and along the rubber dams (B) as shown, then lightly wipe it off with gauze or cheesecloth:
    - With the printed dots (C) on the rear window as a guide, apply the glass primer to both side portions of the rear window.
    - Do not apply body primer to the rear window, and do not get tailgate and glass primer sponges mixed up.
    - Never touch the primed surfaces with your hands. If you do, the adhesive may not bond to the rear window properly, causing a leak after the rear window is installed.
    - Keep water, dust, and abrasive materials away from the primed surfaces.



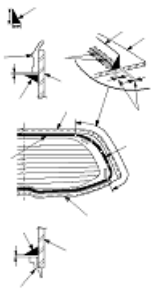
16. With a sponge, apply a light coat of body primer to any exposed paint or metal around the flange where new adhesive will be applied. Let the body primer dry for at least 10 minutes:
    - Do not apply body primer to any remaining original adhesive on the flange.
    - Be careful not to mix up the body and glass primer sponges.
    - Never touch the primed surfaces with your hands.



17. Cut a “V" in the end of the nozzle (A) on the adhesive cartridge as shown.



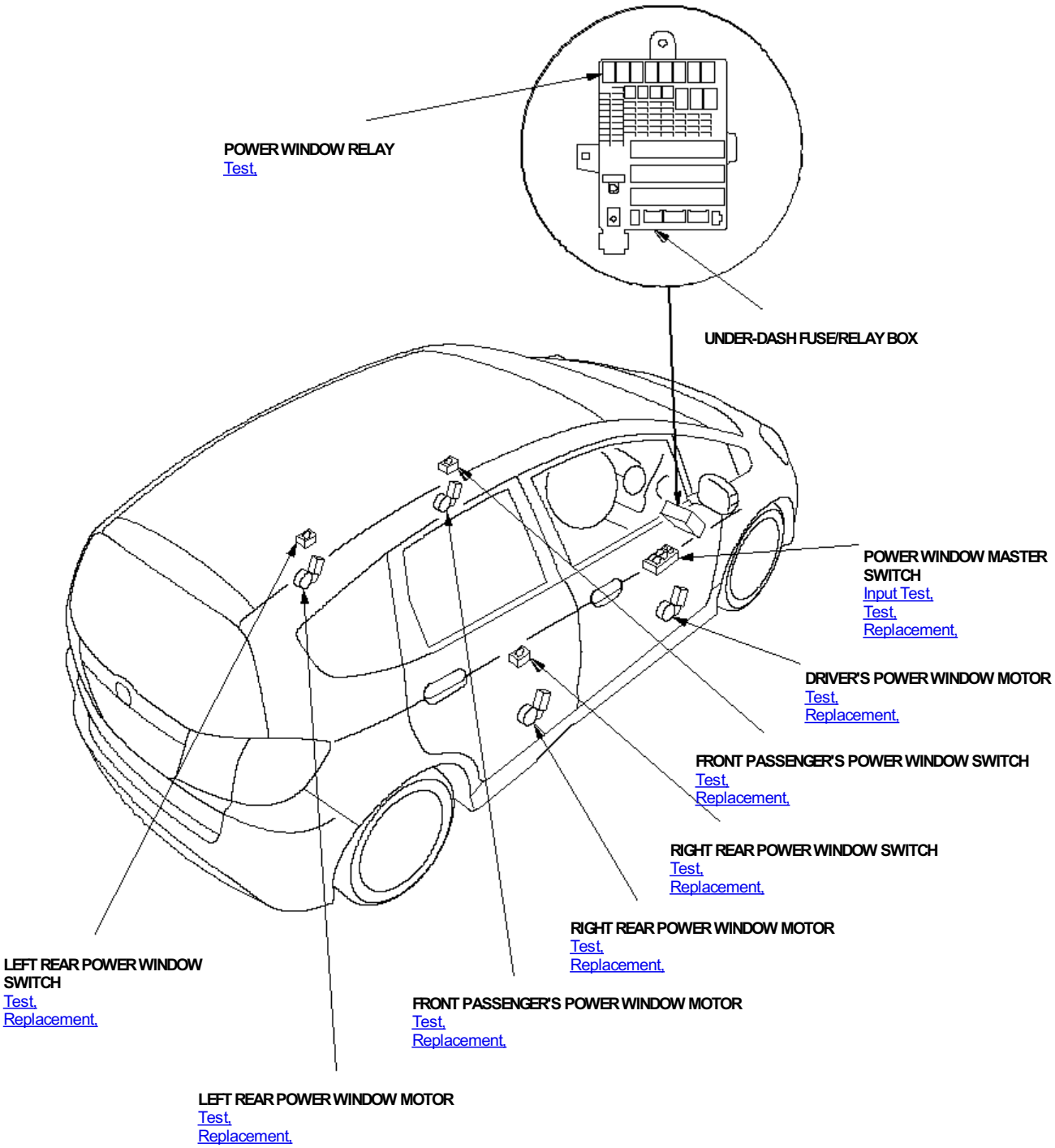
18. Pack adhesive into the cartridge without air pockets to ensure continuous delivery. Put the cartridge in a caulking gun, and run a bead of adhesive (A) around the edge of the rear window (B) and along the rubber dams (C) as shown:
    - With the printed dots (D) on the rear window as a guide, apply the adhesive to both side portions of the rear window.
    - Apply the adhesive within 30 minutes after applying the glass primer. Make a slightly thicker bead at each corner.
19. Use suction cups to hold the rear window over the opening, align it with the alignment marks you made in Step 14, and set it down on the adhesive. Lightly push on the rear window until its edges are fully seated on the adhesive all the way around.
    NOTE: Do not open or close any of the doors for about an hour until the adhesive is dry.
20. Scrape or wipe the excess adhesive off with a putty knife or towel. To remove adhesive from a painted surface or the rear window, use a soft shop towel dampened with isopropyl alcohol.
21. After the adhesive has dried, spray water over the rear window and check for leaks. Mark the leaking areas, let the rear window dry, then seal with sealant. Let the vehicle stand for at least 4 hours after rear window installation. If the vehicle has to be used within the first 4 hours, it must be driven slowly.
22. Reinstall all remaining removed parts.
    NOTE: Advise the customer not to do the following things for 2 to 3 days:
    - Slam the doors with all the windows rolled up.
    - Twist the body excessively (such as when going in and out of driveways at an angle or driving over rough, uneven roads).



Power Windows System Description

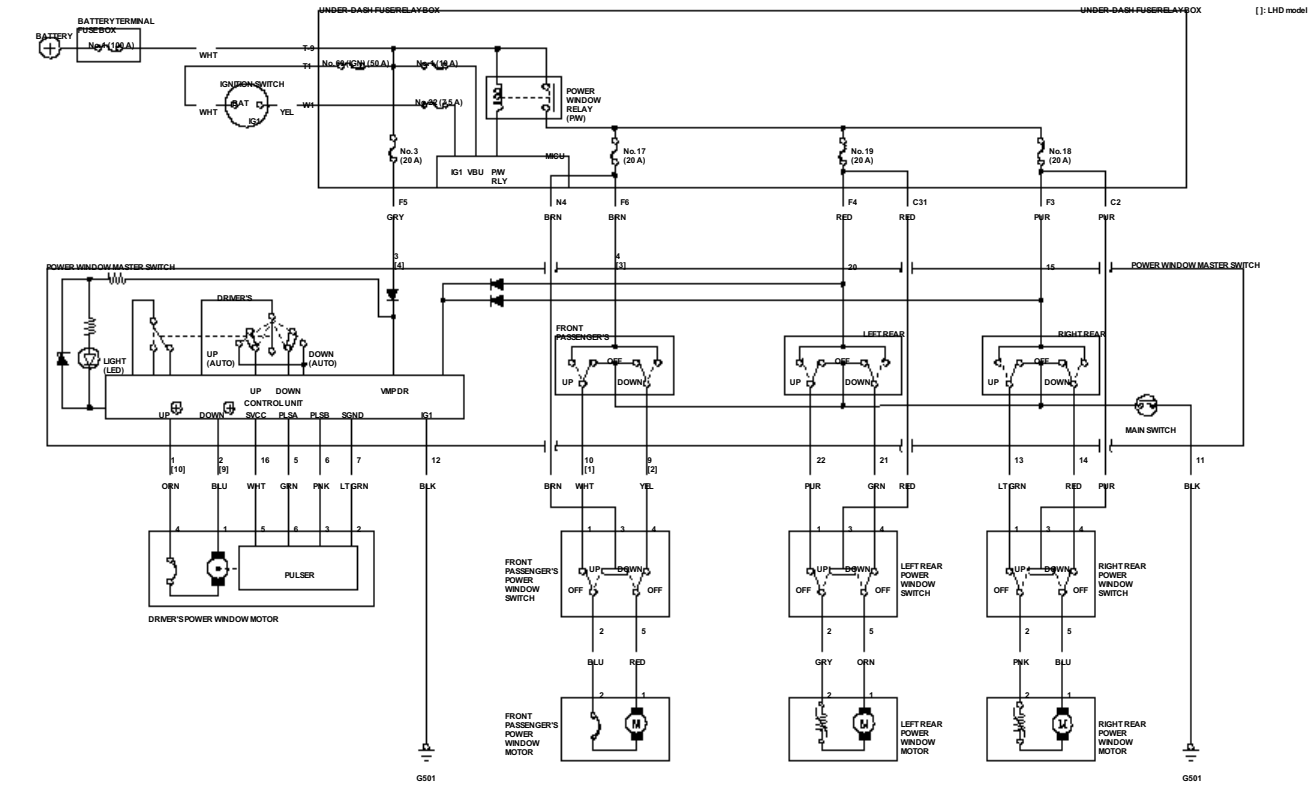
[Auto Reverse Operation]

Power Windows Component Location Index



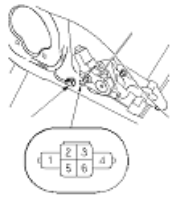
RHD model is shown, LHD model is similar.

Power Windows Circuit Diagram



Power Window Driver's Motor Test

1. Remove the door panel.
2. Disconnect the 6P (A) connector from the driver's power window motor.



Motor Test

3. Test the motor in each direction by connecting battery power and ground according to the table. When the motor stops running, disconnect one lead immediately.
4. If the motor does not run or fails to run smoothly, replace it.

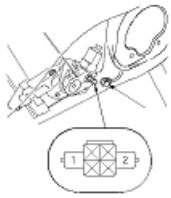
Pulser Test

5. Reconnect the 6P connector to the driver's power window motor.
6. Turn the ignition switch to ON (II).
7. Measure the voltage between the terminals.
   - There should be battery voltage between the No. 5 (+) and No. 2 (−) terminals.
   - Connect an analog voltmeter between the No. 6 (+) and No. 2 (−) terminals, and run the window motor down or up. The voltmeter needle should move back and forth alternately (a digital voltmeter reads about 2.5 V).
   - Connect an analog voltmeter between the No. 3 (+) and No. 2 (−) terminals, and run the window motor down or up. The voltmeter needle should move back and forth alternately (a digital voltmeter reads about 2.5 V).
8. If the voltage is not as specified, do the power window master switch input test for terminals No. 5, 6, 7, and 16.
9. If the switch is OK, replace the power window motor.
10. Reset the power window control unit.

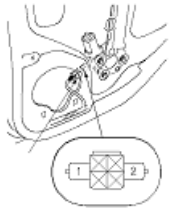
Power Window Passenger's Motor Test

1. Remove the door panel:
   - Front passenger's
   - Rear
2. Disconnect the 2P connector (A) from the power window motor.

Front passenger's



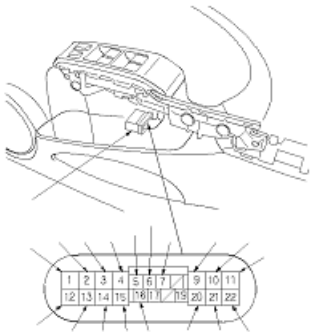
Rear



3. Test the motor by connecting battery power and ground according to the table. When the motor stops running, disconnect one lead immediately.
4. If the motor does not run or fails to run smoothly, replace it.

Power Window Master Switch Input Test

NOTE: The power window control unit is built into the power window master switch.



1. Remove the grip cover.
2. Disconnect the 22P connector (A) from the power window master switch.
3. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to Step 4 .
4. With the connector still disconnected, make these input tests at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to Step 5 .

   NOTE: Before testing, make sure the No. 1 (10 A), No. 22 (7.5 A), and No. 60 (50 A) fuse in the under-dash fuse/relay.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
3 [4]	GRY	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 3 (20 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
4 [3]	BRN	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 17 (20 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • Faulty power window relay (P/W) • Faulty MICU • An open in the wire
15	PUR	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 18 (20 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • Faulty power window relay (P/W) • Faulty MICU • An open in the wire
20	RED	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 19 (20 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • Faulty power window relay (P/W) • Faulty MICU • An open in the wire
11	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
12	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
9 [2]	YEL	Ignition switch ON (II)	Connect the No. 4 [No. 3] and the No. 9 [No. 2] terminals, and No. 10 [No. 1] and No. 11 terminals momentarily with jumper wires: The front passenger's window should go down.	• Blown No. 17 (20 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • Faulty front passenger's power window motor • Faulty front passenger's power window switch • Poor ground (G501) • An open in the wire
10 [1]	WHT	Ignition switch ON (II)	Connect the No. 4 [No. 3] and the No. 10 [No. 1] terminals, and No. 9 [No. 2] and No. 11 terminals momentarily with jumper wires: The front passenger's window should go up.	

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
13	LT GRN	Ignition switch ON (II)	Connect the No. 15 and the No. 13 terminals, and No. 14 and No. 11 terminals momentarily with jumper wires: The right rear window should go up.	• Blown No. 18 (20 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • Faulty right rear power window motor • Faulty right rear power window switch • Poor ground (G501) • An open in the wire
14	RED	Ignition switch ON (II)	Connect the No. 15 and the No. 14 terminals, and No. 13 and No. 11 terminals momentarily with jumper wires: The right rear window should go down.	

[ ]: LHD model

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
21	GRN	Ignition switch ON (II)	Connect the No. 20 and the No. 21 terminals, and No. 22 and No. 11 terminals momentarily with jumper wires: The left rear window should go down.	• Blown No. 19 (20 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • Faulty left rear power window motor • Faulty left rear power window switch • Poor ground (G501) • An open in the wire
22	PUR	Ignition switch ON (II)	Connect the No. 20 and the No. 22 terminals, and No. 21 and No. 11 terminals momentarily with jumper wires: The left rear window should go up.	
1 [10]	ORN	Connect the No. 3 [No. 4] and the No. 1 [No. 10] terminals, and No. 2 [No. 9] and No. 12 terminals momentarily with jumper wires	Check driver's power window motor operation: The driver's window should go up.	• Blown No. 3 (20 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • Faulty driver's power window motor • Poor ground (G501) • An open in the wire
2 [9]	BLU	Connect the No. 3 [No. 4] and the No. 2 [No. 9] terminals, and No. 1 [No. 10] and No. 12 terminals momentarily with jumper wires	Check driver's power window motor operation: The driver's window should go down.	

5. Reconnect the 22P connector to the power window master switch. Turn the ignition switch to ON (II), and make these input tests at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the control unit must be faulty; replace the power window master switch.

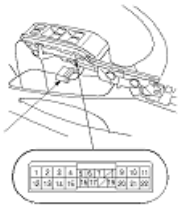
Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
7	LT GRN	Ignition switch ON (II)	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • Faulty power window master switch • An open in the wire
16	WHT	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Faulty power window master switch • A short to ground in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
5	GRN	Ignition switch ON (II), and driver's window switch moving up or down	Measure the voltage between the No. 5 and No. 7 terminals: There should be 0 V−about 5 V−0 V−about 5 V repeatedly (a digital voltmeter should reads about 2.5 V while the window moves).	• Faulty power window master switch • Faulty driver's power window motor • An open in the wire • A short to ground in the wire
6	PNK	Ignition switch ON (II), and driver's power window switch moving up or down	Measure the voltage between the No. 6 and No. 7 terminals: There should be 0 V−about 5 V−0 V−about 5 V repeatedly (a digital voltmeter should reads about 2.5 V while the window moves).	

[ ]: LHD model

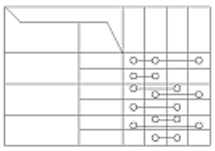
Power Window Master Switch Test

1. Remove the grip cover.
2. Disconnect the 22P connector (A) from the power window master switch.

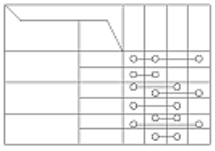


3. Check for continuity between the terminals in each switch position according to the tables.
   Driver's Switch
   The driver's switch is combined with the control unit so you cannot isolate the switch to test it. Instead, run the master switch input test procedures. If the tests are normal, the driver's switch must be faulty. Replace the switch.
4. If the continuity is not as specified, replace the switch.

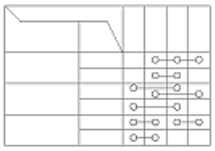
Front Passenger's Switch



Right Rear Switch

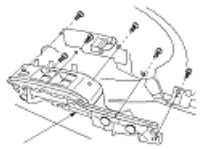


Left Rear Switch

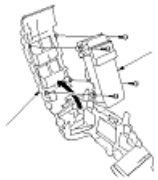


Power Window Master Switch Replacement

1. Remove the door panel.
2. Remove the screws and the grip base (A).



3. Open the switch panel (A) from the grip base.
4. Remove the screws and replace the power window master switch (B).
5. Install in the reverse order of removal.



Resetting the Power Window Control Unit (Master Switch)

Driver's Window Resetting and Learning

Resetting and learning the driver's window is required when any of the following have occurred:

- Power window master switch replacement

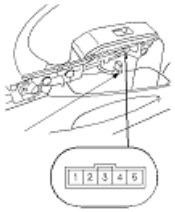
- Power window regulator replacement or repair
- Power window motor replacement or repair
- Window run channel replacement or repair
- Driver's door glass replacement or repair
- Power is removed from the power window control unit while the power window key-off operation timer is ON.

1. Turn the ignition switch to LOCK (0).
2. Press and hold the driver's window DOWN switch.
3. Turn the ignition switch to ON (II).
4. Release the driver's window DOWN switch.
5. Repeat Step 1 −4 three more times.
6. Check if the AUTO UP and AUTO DOWN functions still work.
   - If they still work, AUTO UP and AUTO DOWN functions have not been cleared; go back to Step 1 .
   - If they do not, go to Step 7 .
7. Turn the ignition switch to ON (II).
8. Move the driver's window all the way down by using the driver's window DOWN switch.
9. Pull up and hold the driver's window UP switch until the window reaches the fully closed position, then continue to hold the switch for 1 second.
10. Make sure that the power window control unit is reset and learned by using the driver's window AUTO UP and AUTO DOWN functions.

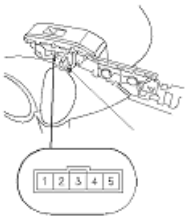
Power Window Passenger's Switch Test

1. Remove the grip cover:
   - Front passenger's
   - Rear
2. Disconnect the 5P connector (A) from the passenger's window switch.

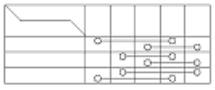
Front passenger's



Rear

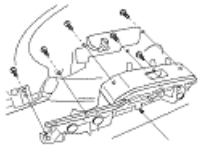


3. Check for continuity between the terminals in each switch position according to the table.
4. If the continuity is not as specified, replace switch.



Power Window Passenger's Switch Replacement

NOTE: The illustration shows front passenger's power window switch.

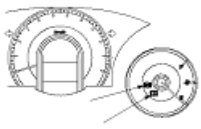


1. Remove the door panel:
   - Front passenger's
   - Rear
2. Remove the screws and the grip base (A).

3. Open the switch panel (A) from the grip base.
4. Remove the screws and replace the passenger's power window switch (B).
5. Install in the reverse order of removal.

How to Troubleshoot the ABS

System Indicator



This system has two indicators:

- ABS indicator (A)
- Brake system indicator (B)

When the system is OK, each indicator comes on for about 2 seconds after turning the ignition switch to ON (II), then goes off.
When the system detects a problem, a DTC will be set and, depending upon the failure, the ABS modulator-control unit will determine which indicator(s) will be turned on. If the problem goes away (system returns to normal), the indicator(s) will be controlled in the following way depending upon the DTC that was set:

- The indicator(s) will come on and stay on when the ignition switch is ON (II).
- The indicator(s) will automatically go off.
- The indicator(s) will go off after the vehicle is driven.

ABS Indicator

The ABS indicator comes on when the ABS function is lost. The brakes still work like a conventional system.

Brake System Indicator

The brake system indicator comes on when the EBD function is lost, the parking brake is applied, and/or the brake fluid level is low.
NOTE: If two or more wheel speed sensors fail, the brake system indicator will come on.

Diagnostic Trouble Code (DTC)

- The memory can hold all DTCs. However, when the same DTC is detected more than once, the more recent DTC is written over the earlier one. Therefore, when the same problem is detected repeatedly, it is memorized as a single DTC.
- The DTCs are indicated in the order they occur.
- The DTCs are memorized in the EEPROM. Therefore, the memorized DTCs cannot be erased by disconnecting the battery. Do the specified procedures to clear the DTCs.

Self-diagnosis

- Self-diagnosis can be classified into two categories:
  - Initial diagnosis: Done right after the ignition switch is turned to ON (II) and until the ABS indicator goes off.
  - Regular diagnosis: Done right after the initial diagnosis until the ignition switch is turned to LOCK (0).
- When the system detects a problem, the ABS modulator-control unit shifts to fail-safe mode.

Kickback

The pump motor operates when the ABS modulator-control unit is functioning, and the fluid in the reservoir is forced out to the master cylinder, causing kickback at the brake pedal.

Pump Motor

- The pump motor operates when the ABS modulator-control unit is functioning.
- The ABS modulator-control unit checks the pump motor operation one time after completing initial diagnosis during regular diagnosis when the vehicle is driven over 15 km/h (10 mph).

Brake Fluid Replacement/Air Bleeding

Brake fluid replacement and air bleeding procedures are identical to the procedures used on vehicles without the ABS.

How to Troubleshoot DTCs

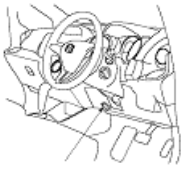
The troubleshooting procedures assume that the cause of the problem is still present and the ABS indicator is still on. Following a troubleshooting procedure for a code that has been cleared but does not reset can result in incorrect diagnosis.

1. Question the customer about the conditions when the problem occurred, and try to reproduce the same conditions for troubleshooting. Find out when the ABS indicator came on, such as during activation, after activation, when the vehicle was traveling at a certain speed, etc. If necessary, have the customer demonstrate the concern.
2. When the ABS indicator does not come on during the test-drive, but troubleshooting is done based on the DTC, check for loose connectors, poor contact of the terminals, etc. before you start troubleshooting.
3. After troubleshooting, or the repairs are done, clear the DTCs, and test-drive the vehicle under the same conditions that originally set the DTCs. Make sure the ABS indicator does not come on.
4. Check for DTCs from other systems which connected via F-CAN. If there are DTCs that are related to F-CAN, the most likely cause was that the ignition switch was turned to ON (II) with the ABS modulator-control unit connector disconnected. Clear the DTCs. Check for fuel and emissions, and ABS codes, first. Be sure to troubleshoot those first.

Intermittent Failures

The term ‘‘intermittent failure" means a system may have had a failure, but it checks OK now. If the indicator(s) of the system does not come on, check for loose connectors or poor contacts in the terminals related to the circuit that you are troubleshooting.

How to Use the HDS (Honda Diagnostic System)



1. If the system indicators stay on, connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the ABS modulator-control unit. If it doesn't, troubleshoot the DLC circuit.
4. Check the diagnostic trouble code (DTC) and note it. Then refer to the indicated DTC's troubleshooting, and do the appropriate troubleshooting procedure.
   NOTE:
   - The HDS communication will be stopped when the vehicle speed is at 50 km/h (31 mph) or more.
   - The HDS can read the DTC, the current data, and other system data.
   - For specific operations, refer to the Help menu that came with the HDS.

How to Retrieve DTCs

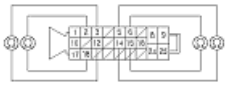
1. With the ignition switch in LOCK (0), connect the HDS to the data link connector (DLC) under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the ABS modulator-control unit. If it doesn't, troubleshoot the DLC circuit.
4. Follow the prompts on the HDS to display the DTC(s) on the screen. After determining the DTC, refer to the DTC troubleshooting.
5. Turn the ignition switch to LOCK (0).

How to Clear DTCs

1. With the ignition switch in LOCK (0), connect the HDS to the data link connector (DLC) under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the ABS modulator-control unit. If it doesn't, troubleshoot the DLC circuit.
4. Clear the DTC(s) by following the screen prompts on the HDS.
5. Turn the ignition switch to LOCK (0).

ABS DTC Troubleshooting: 11-13, 13-13, 15-13, 17-13

DTC 11-13:
Right-front Wheel Speed Sensor Circuit Malfunction
DTC 13-13:
Left-front Wheel Speed Sensor Circuit Malfunction
DTC 15-13:
Right-rear Wheel Speed Sensor Circuit Malfunction
DTC 17-13:
Left-rear Wheel Speed Sensor Circuit Malfunction



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

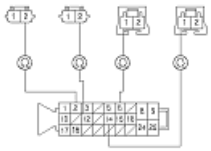
   Is DTC 11-13, 13-13, 15-13, and/or 17-13 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose terminals between the wheel speed sensor 2P connector and the ABS modulator-control unit 25P connector. Refer to intermittent failures troubleshooting. ■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the ABS modulator-control unit 25P connector.
7. Disconnect the wheel speed sensor 2P connector.
8. Check for continuity between the appropriate ABS modulator-control unit 25P connector wheel speed sensor +B and GND terminals (see table).

DTC	ABS Modulator-control Unit 25P Connector Terminal	
11-13	No. 2	No. 18
13-13	No. 12	No. 3
15-13	No. 6	No. 15
17-13	No. 14	No. 5

   Is there continuity?
   YES - Repair short in the wires between the appropriate wheel speed sensor and the ABS modulator-control unit.■
   NO - Go to Step 9 .

9. Check for continuity between the appropriate ABS modulator-control unit 25P connector terminal and the wheel speed sensor 2P connector terminal.

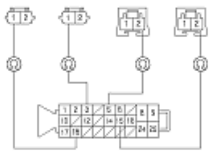
DTC	ABS Modulator-control Unit 25P Connector	Appropriate Wheel Speed Sensor
11-13	No. 2	Right-front
13-13	No. 12	Left-front
15-13	No. 6	Right-rear
17-13	No. 14	Left-rear



   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wire between the appropriate wheel speed sensor and the ABS modulator-control unit.■

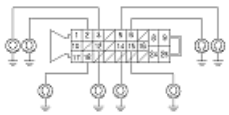
10. Check for continuity between the appropriate ABS modulator-control unit 25P connector terminal and the wheel speed sensor 2P connector terminal.

DTC	ABS Modulator-control Unit 25P Connector	Appropriate Wheel Speed Sensor
11-13	No. 18	Right-front
13-13	No. 3	Left-front
15-13	No. 15	Right-rear
17-13	No. 5	Left-rear



   Is there continuity?
   YES - Go to Step 11 .
   NO - Repair open in the wire between the appropriate wheel speed sensor and the ABS modulator-control unit.■

11. Check for continuity between body ground and the appropriate ABS modulator-control unit 25P connector terminal (see table).



DTC	ABS Modulator-control Unit 25P Connector Terminal	
11-13	No. 2	No. 18
13-13	No. 12	No. 3
15-13	No. 6	No. 15
17-13	No. 14	No. 5

Is there continuity?

YES - Repair short to body ground in the wire between the appropriate wheel speed sensor and the ABS modulator-control unit.■

NO - Go to Step 12 .

12. Turn the ignition switch to ON (II).

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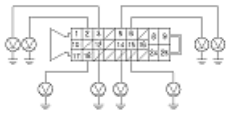
13. Measure the voltage between body ground and the appropriate ABS modulator-control unit 25P connector terminal (see table).



DTC	ABS Modulator-control Unit 25P Connector Terminal	
11-13	No. 2	No. 18
13-13	No. 12	No. 3
15-13	No. 6	No. 15
17-13	No. 14	No. 5

Is there 0.1 V or more?

YES - Repair short to power in the wire between the appropriate wheel speed sensor and the ABS modulator-control unit.■

NO - Go to Step 14 .

14. Turn the ignition switch to LOCK (0).
15. Substitute the appropriate sensor with oppsite wheel speed sensor, or with a known-good wheel speed sensor.
16. Reconnect all connectors.
17. Turn the ignition switch to ON (II).
18. Clear the DTC with the HDS.
19. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
20. Check for DTCs with the HDS.

Is DTC indicated that is indicated in Step 4 ?

YES - Check for loose terminals in the ABS modulator-control unit 25P connector. If necessary, substitute a known-good ABS modulator-control unit, and retest.■

NO - Replace the original wheel speed sensor. ■

ABS DTC Troubleshooting: 12-11, 14-11, 16-11, 18-11

DTC 12-11:
Right-front Wheel Speed Sensor Electrical Noise or Intermittent Interruption
DTC 14-11:
Left-front Wheel Speed Sensor Electrical Noise or Intermittent Interruption
DTC 16-11:
Right-rear Wheel Speed Sensor Electrical Noise or Intermittent Interruption
DTC 18-11:
Left-rear Wheel Speed Sensor Electrical Noise or Intermittent Interruption
NOTE: These DTCs may be caused by electrical interference. Check for aftermarket devices installed in the vehicle when these DTCs are indicated.

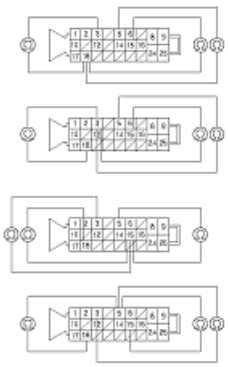
1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.
4. Check for DTCs with the HDS.

   Is DTC 12-11, 14-11, 16-11, and/or 18-11 indicated?
   YES - If the DTC 12-12, 14-12, 16-12, or 18-12 is indicated at the same time, do the DTC 12-12, 14-12, 16-12, or 18-12 troubleshooting. If DTC 12-12, 14-12, 16-12, or 18-12 is not indicated, go to Step 5 .
   NO - If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time. Check for loose terminals between the wheel speed sensor 2P connector and the ABS modulator-control unit 25P connector. Refer to intermittent failures troubleshooting.
5. Turn the ignition switch to LOCK (0).
6. Check that the appropriate wheel speed sensor is properly mounted.

DTC	Appropriate Wheel Speed Sensor
12-11	Right-front
14-11	Left-front
16-11	Right-rear
18-11	Left-rear

   Is the wheel speed sensor installation OK?
   YES - Check for loose terminals in the ABS modulator-control unit 25P connector. If necessary, substitute a known-good ABS modulator-control unit, and retest.■
   NO - Reinstall the wheel speed sensor, and check the mounting position. ■

ABS DTC Troubleshooting: 12-12, 14-12, 16-12, 18-12



DTC 12-12:
Right-front Wheel Speed Sensor Short to the Other Sensor Circuit
DTC 14-12:
Left-front Wheel Speed Sensor Short to the Other Sensor Circuit
DTC 16-12:
Right-rear Wheel Speed Sensor Short to the Other Sensor Circuit
DTC 18-12:
Left-rear Wheel Speed Sensor Short to the Other Sensor Circuit

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle. Drive the vehicle at 20 km/h (13 mph) or more, and go a distance of 100 m (328 ft) or more.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.
4. Check for DTCs with the HDS.

   Is DTC 12-12, 14-12, 16-12, and/or 18-12 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose terminals between the wheel speed sensor 2P connector and the ABS modulator-control unit 25P connector. Refer to intermittent failures troubleshooting. ■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the ABS modulator-control unit 25P connector.
7. Check for continuity between the appropriate ABS modulator-control unit 25P connector wheel speed sensor GND terminals (see table).

DTC	ABS Modulator-control Unit 25PConnector Terminal			
	AppropriateTerminal	Other Terminals		
12-12	No. 18	No. 3	No. 15	No. 5
14-12	No. 3	No. 18	No. 15	No. 5
16-12	No. 15	No. 18	No. 3	No. 5
18-12	No. 5	No. 18	No. 3	No. 15

   Is there continuity?
   YES - Repair short in the wires between the appropriate wheel speed sensor and the ABS modulator-control unit.■
   NO - Check for loose terminals in the ABS modulator-control unit 25P connector. If necessary, substitute a known-good ABS modulator-control unit, and retest.■

ABS DTC Troubleshooting: 12-21, 14-21, 16-21, 18-21

DTC 12-21:
Right-front Wheel Speed Sensor Installation Error
DTC 14-21:
Left-front Wheel Speed Sensor Installation Error
DTC 16-21:
Right-rear Wheel Speed Sensor Installation Error
DTC 18-21:
Left-rear Wheel Speed Sensor Installation Error

1. Test-drive the vehicle. Drive the vehicle at 10 km/h (7 mph) or more.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.

2. Check the RF, LF, RR, LR WHEEL SPD in the ABS DATA LIST with the HDS.

   Are all four values the same?
   YES - Intermittent failure, the system is OK at this time. Check for loose terminals between the wheel speed sensor 2P connector and the ABS modulator-control unit 25P connector. Refer to intermittent failures troubleshooting. ■
   NO - Go to Step 3 .

3. Turn the ignition switch to LOCK (0).

4. Check that the appropriate wheel speed sensor is properly mounted.

DTC	Appropriate Wheel Speed Sensor
12-21	Right-front
14-21	Left-front
16-21	Right-rear
18-21	Left-rear

   Is the wheel speed sensor installation OK?
   YES - Replace the appropriate wheel speed sensor. ■
   NO - Reinstall the wheel speed sensor, and check the mounting position. ■

ABS DTC Troubleshooting: 12-22, 14-22, 16-22, 18-22

DTC 12-22:
Right-front Wheel Speed Sensor Installation Error (30 km/h (19 mph) or More)
DTC 14-22:
Left-front Wheel Speed Sensor Installation Error (30 km/h (19 mph) or More)
DTC 16-22:
Right-rear Wheel Speed Sensor Installation Error (30 km/h (19 mph) or More)
DTC 18-22:
Left-rear Wheel Speed Sensor Installation Error (30 km/h (19 mph) or More)

1. Test-drive the vehicle. Drive the vehicle between 30 km/h (19 mph) and 50 km/h (31 mph) for 70 seconds or more.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.

2. Check the RF, LF, RR, LR WHEEL SPD in the ABS DATA LIST with the HDS.

   Are all four values the same?
   YES - Intermittent failure, the system is OK at this time. Check for loose terminals between the wheel speed sensor 2P connector and the ABS modulator-control unit 25P connector. Refer to intermittent failures troubleshooting. ■
   NO - Go to Step 3 .

3. Turn the ignition switch to LOCK (0).

4. Check that the appropriate wheel speed sensor is properly mounted.

DTC	Appropriate Wheel Speed Sensor
12-22	Right-front
14-22	Left-front
16-22	Right-rear
18-22	Left-rear

   Is the wheel speed sensor installation OK?
   YES - Replace the appropriate wheel speed sensor. ■
   NO - Reinstall the wheel speed sensor, and check the mounting position. ■

ABS DTC Troubleshooting: 12-23, 14-23, 16-23, 18-23

DTC 12-23:
Right-front Wheel Speed Sensor Installation Error (0 to 15 km/h (0 to 9 mph))
DTC 14-23:
Left-front Wheel Speed Sensor Installation Error (0 to 15 km/h (0 to 9 mph))
DTC 16-23:
Right-rear Wheel Speed Sensor Installation Error (0 to 15 km/h (0 to 9 mph))
DTC 18-23:
Left-rear Wheel Speed Sensor Installation Error (0 to 15 km/h (0 to 9 mph))

1. Test-drive the vehicle. Drive the vehicle between 1 km/h (1 mph) and 15 km/h (9 mph).
   NOTE: Drive the vehicle on a straight section of road, not on a lift.

2. Check the RF, LF, RR, LR WHEEL SPD in the ABS DATA LIST with the HDS.

   Are all four values the same?
   YES - Intermittent failure, the system is OK at this time. Check for loose terminals between the wheel speed sensor 2P connector and the ABS modulator-control unit 25P connector. Refer to intermittent failures troubleshooting. ■
   NO - Go to Step 3 .

3. Turn the ignition switch to LOCK (0).

4. Check that the appropriate wheel speed sensor is properly mounted.

DTC	Appropriate Wheel Speed Sensor
12-23	Right-front
14-23	Left-front
16-23	Right-rear
18-23	Left-rear

   Is the wheel speed sensor installation OK?
   YES - Replace the appropriate wheel speed sensor. ■
   NO - Reinstall the wheel speed sensor, and check the mounting position. ■

ABS DTC Troubleshooting: 21-11, 22-11, 23-11, 24-11

DTC 21-11:
Right-front Magnetic Encoder Malfunction (Pulse Missing)
DTC 22-11:
Left-front Magnetic Encoder Malfunction (Pulse Missing)
DTC 23-11:
Right-rear Magnetic Encoder Malfunction (Pulse Missing)
DTC 24-11:
Left-rear Magnetic Encoder Malfunction (Pulse Missing)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle. Drive the vehicle at 20 km/h (13 mph) or more, and go a distance of 100 m (328 ft) or more.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.
4. Check for DTCs with the HDS.

   Is DTC 21-11, 22-11, 23-11, and/or 24-11 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose terminals between the wheel speed sensor 2P connector and the ABS modulator-control unit 25P connector. Refer to intermittent failures troubleshooting. ■
5. Turn the ignition switch to LOCK (0).
6. Inspect the appropriate magnetic encoder for dirt or debris.

DTC	AppropriateMagneticEncoder	Note
21-11	Right-front	Remove the driveshaft outboard joint from the appropriate wheel hub.
22-11	Left-front	
23-11	Right-rear	Remove the hub bearing unit.
24-11	Left-rear	

   Is the magnetic encoder surface OK?
   YES - Replace the wheel bearing (front) or the hub bearing unit (rear):■

   - Front: Replace the front wheel bearing.
   - Rear: Replace the hub bearing unit.

   NO - Clean off dust or dirt from the appropriate magnetic encoder surface on the wheel bearing or the hub bearing unit, then go to Step 1 and recheck. If the DTC is still present, replace the appropriate wheel bearing or hub bearing unit.

ABS DTC Troubleshooting: 31-xx, 32-xx, 33-xx, 34-xx, 35-xx, 36-xx, 37-xx, 38-xx

DTC 31-xx *:
ABS Right-front Inlet Solenoid Valve Malfunction
DTC 32-xx *:
ABS Right-front Outlet Solenoid Valve Malfunction
DTC 33-xx *:
ABS Left-front Inlet Solenoid Valve Malfunction
DTC 34-xx *:
ABS Left-front Outlet Solenoid Valve Malfunction
DTC 35-xx *:
ABS Right-rear Inlet Solenoid Valve Malfunction
DTC 36-xx *:
ABS Right-rear Outlet Solenoid Valve Malfunction
DTC 37-xx *:
ABS Left-rear Inlet Solenoid Valve Malfunction
DTC 38-xx *:
ABS Left-rear Outlet Solenoid Valve Malfunction
*: Any two-character subcode (see table).

Subcode	Malfunction	Note (DTC)
01	Solenoid Initial Pulse	31-01, 32-01, 33-01, 34-01, 35-01, 36-01, 37-01, 38-01
21	Solenoid Pulse	31-21, 32-21, 33-21, 34-21, 35-21, 36-21, 37-21, 38-21
22	Solenoid Speculative	31-22, 32-22, 33-22, 34-22, 35-22, 36-22, 37-22, 38-22
23	Solenoid Stuck ON	31-23, 32-23, 33-23, 34-23, 35-23, 36-23, 37-23, 38-23

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

Is DTC 31-xx, 32-xx, 33-xx, 34-xx, 35-xx, 36-xx, 37-xx, or 38-xx indicated?
YES - Replace the ABS modulator-control unit. ■
NO - Intermittent failure, the system is OK at this time.■

ABS DTC Troubleshooting: 41-21, 42-21, 43-21, 44-21

DTC 41-21:
Right-front Wheel Lock
DTC 42-21:
Left-front Wheel Lock
DTC 43-21:
Right-rear Wheel Lock
DTC 44-21:
Left-rear Wheel Lock
The DTCs may be indicated under these conditions:

- The vehicle goes into a spin.
- The ABS continues to operate for a long time.
- Snow, dirt, or debris build-up on the wheel speed sensor or magnetic encoder.
- Misadjusted brake switch.
- Contaminated brake fluid.

1. Raise the vehicle, and support it with safety stands in the proper locations.
2. Turn the appropriate wheel by hand.

DTC	Appropriate Wheel
41-21	Right-front
42-21	Left-front
43-21	Right-rear
44-21	Left-rear

Is there brake drag?
YES - Repair the brake drag.■
NO - Go to Step 3 .

3. Check that the appropriate wheel speed sensor is properly mounted.

Is the wheel speed sensor installation OK?
YES - Go to Step 4 .
NO - Reinstall the wheel speed sensor, and check the mounting position. ■

4. Turn the ignition switch to ON (II).
5. Clear the DTC with the HDS.
6. Turn the ignition switch to LOCK (0).
7. Test-drive the vehicle. Drive the vehicle at 10 km/h (7 mph) for 20 seconds or more.
NOTE: Drive the vehicle on a straight section of road, not on a lift.
8. Check for DTCs with the HDS.

Is DTC 41-21, 42-21, 43-21, or 44-21 indicated?
YES - Check for loose terminals between the wheel speed sensor 2P connector and the ABS modulator-control unit 25P connector. If necessary, substitute a known-good ABS modulator-control unit, and retest.■
NO - If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time.■

ABS DTC Troubleshooting: 51-11, 51-13

DTC 51-11:
Motor Lock
DTC 51-13:
Motor Drive Circuit Malfunction

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Wait 5 seconds.
5. Operate any one of the four solenoids, as listed, in the ABS FUNCTION TEST five times with the HDS.

-LFT FT SOLENOID
-RT FT SOLENOID
-LFT REAR SOLENOID
-RT REAR SOLENOID

6. Check for DTCs with the HDS.

Is DTC 51-11 or 51-13 indicated?
YES - Replace the ABS modulator-control unit. ■
NO - Intermittent failure, the system is OK at this time.■

ABS DTC Troubleshooting: 51-12

DTC 51-12:
Motor Drive Circuit Malfunction

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 51-12 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose terminals at the ABS modulator-control unit 25P connector. Refer to intermittent failures troubleshooting. ■
5. Turn the ignition switch to LOCK (0).
6. Check the No. 58 (30 A) fuse in the under-dash fuse/relay box.

   Is the fuse blown?
   YES - Go to Step 7 .
   NO - Reinstall the checked fuse, then go to Step 14 .
7. Disconnect the ABS modulator-control unit 25P connector.
8. Check for continuity between ABS modulator-control unit 25P connector terminal No. 9 and body ground.

   Is there continuity?
   YES - Repair short to body ground in the wire between the No. 58 (30 A) fuse in the under-dash fuse/relay box and the ABS modulator-control unit.■
   NO - Install a new No. 58 (30 A) fuse in the under-dash fuse/relay box, then go to Step 9 .
9. Reconnect the ABS modulator-control unit 25P connector.
10. Turn the ignition switch to ON (II).
11. Clear the DTC with the HDS.
12. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
13. Check for DTCs with the HDS.

    Is DTC 51-12 indicated?
    YES - Replace the ABS modulator-control unit. ■
    NO - The system is OK at this time.■
14. Disconnect the ABS modulator-control unit 25P connector.

---

15. Measure the voltage between ABS modulator-control unit 25P connector terminal No. 9 and body ground.

    Is there battery voltage?
    YES - Check for loose terminals in the ABS modulator-control unit 25P connector. If necessary, substitute a known-good ABS modulator-control unit, and retest.■
    NO - Repair open in the wire between the No. 58 (30 A) fuse in the under-dash fuse/relay box and the ABS modulator-control unit.■

ABS DTC Troubleshooting: 52-12

DTC 52-12:
Motor Stuck OFF

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Operate any one of the four solenoids, as listed, in the ABS FUNCTION TEST five times with the HDS.

-LFT FT SOLENOID
-RT FT SOLENOID
-LFT REAR SOLENOID
-RT REAR SOLENOID

5. Check for DTCs with the HDS.

Is DTC 52-12 indicated?
YES - Replace the ABS modulator-control unit. ■
NO - Intermittent failure, the system is OK at this time.■

ABS DTC Troubleshooting: 53-01, 53-12

DTC 53-01:
Motor Relay Stuck ON 1
DTC 53-12:
Motor Relay Stuck ON 2

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 53-01 or 53-12 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose terminals at the ABS modulator-control unit 25P connector. Refer to intermittent failures troubleshooting. ■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the ABS modulator-control unit 25P connector.
7. Check for continuity between ABS modulator-control unit 25P connector terminal No. 25 and body ground.

   Is there continuity?
   YES - Check for loose terminals in the ABS modulator-control unit 25P connector. If necessary, substitute a known-good ABS modulator-control unit, and retest.■
   NO -
   - RHD model: Repair open in the wire between the ABS modulator-control unit and body ground (G203).■
   - LHD model: Repair open in the wire between the ABS modulator-control unit and body ground (G402).■

ABS DTC Troubleshooting: 54-03

DTC 54-03:
Fail-safe Relay 1 Stuck ON

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

Is DTC 54-03 indicated?
YES - Replace the ABS modulator-control unit. ■
NO - Intermittent failure, the system is OK at this time.■

ABS DTC Troubleshooting: 54-04, 54-21

DTC 54-04:
Fail-safe Relay 1 Stuck OFF (Initial)
DTC 54-21:
Fail-safe Relay 1 Stuck OFF (Main)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 54-04 or 54-21 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose terminals at the ABS modulator-control unit 25P connector. Refer to intermittent failures troubleshooting. ■
5. Turn the ignition switch to LOCK (0).
6. Check the No. 37 (30 A) fuse in the under-dash fuse/relay box.

   Is the fuse blown?
   YES - Go to Step 7 .
   NO - Reinstall the checked fuse, then go to Step 14 .
7. Disconnect the ABS modulator-control unit 25P connector.
8. Check for continuity between ABS modulator-control unit 25P connector terminal No. 8 and body ground.

   Is there continuity?
   YES - Repair short to body ground in the wire between the No. 37 (30 A) fuse in the under-dash fuse/relay box and the ABS modulator-control unit.■
   NO - Install a new No. 37 (30 A) fuse in the under-dash fuse/relay box, then go to Step 9 .
9. Reconnect the ABS modulator-control unit 25P connector.
10. Turn the ignition switch to ON (II).
11. Clear the DTC with the HDS.
12. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
13. Check for DTCs with the HDS.

    Is DTC 54-04 or 54-21 indicated?
    YES - Replace the ABS modulator-control unit. ■
    NO - The system is OK at this time.■
14. Disconnect the ABS modulator-control unit 25P connector.

---

15. Measure the voltage between ABS modulator-control unit 25P connector terminal No. 8 and body ground.

    Is there battery voltage?
    YES - Check for loose terminals in the ABS modulator-control unit 25P connector. If necessary, substitute a known-good ABS modulator-control unit, and retest.■
    NO - Repair open in the wire between the No. 37 (30 A) fuse in the under-dash fuse/relay box and the ABS modulator-control unit.■

ABS DTC Troubleshooting: 61-01, 61-21, 61-22, 61-23

DTC 61-01:
ABS Modulator-control Unit Initial IG Low Voltage
DTC 61-21:
ABS Modulator-control Unit Power Source Low Voltage 1
DTC 61-22:
ABS Modulator-control Unit Power Source Low Voltage 2
DTC 61-23:
ABS Modulator-control Unit Power Source Low Voltage 3

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then start the engine.
4. Check for DTCs with the HDS.

   Is DTC 61-01, 61-21, 61-22, or 61-23 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose terminals at the ABS modulator-control unit 25P connector. Refer to intermittent failures troubleshooting. ■
5. Check and note BATTERY voltage in the ABS DATA LIST with the HDS.
6. Using a voltmeter, measure and note the voltage between the battery terminals.
   NOTE: If the voltage is below 9.5 V, check the battery, and troubleshoot the alternator regulator circuit.
7. Compare the voltage noted in Step 5 to the voltage in Step 6 .

   Is the difference between the two voltage readings less then 3 V?
   YES - Intermittent failure, the system is OK at this time. Check for loose terminals at the ABS modulator-control unit 25P connector. Refer to intermittent failures troubleshooting. If the code resets after clearing, replace the ABS modulator-control unit. ■
   NO - Check for loose terminals in the ABS modulator-control unit 25P connector. If necessary, substitute a known-good ABS modulator-control unit, and retest.■

ABS DTC Troubleshooting: 62-21

DTC 62-21:
ABS Modulator-control Unit IG High Voltage

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then start the engine.
4. Check for DTCs with the HDS.

   Is DTC 62-21 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Check and note BATTERY voltage in the ABS DATA LIST with the HDS.
6. Using a voltmeter, measure and note the voltage between the battery terminals.
   NOTE: If the voltage is beyond 15.1 V, troubleshoot the alternator regulator circuit.
7. Compare the voltage noted in Step 5 to the voltage in Step 6 .

   Is the difference between the two voltage readings less than 3 V?
   YES - Intermittent failure, the system is OK at this time. Check for loose terminals at the ABS modulator-control unit 25P connector. Refer to intermittent failures troubleshooting. If the code resets after clearing, replace the ABS modulator-control unit. ■
   NO - Replace the ABS modulator-control unit, and retest.■

ABS DTC Troubleshooting: 71-21, 71-22, 71-23, 71-24, 71-25, 71-26

DTC 71-21:
Right-front or Left-rear Different Diameter Tyre Malfunction
DTC 71-22:
Left-front or Right-rear Different Diameter Tyre Malfunction
DTC 71-23:
Right-front and Right-rear Different Diameter Tyre Malfunction
DTC 71-24:
Left-front and Left-rear Different Diameter Tyre Malfunction
DTC 71-25:
Right-front and Left-front Different Diameter Tyre Malfunction
DTC 71-26:
Right-rear and Left-rear Different Diameter Tyre Malfunction
NOTE: The DTC will be indicated when the vehicle has a different diameter tyre(s) compared to the other tyre(s).

DTC	Sectional	Note
71-21	Right-front or left-rear	
71-22	Left-front or right-rear	
71-23	Right-front and right-rear	
71-24	Left-front and left-rear	
71-25	Right-front and left-front	
71-26	Right-rear and left-rear	

1. Check the tyres for proper inflation.
2. Turn the ignition switch to ON (II).
3. Clear the DTC with the HDS.
4. Turn the ignition switch to LOCK (0).
5. Test-drive the vehicle.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.
6. Check for DTCs with the HDS.

   Is DTC 71-21, 71-22, 71-23, 71-24, 71-25, or 71-26 indicated?
   YES - Replace tyres as needed until all their diameters much.■
   NO - Intermittent failure, the system is OK at this time.■

ABS DTC Troubleshooting: 81-11, 81-51, 81-52

DTC 81-11:
Central Processing Unit (CPU) Internal Circuit Malfunction
DTC 81-51:
Central Processing Unit (CPU) Internal Circuit Malfunction
DTC 81-52:
Central Processing Unit (CPU) Internal Circuit Malfunction

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.
5. Check for DTCs with the HDS.

   Is DTC 81-11, 81-51, or 81-52 indicated?
   YES - Replace the ABS modulator-control unit. ■
   NO - Intermittent failure, the system is OK at this time.■

ABS DTC Troubleshooting: 81-xx

DTC 81-xx * :
Central Processing Unit (CPU) Internal Circuit Malfunction
*: Any two-character subcode (Except these combinations: DTC 81-11, 81-51, and 81-52).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

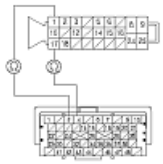
Is DTC 81-xx indicated?

YES - If the DTC 81-11, 81-51, or 81-52 is indicated at the same time, do the DTC 81-11, 81-51, or 81-52 troubleshooting. If DTC 81-11, 81-51, or 81-52 is not indicated, replace the ABS modulator-control unit, and retest.■

NO - Intermittent failure, the system is OK at this time.■

ABS DTC Troubleshooting: 86-01

DTC 86-01:
F-CAN Bus-off Malfunction



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

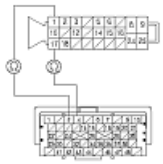
   Is DTC 86-01 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose terminals between ECM/PCM connector A (49P) and the ABS modulator-control unit 25P connector. Refer to intermittent failures troubleshooting. ■
5. Turn the ignition switch to LOCK (0).
6. Short the SCS line with the HDS.
7. Disconnect ECM/PCM connector A (49P).
8. Disconnect the ABS modulator-control unit 25P connector.
9. Check for continuity between the ABS modulator-control unit 25P connector terminal and ECM/PCM connector A (49P) terminal (see table).

Sign	ABS Modulator-control Unit 25P Connector Terminal	ECM/PCM Connector A (49P) Terminal
CAN-L	No. 17	No. 4
CAN-H	No. 1	No. 3

   Is there continuity?
   YES - Check for loose terminals in the ABS modulator-control unit 25P connector. If necessary, substitute a known-good ABS modulator-control unit, and retest.■
   NO - Repair open in the wire between the ECM/PCM and the ABS modulator-control unit.■

ABS DTC Troubleshooting: 86-24, 86-25

DTC 86-24:
F-CAN Communication with Engine Malfunction
DTC 86-25:
F-CAN Communication with Engine Malfunction



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle. Drive the vehicle at 10 km/h (7 mph) or more.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.
4. Check for DTCs with the HDS.

   Is DTC 86-24 and/or 86-25 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose terminals between ECM/PCM connector A (49P) and the ABS modulator-control unit 25P connector. Refer to intermittent failures troubleshooting. ■
5. Turn the ignition switch to LOCK (0).
6. Short the SCS line with the HDS.
7. Disconnect ECM/PCM connector A (49P).
8. Disconnect the ABS modulator-control unit 25P connector.
9. Check for continuity between the ABS modulator-control unit 25P connector terminal and ECM/PCM connector A (49P) terminal (see table).

Sign	ABS Modulator-control Unit 25P Connector Terminal	ECM/PCM Connector A (49P) Terminal
CAN-L	17	4
CAN-H	1	3

   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wire between the ECM/PCM and the ABS modulator-control unit.■
10. Reconnect all connectors.
11. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
12. Clear the DTC with the HDS.
13. Test-drive the vehicle. Drive the vehicle at 10 km/h (7 mph) or more.
    NOTE: Drive the vehicle on a straight section of road, not on a lift.
14. Check for DTCs with the HDS.

    Is DTC 86-24 and/or 86-25 indicated?
    YES - Replace the ABS modulator-control unit. ■
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. ■

ABS DTC Troubleshooting: 86-FF

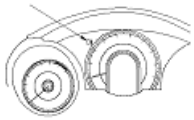
DTC 86-FF:
F-CAN Communication with ABS Malfunction

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

Is DTC 86-FF indicated?
YES - Replace the ABS modulator-control unit. ■
NO - Intermittent failure, the system is OK at this time.■

How to Troubleshoot the EPS

EPS Indicator



Under normal conditions, the EPS indicator (A) comes on when the ignition switch is turned to ON (II) position, then goes off after the engine is started. This indicates that the LED and its circuit are operating correctly.
If there is a failure in the system after the engine is started, the EPS indicator will stay on, and the power assist is turned off or restricted.
When the EPS indicator comes on, the control unit memorizes the DTC. In this case, the control unit will not activate the EPS system after the engine starts again, but it keeps the EPS indicator on.
When DTC 51-01, 51-02, 51-03 or 51-05 is stored in the control unit, the EPS indicator will stay on until the DTC is erased. When a problem is detected and the EPS indicator comes on, there are cases when the indicator stays on until the ignition switch is turned to LOCK (0), and cases when the indicator goes off automatically when the system returns to normal. Even though the system is operating normally, the EPS indicator will come on under the following conditions:

- The vehicle speed is above 15 km/h (10 mph) for more than 3 seconds. When the vehicle speed decreases abruptly (by applying the brakes) from above 20 km/h (12 mph) to less than 1 km/h (1 mph), and stay for 5 seconds, and after abrupt deceleration, when the engine speed is above 1,840 rpm (min^{-1}) (after the engine starts within 5 minutes: 4,000 rpm (min^{-1})) for 5 seconds (continuously).
- When the steering wheel is turned, and the engine speed is above 1,840 rpm (min^{-1}) (after the engine starts within 5 minutes: 4,000 rpm (min^{-1})) for 20 seconds, then the engine speed is above 2,500 rpm (min^{-1}) for 10 seconds continuously.

To determine the actual cause of the problem, question the customer about the conditions during which the problem occurred, taking the above conditions into consideration.

Diagnostic Trouble Code (DTC)

- If the CPU cannot be activated, or it fails, the EPS indicator comes on, but the DTC is not memorized.
- The memory can hold any number of DTCs. However, when the same DTC is detected more than once, the most recent DTC is written over the prior DTC, therefore only one occurrence is memorized.
- The lowest DTC is indicated first. The DTCs are indicated in ascending order, not in the order that they occurred.
- The DTCs are memorized in the EEPROM (non-volatile memory) therefore the memorized DTCs cannot be erased by disconnecting the battery. Perform the specified procedures to clear DTCs.

Self-diagnosis

Self-diagnosis can be classified into two categories:

- Initial diagnosis: Done right after the engine starts and until the EPS indicator goes off.
- Regular diagnosis: Done right after the initial diagnosis until the ignition switch is turned to LOCK (0).

The EPS control unit performs the following functions when a problem is detected by self-diagnosis:

1. Turns on the EPS indicator.
2. Memorizes the DTC.
3. Stops or restricts the power assist and manual steering operation resumes.
   NOTE: For DTCs 11-01, 11-02, 12-01, 21-01, 21-02, 22-01, 35-04, 36-02, 37-01, and 37-02 the EPS indicator will go off automatically, and the system returns to normal.

Restriction on Power Assist Operation

Repeated extreme steering force, such as turning the steering wheel continuously back-and-forth with the vehicle stopped, causes an increase of power consumption in the EPS motor. The increase of electric current causes the EPS motor to heat up. Because this heat adversely affects the system, the control unit monitors the electric current of the EPS motor. When the control unit detects heat build-up in the EPS motor, it reduces the electric current to the EPS motor gradually to protect the system, and it restricts the power assist operation. The EPS indicator does not come on during this function.
When steering torque is not applied to the steering wheel, or when the ignition is turned off and the EPS motor cools, the control unit will restore the power assist gradually until it's fully restored (after about 20 minutes).

Torque Sensor Neutral Position

The EPS control unit stores the torque sensor neutral position in the EEPROM. The torque sensor neutral position must be memorized whenever the steering gearbox, or the EPS control unit is replaced.
NOTE: The torque sensor neutral position is not affected when erasing the DTCs.

How to Troubleshoot DTCs

The troubleshooting procedures assume that the cause of the problem is still present and the EPS indicator is still on. Following the procedure when the EPS indicator does not come on can result in an incorrect diagnosis.

1. Question the customer about the conditions when the problem occurred, and try to reproduce the same conditions for troubleshooting. Find out when the EPS indicator came on, such as while turning, after turning, when the vehicle was at a certain speed, etc.
2. When the EPS indicator does not come on during the test-drive, but troubleshooting is done based on the DTC, check for loose connectors, poor terminal contact, etc., in the affected circuit before you start troubleshooting.
3. After troubleshooting, clear the DTC and test-drive the vehicle. Be sure the EPS indicator does not come on.

How to Use the HDS (Honda Diagnostic System)

1. If the system indicators stay on, connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the EPS control unit. If it doesn't, troubleshoot the DLC circuit.
4. Check the diagnostic trouble code (DTC) and note it. Then refer to the indicated DTC's troubleshooting, and do the appropriate troubleshooting procedure.
   NOTE:
   - The HDS can read the DTC, the current data, and other system data.
   - For specific operations, refer to the Help menu that came with the HDS.

How to Retrieve DTCs

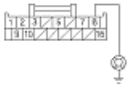
1. With the ignition switch in LOCK (0), connect the HDS to the data link connector (DLC) under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the EPS control unit. If it doesn't, troubleshoot the DLC circuit.
4. Follow the prompts on the HDS to display the DTC(s) on the screen. After determining the DTC, refer to the DTC troubleshooting.
5. Turn the ignition switch to LOCK (0).

How to Clear DTCs

1. With the ignition switch in LOCK (0), connect the HDS to the data link connector (DLC) under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the EPS control unit. If it doesn't, troubleshoot the DLC circuit.
4. Clear the DTC(s) by following the screen prompts on the HDS.
5. Turn the ignition switch to LOCK (0).

EPS DTC Troubleshooting: 11-01, 11-02

DTC 11-01:
Low/High IG1-terminal Voltage (Initial Diagnosis)
DTC 11-02:
Low/High IG1-terminal Voltage (Regular Diagnosis)



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Wait at least 60 seconds.
6. Check for DTCs with the HDS.

   Is DTC 11-01 or 11-02 indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals.■
7. Turn the ignition switch to LOCK (0).
8. Check and note BATTERY voltage in the EPS DATA LIST with the HDS.

   Is the battery OK?
   YES - Go to Step 9 .
   NO - Check the battery, and troubleshoot the alternator regulator circuit. ■
9. Check the No. 11 (7.5 A) fuse in the under-dash fuse/relay box.

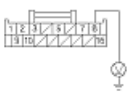
   Is the fuse OK?
   YES - Reinstall the No. 11 (7.5 A) fuse, then go to Step 18 .
   NO - Go to Step 10 .
10. Disconnect the EPS control unit connector C (16P).
11. Check for continuity between EPS control unit connector C (16P) terminal No. 8 and body ground.

    Is there continuity?
    YES - Repair short to body ground in the wire between the EPS control unit and No. 11 (7.5 A) fuse in the under-dash fuse/relay box.■
    NO - Install a new No. 11 (7.5 A) fuse in the under-dash fuse/relay box, then go to Step 12 .
12. Reconnect the EPS control unit connector C (16P).
13. Turn the ignition switch to ON (II).
14. Clear the DTC with the HDS.
15. Turn the ignition switch to LOCK (0).
16. Start the engine.
17. Check for DTCs with the HDS.

    Is DTC 11-01 or 11-02 indicated?
    YES - Replace the EPS control unit. ■
    NO - Troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTC's troubleshooting.■
18. Disconnect the EPS control unit connector C (16P).
19. Turn the ignition switch to ON (II).

---

20. Measure the voltage between EPS control unit connector C (16P) terminal No. 8 and body ground.

    Is there battery voltage?
    YES - Check for loose terminals in the EPS control unit connectors and repair if necessary. If no poor connections are found, replace the EPS control unit. ■
    NO - Repair open in the wire between the No. 11 (7.5 A) fuse in the under-dash fuse/relay box and the EPS control unit.■

EPS DTC Troubleshooting: 12-01

DTC 12-01:
Low/High VBU Voltage (Regular Diagnosis)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

   Is DTC 12-01 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals.■
6. Turn the ignition switch to LOCK (0).
7. Check and note BATTERY voltage in the EPS DATA LIST with the HDS.

   Is the battery OK?
   YES - Go to Step 8 .
   NO - Check the battery, and troubleshoot the alternator regulator circuit. ■
8. Check the No. 2 (60 A) fuse in the battery terminal fuse box.

   Is the fuse OK?
   YES - Reinstall the No. 2 (60 A) fuse, then go to Step 17 .
   NO - Go to Step 9 .
9. Disconnect the EPS control unit connector A (2P).
10. Check for continuity between EPS control unit connector A (2P) terminal No. 2 and body ground.

    Is there continuity?
    YES - Repair short to body ground in the wire between the EPS control unit and No. 2 (60 A) fuse in the battery terminal fuse box.■
    NO - Install a new No. 2 (60 A) fuse in the battery terminal fuse box, then go to Step 11 .
11. Reconnect the EPS control unit connector C (16P).
12. Turn the ignition switch to ON (II).
13. Clear the DTC with the HDS.
14. Turn the ignition switch to LOCK (0).
15. Start the engine.
16. Check for DTCs with the HDS.

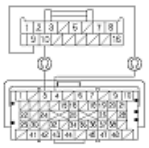
    Is DTC 12-01 indicated?
    YES - Replace the EPS control unit. ■
    NO - Troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTC's troubleshooting.■
17. Disconnect the EPS control unit connector A (2P).
18. Turn the ignition switch to ON (II).

---

19. Measure the voltage between EPS control unit connector A (2P) terminal No. 2 and body ground.

    Is there battery voltage?
    YES - Check for loose terminals in the EPS control unit connectors and repair if necessary. If no poor connections are found, replace the EPS control unit. ■
    NO - Repair open in the wire between the No. 2 (60 A) fuse in the battery terminal fuse box and the EPS control unit.■

EPS DTC Troubleshooting: 21-01, 21-02



DTC 21-01:
Excessive Change of the Vehicle Speed Signal (Regular Diagnosis)
DTC 21-02:
Comparison Between the Vehicle Speed and the Engine Speed Signal (Regular Diagnosis)
NOTE:

- If the MIL stays on, or the D indicator blinks at the same time as DTC 21-01 or DTC 21-02 is indicated, troubleshoot the PGM-FI system or A/T model: automatic transmission system, then recheck for DTC 21-01 or DTC 21-02.
- Even though the system is operating normally, the EPS indicator will come on caused by the detecting condition of DTC 21-01 or DTC 21-02.
- The ABS indicator may come on during this troubleshoot. If so, clear the DTC related to the ABS.

1. Turn the ignition switch to LOCK (0).
2. Raise the vehicle, and support it with safety stands in the proper locations, and allow all four wheels to rotate freely.
3. Connect the HDS to the data link connector (DLC).
4. Start the engine, then run the vehicle in the 4th gear (M/T), or D position (A/T).
5. Check the VEHICLE SPEED in the EPS DATA LIST with the HDS.

   Is 0 km/h (0 mph) indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ECM/PCM and the EPS control unit.■
6. Turn the ignition switch to LOCK (0).
7. Start the engine and check the tachometer.

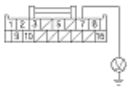
   Is the tachometer working correctly?
   YES - Go to Step 8 .
   NO - Troubleshoot the gauge control module. ■
8. Turn the ignition switch to LOCK (0).
9. Short the SCS line with the HDS.
10. Disconnect the ECM/PCM connector A (49P) and EPS control unit connector C (16P).
11. Check for continuity between EPS control unit connector C (16P) terminal and ECM/PCM connector A (49P) terminal individually.

Sign	EPS Control Unit Connector C (16P) Terminal	ECM/PCM Connector A (49P) Terminal
CAN-L	9	4
CAN-H	10	3

   Is there continuity?
   YES - Check for loose terminals in the EPS control unit connectors, and repair if necessary. If no poor connections are found, replace the EPS control unit. ■
   NO - Repair open in the wire between the EPS control unit and the ECM/PCM.■

EPS DTC Troubleshooting: 22-01

DTC 22-01:
Engine Speed Signal (Regular Diagnosis)



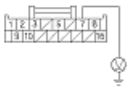
1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle. Drive the vehicle at 10 km/h (7 mph) for 3 seconds or more.
4. Check the ENGINE SPEED in the EPS DATA LIST with the HDS.

   Is there 440 rpm (min^{-1}) or less at idle?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the EPS control unit connector C (16P).
7. Start the engine.
8. Measure the voltage between EPS control unit connector C (16P) terminal No. 7 and body ground.

   Is there any voltage?
   YES - Go to Step 9 .
   NO - Go to Step 14 .
9. Turn the ignition switch to LOCK (0).
10. Short the SCS line with the HDS.
11. Disconnect the ECM/PCM connector A (49P).
12. Turn the ignition switch to ON (II).

---

13. Measure the voltage between EPS control unit connector C (16P) terminal No. 7 and body ground.



    Is there any voltage?
    YES - Repair short to power in the wire between the EPS control unit and ECM/PCM.■
    NO - Check for loose terminal in the EPS control unit connectors, and repair if necessary. If no poor connections are found, replace the EPS control unit. ■
14. Turn the ignition switch to LOCK (0).
15. Short the SCS line with the HDS.
16. Disconnect the ECM/PCM connector A (49P).

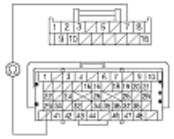
---

17. Check for continuity between EPS control unit connector C (16P) terminal No. 7 and body ground.

    Is there continuity?
    YES - Repair short to body ground in the wire between the EPS control unit and the ECM/PCM.■
    NO - Go to Step 18 .

---

18. Check for continuity between EPS control unit connector C (16P) terminal No. 7 and ECM/PCM connector A (49P) terminal No. 29.



    Is there continuity?
    YES - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then go to Step 1 and recheck. If the ECM/PCM was updated and DTCs are not indicated, troubleshooting is complete. If the ECM/PCM was substituted and DTCs are not indicated, replace the original ECM/PCM. ■
    NO - Repair open in the wire between the EPS control unit and the ECM/PCM.■

EPS DTC Troubleshooting: 31-01

DTC 31-01:
No Writing the Torque Sensor Neutral Position (Regular Diagnosis)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Do the memorizing of the torque sensor neutral position.
5. Turn the ignition switch to ON (II).
6. Check for DTCs with the HDS.

Is DTC 31-01 indicated?
YES - Replace the EPS control unit. ■
NO - Intermittent failure, the system is OK at this time.■

EPS DTC Troubleshooting: 32-01, 32-02, 32-03, 32-04, 32-05, 32-06, 34-01, 35-01, 35-02, 35-03, 35-04, 36-01, 36-02, 37-01, 37-02

DTC 32-01:
EPS Control Unit Internal Circuit (Current Sensor) (Regular Diagnosis)
DTC 32-02:
EPS Control Unit Internal Circuit Offset (Current Sensor) (Regular Diagnosis)
DTC 32-03:
Lower Current Sensor Stuck ON (Initial Diagnosis)
DTC 32-04:
Lower Current Sensor Stuck ON (Regular Diagnosis)
DTC 32-05:
Motor Power Supply Voltage (Regular Diagnosis)
DTC 32-06:
EPS Control Unit Internal Circuit (Sub-CPU) (Regular Diagnosis)
DTC 34-01:
Power Relay Stuck ON (IG Switch is in LOCK (0))
DTC 35-01:
EPS Control Unit Internal Circuit (CPU) (Initial Diagnosis/Regular Diagnosis)
DTC 35-02:
EPS Control Unit Internal Circuit (EEPROM) (Initial Diagnosis)
DTC 35-03:
EPS Control Unit Internal Circuit (CPU Communication) (Initial Diagnosis)
DTC 35-04:
EPS Control Unit Internal Circuit (CPU Communication) (Regular Diagnosis)
DTC 36-01:
EPS Control Unit Internal Circuit (Direction Distinction) (Initial Diagnosis)
DTC 36-02:
EPS Control Unit Internal Circuit (INH Output Circuit) (Initial Diagnosis)
DTC 37-01:
EPS Control Unit Internal Circuit (Step-Up Circuit) (Initial Diagnosis)
DTC 37-02:
EPS Control Unit Internal Circuit (Step-Up Circuit) (Regular Diagnosis)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch LOCK (0).
4. Start the engine.
5. Turn the steering wheel from lock to lock several times, and hold the steering wheel for 10 seconds or more.
6. Check for DTCs with the HDS.

   Is DTC 32-01, 32-02, 32-03, 32-04, 32-05, 32-06, 34-01, 35-01, 35-02, 35-03, 35-04, 36-01, 36-02, 37-01, or 37-02 indicated?

   YES - Replace the EPS control unit. ■
   NO - Intermittent failure, the system is OK at this time.■

EPS DTC Troubleshooting: 33-01

DTC 33-01:
Lower FET Stuck ON (Initial Diagnosis)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Turn the steering wheel from lock to lock several times, and hold the steering wheel for 10 seconds or more.
6. Check for DTCs with the HDS.

   Is DTC 33-01 indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time.■
7. Turn the ignition switch to LOCK (0).
8. Disconnect the EPS control unit connector B (2P).
9. Check for continuity between body ground and EPS control unit connector B (2P) No. 1 terminal, and No. 2 terminal.

   Is there continuity?
   YES - Go to Step 10 .
   NO - Check for loose terminal in the EPS control unit connectors, and repair if necessary. If no poor connections are found, replace the EPS control unit. ■
10. Disconnect the EPS motor 2P connector.

---

11. On the EPS motor side, check for continuity between body ground and EPS motor 2P connector No. 1 terminal, and No. 2 terminal.

    Is there continuity?
    YES - Replace the EPS motor. ■
    NO - Repair short to body ground in the wire between the EPS control unit and EPS motor.■

EPS DTC Troubleshooting: 33-02, 34-02

DTC 33-02:
Upper FET Stuck ON (Initial Diagnosis)
DTC 33-07:
Fail-safe Relay Stuck ON (Initial Diagnosis)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Turn the steering wheel from lock to lock several times, and hold the steering wheel for 10 seconds or more.
6. Check for DTCs with the HDS.

   Is DTC 33-02 or 34-02 indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time.■
7. Turn the ignition switch to LOCK (0).
8. Disconnect the EPS control unit connector B (2P).
9. Turn the ignition switch to ON (II).
10. Measure the voltage between body ground and EPS control unit connector B (2P) No. 1 terminal, and No. 2 terminal.

    Is there battery voltage?
    YES - Repair short to power in the wire between the EPS control unit and the EPS motor.■
    NO - Check for loose terminal in the EPS control unit connectors, and repair if necessary. If no poor connections are found, replace the EPS control unit. ■

EPS DTC Troubleshooting: 33-03, 33-04, 33-05

DTC 33-03:
FET Stuck ON (Overcurrent) (Regular Diagnosis)
DTC 33-04:
FET Stuck ON (Failure) (Regular Diagnosis)
DTC 33-05:
FET Stuck ON (Overcurrent Addition) (Regular Diagnosis)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Turn the steering wheel from lock to lock several times, and hold the steering wheel for 10 seconds or more.
6. Check for DTCs with the HDS.

   Is DTC 33-03, 33-04, or 33-05 indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time.■
7. Turn the ignition switch to LOCK (0).
8. Disconnect the EPS control unit connector B (2P).
9. Check for continuity between body ground and EPS control unit connector B (2P) No. 1 terminal, and No. 2 terminal.

   Is there continuity?
   YES - Go to Step 10 .
   NO - Go to Step 12 .
10. Disconnect the EPS motor 2P connector.

---

11. On the EPS motor side, check for continuity between body ground and EPS motor 2P connector No. 1 terminal, and No. 2 terminal.

    Is there continuity?
    YES - Replace the EPS motor. ■
    NO - Repair short to body ground in the wire between the EPS control unit and EPS motor.■
12. Disconnect the EPS motor 2P connector.
13. Turn the ignition switch to ON (II).

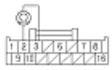
---

14. Measure the voltage between body ground and EPS control unit connector B (2P) No. 1 terminal, and No. 2 terminal.

    Is there battery voltage?
    YES - Repair short to power in the wire between the EPS control unit and the EPS motor.■
    NO - Check for loose terminal in the EPS control unit connectors, and repair if necessary. If no poor connections are found, replace the EPS control unit. ■

EPS DTC Troubleshooting: 51-01, 51-02, 51-03, 51-04, 51-05

DTC 51-01:
Torque Sensor (VT1 and VT2) (Regular Diagnosis)
DTC 51-02:
Torque Sensor VT3 Differential-amplification Function (Regular Diagnosis)
DTC 51-03:
Torque Sensor (VT1, VT2 Rapid-change) (Regular Diagnosis)
DTC 51-04:
Torque Sensor (Temperature) (Regular Diagnosis)
DTC 51-05:
Torque Sensor (Coil) (Regular Diagnosis)



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Turn the steering wheel from lock to lock several times, and hold the steering wheel for 10 seconds or more.
6. Check for DTCs with the HDS.

   Is DTC 51-01, 51-02, 51-03, 51-04, or 51-05 indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EPS motor and the EPS control unit.■
7. Turn the ignition switch to LOCK (0).
8. Disconnect the EPS control unit connector C (16P).
9. Measure the resistance between EPS control unit connector C (16P) terminals No. 2 and No. 3.

   Is there resistance 10 Ω or less at 20 °C (68 °F)?
   YES - Go to Step 10 .
   NO - Go to Step 12 .
10. Disconnect the torque sensor 3P connector.

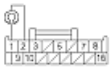
---

11. On the torque sensor side, measure the resistance between torque sensor 3P connector terminals No. 1 and No. 2.

   Is there resistance 10 Ω or less at 20 °C (68 °F)?
   YES - Replace the steering gearbox. ■
   NO - Repair short in the wires between the EPS control unit and torque sensor.■

---

12. Measure the resistance between EPS control unit connector C (16P) terminals No. 1 and No. 2.



   Is there resistance 10 Ω or less at 20 °C (68 °F)?
   YES - Go to Step 13 .
   NO - Go to Step 15 .
13. Disconnect the torque sensor 3P connector.

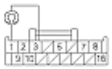
---

14. On the torque sensor side, measure the resistance between torque sensor 3P connector terminals No. 2 and No. 3.

   Is there resistance 10 Ω or less at 20 °C (68 °F)?
   YES - Replace the steering gearbox. ■
   NO - Repair short in the wires between the EPS control unit and torque sensor.■

---

15. Measure the resistance between EPS control unit connector C (16P) terminals No. 1 and No. 3.



   Is there resistance 10 Ω or less at 20 °C (68 °F)?
   YES - Go to Step 16 .
   NO - Go to Step 18 .
16. Disconnect the torque sensor 3P connector.

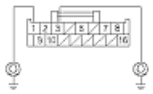
---

17. On the torque sensor side, measure the resistance between torque sensor 3P connector terminals No. 1 and No. 3.

   Is there resistance 10 Ω or less at 20 °C (68 °F)?
   YES - Replace the steering gearbox. ■
   NO - Repair short in the wires between the EPS control unit and torque sensor.■

---

18. Check for continuity between body ground and EPS control unit connector C (16P) No. 1 terminal, and No. 3 terminal.



Is there continuity?
YES - Go to Step 17 .
NO - Go to Step 19 .

19. Disconnect the torque sensor 3P connector.

---

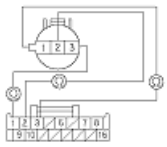
20. On the torque sensor side, check for continuity between body ground and torque sensor 3P connector No. 1 terminal, and No. 3 terminal.

Is there continuity?
YES - Replace the steering gearbox. ■
NO - Repair short to body ground in the wire between the EPS control unit and torque sensor.■

21. Disconnect the torque sensor 3P connector.

---

22. Check for continuity between EPS control unit connector C (16P) terminal and the torque sensor 3P connector terminal individually.



Sign	Torque Sensor 3P Connector	EPS Control Unit Connector C (16P) Terminal
VS1	1	3
T/S GND	2	2
VS2	3	1

Is there continuity?
YES - Go to Step 21 .
NO - Repair open in the wire between the EPS control unit and torque sensor.■

---

23. On the torque sensor side, measure the resistance between torque sensor 3P connector terminals No. 1 and No. 2, and No. 2 and No. 3 individually.

Is there resistance 10–40 Ω at 20 °C (68 °F)?
YES - Check for loose terminals in the EPS control unit connectors and repair if necessary. If no poor connections are found, replace the EPS control unit. ■
NO - Replace the steering gearbox. ■

EPS DTC Troubleshooting: 61-01, 61-02

DTC 61-01:
EPS Motor Voltage (Initial Diagnosis)
DTC 61-02:
EPS Motor Voltage (Regular Diagnosis)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Turn the steering wheel from lock to lock several times, and hold the steering wheel for 10 seconds or more.
6. Check for DTCs with the HDS.

   Is DTC 61-01 or 61-02 indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EPS motor and the EPS control unit.■
7. Turn the ignition switch to LOCK (0).
8. Disconnect the EPS control unit connector B (2P).
9. Check for continuity between torque sensor 3P connector terminals No. 1 and No. 2.

   Is there continuity?
   YES - Go to Step 10 .
   NO - Go to Step 12 .
10. Disconnect the EPS motor 2P connector.

---

11. On the EPS motor side, check for continuity between EPS motor 2P connector terminals No. 1 and No. 2.

    Is there continuity?
    YES - Repair open in the wire between the EPS control unit and EPS motor.■
    NO - Replace the EPS motor. ■

12. Disconnect the EPS motor 2P connector.

---

13. Check for continuity between body ground and EPS control unit connector B (2P) No. 1 terminal, and No. 2 terminal.

    Is there continuity?
    YES - Repair short to body ground in the wire between the EPS control unit and EPS motor.■
    NO - Check for loose terminals in the EPS control unit connectors and repair if necessary. If no poor connections are found, replace the EPS control unit. ■

EPS DTC Troubleshooting: 61-03

DTC 61-03:
Open the EPS Motor Harness (Regular Diagnosis)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Turn the steering wheel from lock to lock several times, and hold the steering wheel for 10 seconds or more.
6. Check for DTCs with the HDS.

   Is DTC 61-03 indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EPS motor and the EPS control unit.■
7. Turn the ignition switch to LOCK (0).
8. Disconnect the EPS control unit connector B (2P) and the EPS motor 2P connector.
9. Check for continuity between EPS control unit connector B (2P) terminal No. 2 and EPS motor 2P connector terminal No. 1.

   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wire between the EPS control unit and EPS motor.■

---

10. Check for continuity between EPS control unit connector B (2P) terminal No. 1 and EPS motor 2P connector terminal No. 2.

    Is there continuity?
    YES - Go to Step 11 .
    NO - Repair open in the wire between the EPS control unit and EPS motor.■

---

11. On the EPS motor side, check for continuity between EPS motor 2P connector terminals No. 1 and No. 2.

    Is there continuity?
    YES - Check for loose terminals in the EPS control unit connectors and repair if necessary. If no poor connections are found, replace the EPS control unit. ■
    NO - Replace the EPS motor. ■

DTC Troubleshooting: B1152

DTC B1152:
Gauge Control Module Internal Error (EEPROM error)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

Is DTC B1152 indicated?
YES - Replace the gauge control module. ■
NO - Intermittent failure, the gauge control module is OK at this time.■

DTC Troubleshooting: B1155

DTC B1155:
Gauge Control Module Lost Communication with the MICU (Headlight Switch Message)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1155 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the gauge control module is OK at this time. Check for loose or poor connections between the gauge control module and the MICU.■
5. Check for DTCs with the HDS.

   Are DTCs B1155 and B1905 indicated?
   YES - Faulty MICU; replace the under-dash fuse/relay box. ■
   NO - Replace the gauge control module. ■

DTC Troubleshooting: B1156

DTC B1156:
Gauge Control Module Lost Communication with the MICU (Wiper Switch Message)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1156 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the gauge control module is OK at this time. Check for loose or poor connections between the gauge control module and the MICU.■
5. Check for DTCs with the HDS.

   Are DTCs B1156 and B1905 indicated?
   YES - Faulty MICU; replace the under-dash fuse/relay box. ■
   NO - Replace the gauge control module. ■

DTC Troubleshooting: B1157

DTC B1157:
Gauge Control Module Lost Communication with the MICU (MICU Message)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1157 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the gauge control module is OK at this time. Check for loose or poor connections between the gauge control module and the MICU.■
5. Check for DTCs with the HDS.

   Are DTCs B1157 and B1905 indicated?
   YES - Faulty MICU; replace the under-dash fuse/relay box. ■
   NO - Replace the gauge control module. ■

DTC Troubleshooting: B1159

DTC B1159:
Gauge Control Module Lost Communication with the MICU (Door Switch Message)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1159 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the gauge control module is OK at this time. Check for loose or poor connections between the gauge control module and the MICU.■
5. Check for DTCs with the HDS.

   Are DTCs B1159 and B1905 indicated?
   YES - Faulty MICU; replace the under-dash fuse/relay box. ■
   NO - Replace the gauge control module. ■

DTC Troubleshooting: B1160

DTC B1160:
Gauge Control Module Lost Communication with the MICU (Door Lock Switch)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1160 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the gauge control module is OK at this time. Check for loose or poor connections between the gauge control module and the MICU.■
5. Check for DTCs with the HDS.

   Are DTCs B1160 and B1905 indicated?
   YES - Faulty MICU; replace the under-dash fuse/relay box. ■
   NO - Replace the gauge control module. ■

DTC Troubleshooting: B1168

DTC B1168:
Gauge Control Module Lost Communication with ECM/PCM (Engine Messages)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1168 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
5. Check for Fuel and Emission system DTCs with the HDS.

   Is any DTCs indicated?
   YES - Go to the indicated DTCs, then recheck.
   NO - Go to Step 6 .
6. Turn the ignition switch to LOCK (0).
7. Disconnect the gauge control module 32P connector.
8. Jump the SCS with the HDS.
9. Disconnect the ECM/PCM connector A (49P).
10. Connect the gauge control module 32P connector No. 29 and No. 30 terminals and body ground with jumper wires.

---

11. Check for continuity between ECM/PCM connector A (49P) No. 3 and No. 4 terminals and body ground individually.

    Is there continuity?
    YES - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, and recheck. If the indication goes away, replace the original ECM/PCM. If the DTC is still present, replace the gauge control module. ■
    NO - Repair an open in the wire.■

DTC Troubleshooting: B1169

DTC B1169:
Gauge Control Module Lost Communication with the PCM (A/T Message)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1169 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
5. Check for Fuel and Emission system DTCs with the HDS.

   Is any DTCs indicated?
   YES - Go to the indicated DTCs, then recheck.
   NO - Go to Step 6 .
6. Turn the ignition switch to LOCK (0).
7. Disconnect the gauge control module 32P connector.
8. Jump the SCS with the HDS.
9. Disconnect PCM connector A (49P).
10. Connect the gauge control module 32P connector No. 29 and No. 30 terminals and body ground with jumper wires.

---

11. Check for continuity between PCM connector A (49P) No. 3 and No. 4 terminals and body ground individually.

   Is there continuity?
   YES - Update the PCM if it does not have the latest software, or substitute a known-good PCM, and recheck. If the indication goes away, replace the original PCM. If the DTC is still present, replace the gauge control module. ■
   NO - Repair an open in the wire.■

DTC Troubleshooting: B1175

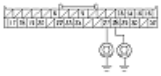
DTC B1175:
Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit Malfunction

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Wait for 30 seconds.
4. Check for DTCs with the HDS.

   Is DTC B1175 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the fuel level sensor circuit is OK at this time. Check for loose or poor connections.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the fuel tank unit 4P connector and the gauge control module 32P connector.
7. Connect the fuel tank unit 4P connector No. 1 and No. 3 terminals and body ground with jumper wires.

---

8. Check for continuity between gauge control module 32P connector No. 27 and No. 28 terminals and body ground individually.

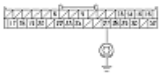


   Is there continuity?
   YES - Go to Step 9 .
   NO - Repair an open in the wire between the gauge control module and the fuel tank unit.■
9. Do the fuel gauge sending unit test.

   Is the fuel gauge sending unit OK?
   YES - Replace the gauge control module. ■
   NO - Replace the fuel tank unit.■

DTC Troubleshooting: B1176

DTC B1176:
Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit



1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Wait for 30 seconds.
4. Check for DTCs with the HDS.

   Is DTC B1176 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the fuel level sensor circuit is OK at this time.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the fuel tank unit 4P connector.
7. Clear the DTCs with the HDS.
8. Turn the ignition switch to LOCK (0), and then back to ON (II).
9. Wait for 30 seconds.
10. Check for DTCs with the HDS.

    Is DTC B1176 indicated?
    YES - Go to Step 11 .
    NO - Replace the fuel gauge sending unit. ■
11. Disconnect the gauge control module 32P connector.
12. Check for continuity between the gauge control module 32P connector No. 27 terminal and body ground.

    Is there continuity?
    YES - Repair a short to ground in the wire between the gauge control module and the fuel tank unit.■
    NO - Replace the gauge control module. ■

DTC Troubleshooting: B1178

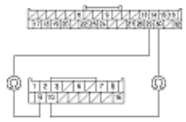
DTC B1178:
F-CAN Communication Circuit Error

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Check for DTCs with the HDS.

Are DTCs B1168, B1169, B1170, B1178, B1183 and/or B1187 indicated?
YES - Go to the indicated DTCs troubleshooting.■
NO - Intermittent failure, the F-CAN communication line is OK at this time. Check for worn or shorted wires.■

DTC Troubleshooting: B1183

DTC B1183:
Gauge Control Module Lost Communication with EPS Control Unit (EPS Message)



1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

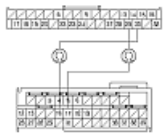
   Is DTC B1183 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
5. Check for EPS system DTCs with the HDS.

   Are any DTCs indicated?
   YES - Go to the indicated DTCs, then recheck.
   NO - Go to Step 6 .
6. Turn the ignition switch to LOCK (0).
7. Disconnect the gauge control module 32P connector.
8. Disconnect EPS control unit connector C (16P).
9. Check for continuity between the gauge control module 32P connector No. 29 and No. 30 terminals and EPS control unit connector C (16P) No. 9 and No. 10 terminals and body ground individually.

   Is there continuity?
   YES - Substitute a known-good EPS control unit, and recheck. If the indication goes away, replace the original EPS control unit. If the DTC is still present, replace the gauge control module. ■
   NO - Repair an open in the wire.■

DTC Troubleshooting: B1187

DTC B1187:
Gauge Control Module Lost Communication with SRS Unit (SRS Message)



1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1187 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
5. Check for SRS DTCs with the HDS.

   Are any DTCs indicated?
   YES - Go to the indicated DTCs troubleshooting, then recheck.■
   NO - Go to Step 6 .
6. Turn the ignition switch to LOCK (0).
7. Disconnect the gauge control module 32P connector.
8. Disconnect SRS unit connector A (39P).
9. Check for continuity between the gauge control module 32P connector No. 29 and No. 30 terminals and SRS unit connector A (39P) No. 17 and No. 16 terminals individually.

   Is there continuity?
   YES - Substitute a known-good SRS unit, and recheck. If the indication goes away, replace the original SRS unit. If the DTC is still present, replace the gauge control module. ■
   NO - Repair an open in the wire.■

DTC Troubleshooting: B1188

DTC B1188:
Gauge Control Module Lost Communication with MICU (RM Message)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1188 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections between the gauge control module and the MICU.■
5. Check for DTCs with the HDS.

   Are DTCs B1188 and B1905 indicated?
   YES - Faulty MICU, replace the under-dash fuse/relay box. ■
   NO - Replace the gauge control module. ■

DTC Troubleshooting: B1905

DTC B1905:
Immobilizer-Keyless Control Unit Lost Communication with MICU (DRLOCKSW Message)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs witch the HDS.

   Is DTC B1905 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the immobilizer-keyless control unit is OK at this time. Check for loose or poor connections between the immobilizer-keyless control unit and the MICU.■
5. Check for DTCs with the HDS.

   Are DTCs B1155, B1156, B1157, B1159, B1160, and B1188 all indicated with DTC B1905 at the same time?
   YES - Faulty MICU; replace the under-dash fuse/relay box. ■
   NO - Replace the immobilizer-keyless control unit .■

DTC Troubleshooting: B1906

DTC B1906:
Immobilizer-Keyless Control Unit Lost Communication with Gauge Control Module (A/T Message)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1906 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections between the gauge control module and the immobilizer-keyless control unit.■
5. Turn the ignition switch to LOCK (0).
6. Connect the HDS to the data link connector, then turn the ignition switch to ON (II).
7. Select the BODY ELECTRICAL menu, then enter the UNIT INFORMATION.
8. Check the condition of the gauge control module from the CONNECTED UNIT list.

   Is NOT AVAILABLE indicated?
   YES - Go to Step 9 .
   NO - Go to Step 10 .
9. Do the gauge control module input test.

   Are all inputs OK?
   YES - Replace the gauge control module.
   NO - Repair the faulty input, then recheck the DTCs.■
10. Turn the ignition switch to LOCK (0).
11. Disconnect the gauge control module 32P connector.
12. Turn the ignition switch to ON (II).
13. Measure the voltage between the gauge control module 32P connector No. 16 and No. 32 terminals and body ground.

    Is there battery voltage?
    YES - Go to Step 14 .
    NO - Check the No. 1 (10 A) and the No. 20 (15 A) fuses in the under-dash fuse/relay box. If the fuse is blown, replace the fuse and recheck the DTCs. If the fuses are OK, repair an open in the wire between the under-dash fuse/relay box and the gauge control module.■
14. Turn the ignition switch to LOCK (0).

---

15. Check for continuity between the gauge control module 32P connector No. 13 and No. 17 terminals and body ground.

    Is there continuity?
    YES - Go to Step 16 .
    NO - Repair an open in the wire or poor ground (G501).■
16. Disconnect under-dash fuse/relay box connector Q (16P).

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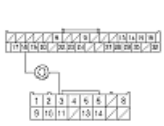
17. Check for continuity between under-dash fuse/relay box connector Q (16P) No. 3 terminal and the gauge control module 32P connector No. 18 terminal.



    Is there continuity?
    YES - Replace the gauge control module. ■
    NO - Repair an open in the wire.■

DTC Troubleshooting: B1002

DTC B1002:
MICU Internal Error (EEPROM Error)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

Is DTC B1002 indicated?

YES - Faulty MICU; replace the under-dash fuse/relay box.■

NO - Intermittent failure, the MICU is OK at this time. Check for loose or poor connections. If the connections are good, check the battery condition and the charging system.■

DTC Troubleshooting: B1011

DTC B1011:
MICU Lost Communication with Gauge Control Module (VSP/NE Message)
NOTE: Before troubleshooting, check the No. 1 (10 A) fuse in the under-dash fuse/relay box and No. 22 (7.5 A) fuse in the under-dash fuse/relay box.

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTCs B1011 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the gauge control module is OK at this time. Check for loose or poor connections between the gauge control module and under-dash fuse/relay box connector Q (16P). If the connections are good, check the battery condition and the charging system.■
5. Check for DTCs with the HDS.

   Are DTCs B1000 and B1011 all indicated?
   YES - Go to DTC troubleshooting B1000.
   NO - Go to Step 6 .
6. Select the BODY ELECTRICAL system select menu, then enter the UNIT INFORMATION menu.
7. Check the condition of the gauge control module from the CONNECTED UNIT.

   Is NOT AVAILABLE indicated?
   YES - Go to Step 8 .
   NO - Replace the gauge control module. ■
8. Turn the ignition switch to LOCK (0).
9. Disconnect the gauge control module 32P connector.
10. Turn the ignition switch to ON (II).
11. Measure the voltage between the gauge control module 32P connector No. 16 and No. 32 terminals and body ground individually.

    Is there battery voltage?
    YES - Go to Step 12 .
    NO - Repair an open in the wire.■
12. Turn the ignition switch to LOCK (0).

---

13. Check for continuity between the gauge control module 32P connector No. 13 and No. 17 terminals and body ground individually.

    Is there battery voltage?
    YES - Go to Step 14 .
    NO - Repair an open in the wire poor ground (G501).■
14. Disconnect under-dash fuse/relay box connector Q (16P).
15. Disconnect the gauge control module 32P connector.

---

16. Check for continuity between under-dash fuse/relay box connector Q (16P) No. 3 terminal and gauge control module 32P connector No. 18 terminal.

    Is there continuity?
    YES - Replace the gauge control module. ■
    NO - An open in the wire between the MICU and the gauge control module.■

DTC Troubleshooting: B1028

DTC B1028:
Rear Wiper Auto Stop Switch Malfunction

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Operate the rear window wiper for 15 seconds or more, then turn the rear window wiper switch OFF.
4. Check for DTCs with the HDS.

   Is DTC B1028 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
5. Check the No. 16 (10 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?
   YES - Go to Step 6 .
   NO - Replace the fuse and recheck the system.■
6. Disconnect the rear window wiper motor 4P connector.
7. Turn the ignition switch to ON (II).
8. Measure the voltage between the rear window wiper motor 4P connector No. 1 terminal and body ground.

   Is there battery voltage?
   YES - Go to Step 9 .
   NO - Repair an open in the wire between the under-dash fuse/relay box and rear window wiper motor.■

---

9. Check for continuity between the rear window wiper motor 4P connector No. 4 terminal and body ground.

   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair an open in the wire between the No. 4 terminal of the rear window wiper motor 4P connector and body ground (G602) [G604].■
   [ ]: LHD model
10. Do the rear window wiper motor test.

    Is the rear window wiper motor OK?
    YES - Go to Step 11 .
    NO - Replace the rear window wiper motor.■
11. Disconnect under-dash fuse/relay box connector C.

---

12. Measure the voltage between the rear window wiper motor 4P connector No. 3 terminal and body ground.

    Is there battery voltage?
    YES - Repair a short to power in the wire between the rear window wiper motor and under-dash fuse/relay box.■
    NO - Go to Step 13 .

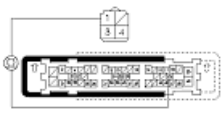
---

13. Check for continuity between the rear window wiper motor 4P connector No. 3 terminal and body ground.

    Is there continuity?
    YES - Repair a short to ground in the wire between the rear window wiper motor and under-dash fuse/relay box.■
    NO - Go to Step 14 .

---

14. Check for continuity between under-dash fuse/relay box connector C (49P) No. 29 terminal and the rear window wiper rear window wiper motor 4P connector No. 3 terminal.
    NOTE: The illustration shows the RHD model and the black portion shows the lock lever. The lock lever for LHD model is shown as the dashed lines.



    Is there continuity?
    YES - Faulty MICU, replace the under-dash fuse/relay box. ■
    NO - Repair an open in the wire between the rear window wiper motor and under-dash fuse/relay box.■

DTC Troubleshooting: B1036

DTC B1036:
IG1 Power Supply Circuit Malfunction

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1036 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connection at the gauge control module 32P connector, and at under-dash fuse/relay box connector Q (16P). If the connections are good, check the battery condition and the charging system.■

5. Measure the voltage between the gauge control module 32P connector No. 32 terminal and body ground.

   Is there battery voltage?
   YES - Faulty MICU or an open in the under-dash fuse/relay box internal circuit. Substitute a known-good under-dash fuse/relay box and recheck.■
   NO - Check for No. 22 (7.5 A) in the under-dash fuse/relay box. If the fuse is OK, check for an open in the wire between the under-dash fuse/relay box and the gauge control module, or repair a short in the wire between the under-dash fuse/relay box and the gauge control module.■

DTC Troubleshooting: B1077

DTC B1077:
Windshield Wiper (As) Signal Error

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Turn the windshield wiper switch to LOW or HIGH for 15 seconds or more, then turn the switch OFF.

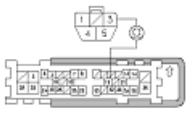
   Does the wiper motor work?
   YES - Go to Step 4 .
   NO - Go to Step 13 .
4. Check for DTCs with the HDS.

   Is DTC B1077 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the windshield wiper system is OK at this time. Check for loose or poor connections.■
5. Turn the ignition switch to LOCK (0).
6. Do the wiper motor test.

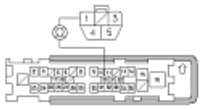
   Does the wiper motor run and does it pulse normally?
   YES - Go to Step 7 .
   NO - Replace the windshield wiper motor and recheck.■
7. Disconnect the windshield wiper motor 5P connector.
8. Disconnect the under-dash fuse/relay box connector A (36P) [B (36P)].
   [ ]: LHD model
9. Check for continuity between the windshield wiper motor 5P connector No. 3 [No. 1] terminal and under-dash fuse/relay box connector A (36P) No. 19 terminal or under-dash fuse/relay box connector B (36P) No. 20 terminal.
   [ ]: LHD model

   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair an open in the PNK wire.■

RHD model



LHD model



10. Check for continuity between the windshield wiper motor 5P connector No. 3 [No. 1] terminal and body ground.
    [ ]: LHD model

    Is there continuity?
    YES - Repair a short to ground in the PNK wire.■
    NO - Go to Step 11 .
11. Turn the ignition switch to ON (II).

RHD model

LHD model

12. Measure the voltage between the windshield wiper motor 5P connector No. 3 [No. 1] terminal and body ground.
    [ ]: LHD model

    Is there voltage?
    YES - Repair a short to ground in the PNK wire.■
    NO - Faulty MICU; replace the under-dash fuse/relay box.■
13. Turn the ignition switch to LOCK (0).
14. Check the No. 56 (30 A) fuse in the under-dash fuse/relay box.

    Is the fuse OK?
    YES - Go to Step 15 .
    NO - Replace the fuse and recheck the system.■
15. Do the wiper motor test.

    Does the wiper motor run normally?
    YES - Go to Step 16 .
    NO - Replace the windshield wiper motor and recheck.■
16. Disconnect under-dash fuse/relay box connector A (36P) and the windshield wiper motor 5P connector.

RHD model

LHD model

17. Check for continuity between under-dash fuse/relay box connector A (36P) terminals and the windshield wiper motor 5P connector terminals as shown:

Under-dash fuse/relay box connector A (36P)	Windshield wiper motor 5P connector
7	1 [5]
14	4 [3]

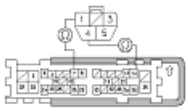
[ ]: LHD model

Is there continuity?

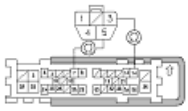
YES - Go to Step 18 .

NO - Repair an open in the BLU (LOW) or GRN (HIGH) wire.■

RHD model



LHD model



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18. Check for continuity between the windshield wiper motor 5P connector No. 5 [No. 4] terminal and body ground.
[ ]: LHD model

Is there continuity?

YES - Faulty MICU; replace the under-dash fuse/relay box. ■

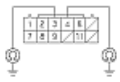
NO - Repair an open in the BLK wire or poor ground (G202).■

RHD model

LHD model

DTC Troubleshooting: B1127

DTC B1127:
Driver's Door Key Cylinder Switch Input Circuit Malfunction (Simultaneous input of lock and unlock signal)



1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Insert the ignition key into the driver's door key cylinder switch, and turn the key to the LOCK and UNLOCK positions 10 times.
4. Check for DTCs with the HDS.

   Is DTC B1127 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the driver's door key cylinder switch system is OK at this time. Check for loose or poor connections.■
5. With the driver's door key cylinder in the neutral position, select KEYLESS with the HDS, and enter the DATA LIST.
6. Check the ON/OFF information of the DRIVER'S DOOR KEY CYLINDER SWITCH (LOCK) and DRIVER'S DOOR KEY CYLINDER SWITCH (UNLOCK) in the DATA LIST.

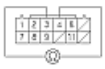
   Are both information indicators OFF?
   YES - Check the wires for continuity between the under-dash fuse/relay box and driver's door key cylinder switch. If there is continuity, the MICU is faulty. Replace the under-dash fuse/relay box. ■
   NO - Go to Step 7 .
7. Disconnect the driver's door lock actuator 10P connector.
8. Check the ON/OFF information of the DRIVER'S DOOR KEY CYLINDER SWITCH (LOCK) and DRIVER'S DOOR KEY CYLINDER SWITCH (UNLOCK) in the DATA LIST.

   Are both information indicators OFF?
   YES - Faulty driver's door key cylinder switch; replace the driver's door lock actuator.■
   NO - Go to Step 9 .
9. Turn the ignition switch to LOCK (0).
10. Disconnect under-dash fuse/relay box connector E (12P).
11. Check for continuity between the No. 4 (UNLOCK) and No. 3 (LOCK) terminals of under-dash fuse/relay box connector E (12P) and body ground individually.

    Is there continuity?
    YES - Repair a short to ground in the LOCK or UNLOCK wire.■
    NO - Go to Step 12 .

---

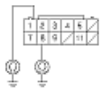
12. Check for continuity between the No. 4 (UNLOCK) and No. 3 (LOCK) terminals of under-dash fuse/relay box connector E (12P).



    Is there continuity?
    YES - Repair a short in the wire between the LOCK and UNLOCK wires.■
    NO - Faulty MICU, replace the under-dash fuse/relay box. ■

DTC Troubleshooting: B1128

DTC B1128:
Driver's Door Remote Switch Input Circuit Malfunction (Simultaneous input of lock and unlock signal)



1. Clear the DTCs with the HDS.
2. Lock and unlock the driver's door with the driver'sdoor lock switch.
3. Check for DTCs with the HDS.

   Is DTC B1128 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the driver's door lock switch system is OK at this time. Check for loose or poor connections.■
4. With the driver's door lock switch in the neutral position, select KEYLESS from the HDS and enter the DATA LIST.
5. Check the ON/OFF information of the DRIVER'S DOOR LOCK SWITCH (LOCK) and DRIVER'S DOOR LOCK SWITCH (UNLOCK) in the DATA LIST.

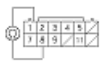
   Are both information indicators OFF?
   YES - Check the wires for continuity between the under-dash fuse/relay box and driver's door key cylinder switch. If there is continuity, the MICU is faulty. Replace the under-dash fuse/relay box.■
   NO - Go to Step 6 .
6. Disconnect the power window master switch connector.
7. Check the ON/OFF information of the DRIVER'S DOOR LOCK SWITCH (LOCK) and DRIVER'S DOOR LOCK SWITCH (UNLOCK) in the DATA LIST.

   Are both information indicators OFF?
   YES - Faulty door lock switch; replace the power window master switch.■
   NO - Go to Step 8 .
8. Turn the ignition switch to LOCK (0).
9. Disconnect under-dash fuse/relay box connector E (12P).
10. Check for continuity between the No. 8 (LOCK) and No. 1 (UNLOCK) terminals of under-dash fuse/relay box connector E (12P) and body ground individually.

    Is there continuity?
    YES - Repair a short to ground in the LOCK or UNLOCK wire.■
    NO - Go to Step 11 .

---

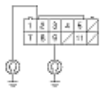
11. Check for continuity between the No. 8 (LOCK) and No. 1 (UNLOCK) terminals of under-dash fuse/relay box connector E (12P).



    Is there continuity?
    YES - Repair a short in the wire between the LOCK and UNLOCK wires.■
    NO - Faulty MICU, replace the under-dash fuse/relay box. ■

DTC Troubleshooting: B1129

DTC B1129:
Driver's Door Lock Knob Switch Input Circuit Malfunction (Simultaneous input of lock and unlock signal)



1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Operate the driver's door lock knob switch several times.
4. Check for DTCs with the HDS.

   Is DTC B1129 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the driver's door lock knob switch is OK at this time. Check for loose or poor connections.■
5. Select KEYLESS from the BODY ELECTRICAL menu, and enter the DATA LIST.
6. Check the ON/OFF information of the DRIVER'S DOOR LOCK KNOB SWITCH (LOCK) and the DRIVER'S DOOR LOCK KNOB SWITCH (UNLOCK).

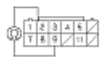
   Are the DRIVER'S DOOR LOCK KNOB SWITCH (LOCK) information indicator ON and the DRIVER'S DOOR LOCK KNOB SWITCH (UNLOCK) information indicator OFF with the driver's door lock knob switch in LOCK position, and are the DRIVER'S DOOR LOCK KNOB SWITCH (LOCK) information indicator OFF and the DRIVER'S DOOR LOCK KNOB SWITCH (UNLOCK) information indicator ON with the driver's door lock knob switch in UNLOCK position?
   YES - Faulty MICU, replace the under-dash fuse/relay box. ■
   NO - Go to Step 7 .
7. Disconnect the driver's door lock actuator 10P connector.
8. Check the ON/OFF information of the DRIVER'S DOOR LOCK KNOB SWITCH (LOCK) and DRIVER'S DOOR LOCK KNOB SWITCH (UNLOCK) in the DATA LIST.

   Are both information indicators OFF?
   YES - Check for an open in the driver's door lock knob switch (LOCK) wire or the driver's door lock knob switch (UNLOCK) wire between the MICU and the driver's door lock knob switch. If OK, replace the driver's door lock actuator.■
   NO - Go to Step 9 .
9. Turn the ignition switch to LOCK (0).
10. Disconnect under-dash fuse/relay box connector E (12P).
11. Check for continuity between the No. 2 (UNLOCK) and No. 9 (LOCK) terminals of under-dash fuse/relay box connector E (12P) and body ground individually.

    Is there continuity?
    YES - Repair a short to ground in the LOCK or UNLOCK wire.■
    NO - Go to Step 12 .

---

12. Check for continuity between the No. 2 (UNLOCK) and No. 9 (LOCK) terminals of under-dash fuse/relay box connector E (12P).



    Is there continuity?
    YES - Repair a short in the wire between the LOCK wire and UNLOCK wire.■
    NO - Faulty MICU, replace the under-dash fuse/relay box. ■

DTC Troubleshooting: B1275

DTC B1275:
Headlight OFF Position Circuit Malfunction

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Operate each combination light switch position, then turn the combination light switch OFF.
4. Check for DTCs with the HDS.

   Is DTC B1275 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
5. Select LIGHTING from the BODY ELECTRICAL system select menu.
6. Check each combination light switch position value with the DATA LIST menu.

   When the combination light switch turns OFF:

Data List	Value
Headlight Switch (OFF)	ON
Headlight Switch (PARKING)	OFF
Headlight Switch (HEADLIGHT)	OFF

   When the combination light switch turns SMALL:

Data List	Value
Headlight Switch (OFF)	OFF
Headlight Switch (PARKING)	ON
Headlight Switch (HEADLIGHT)	OFF

   When the combination light switch turns ON (headlight):

Data List	Value
Headlight Switch (OFF)	OFF
Headlight Switch (PARKING)	ON
Headlight Switch (HEADLIGHT)	ON

   Are all data list values correct?
   YES - Faulty MICU, replace the under-dash fuse/relay box. ■
   NO - Go to Step 7 .
7. Turn the ignition switch to LOCK (0).
8. Disconnect the combination light switch 12P connector.
9. Turn the ignition switch ON (II).
10. Select LIGHTING from the BODY ELECTRICAL system select menu.
11. Check each combination light switch position value with the DATA LIST menu.

    When the combination light switch is OFF:

Data List	Value
Headlight Switch (OFF)	OFF
Headlight Switch (PARKING)	OFF
Headlight Switch (HEADLIGHT)	OFF

    Are all data list values indicated OFF?
    YES - Go to Step 15 .
    NO - Go to Step 12 .
12. Turn the ignition switch to LOCK (0).
13. Disconnect under-dash fuse/relay box connector M (34P).
14. Check for continuity between under-dash fuse/relay box connector M (34P) No. 5, No. 7, and No. 8 terminals and body ground individually.

    Is there continuity?

YES - Repair a short to ground in the wire.■
NO - Faulty MICU, replace the under-dash fuse/relay box. ■

15. Turn the ignition switch to LOCK (0).
16. Do the combination light switch test.

Is the combination light switch OK?
YES - Go to Step 17 .
NO - Replace the combination light switch.■

17. Disconnect under-dash fuse/relay box connector M (34P).

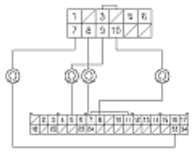
---

18. Check for continuity between under-dash fuse/relay box connector M (34P) terminals and the combination light switch 12P connector terminals as shown:

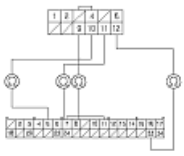
Under-dash fuse/relay box connector M (34P)	Combination light switch 12P connector
5	9 [10]
7	8 [11]
8	10[9]
33	7[12]

[ ]: LHD model

RHD model



LHD model



Is there continuity?
YES - Faulty MICU, replace the under-dash fuse/relay box. ■
NO - Repair an open in the wire.■

DTC Troubleshooting: B1276

DTC B1276:
Headlight SMALL Position Circuit Malfunction

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Operate each combination light switch position, then turn the combination light switch OFF.
4. Check for DTCs with the HDS.

   Is DTC B1276 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
5. Select LIGHTING from the BODY ELECTRICAL system select menu.
6. Check each combination light switch position value with the DATA LIST menu.

   When the combination light switch turns OFF:

Data List	Value
Headlight Switch (OFF)	ON
Headlight Switch (PARKING)	OFF
Headlight Switch (HEADLIGHT)	OFF

   When the combination light switch turns SMALL:

Data List	Value
Headlight Switch (OFF)	OFF
Headlight Switch (PARKING)	ON
Headlight Switch (HEADLIGHT)	OFF

   When the combination light switch turns ON (headlight):

Data List	Value
Headlight Switch (OFF)	OFF
Headlight Switch (PARKING)	ON
Headlight Switch (HEADLIGHT)	ON

   Are all data list values correct?
   YES - Faulty MICU, replace the under-dash fuse/relay box. ■
   NO - Go to Step 7 .
7. Turn the ignition switch to LOCK (0).
8. Disconnect the combination light switch 12P connector.
9. Turn the ignition switch to ON (II).
10. Select LIGHTING from the BODY ELECTRICAL system select menu.
11. Check each combination light switch position value with the DATA LIST menu.

    When the combination light switch is OFF:

Data List	Value
Headlight Switch (OFF)	OFF
Headlight Switch (PARKING)	OFF
Headlight Switch (HEADLIGHT)	OFF

    Are all data list values indicated OFF?
    YES - Go to Step 15 .
    NO - Go to Step 12 .
12. Turn the ignition switch to LOCK (0).
13. Disconnect under-dash fuse/relay box connector M (34P).
14. Check for continuity between under-dash fuse/relay box connector M (34P) No. 5, No. 7, and No. 8 terminals and body ground individually.

    Is there continuity?

YES - Repair a short to ground in the wire.■
NO - Faulty MICU, replace the under-dash fuse/relay box. ■

15. Turn the ignition switch to LOCK (0).
16. Do the combination light switch test.

Is the combination light switch OK?
YES - Go to Step 17 .
NO - Replace the combination light switch.■

17. Disconnect under-dash fuse/relay box connector M (34P).

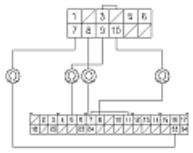
---

18. Check for continuity between under-dash fuse/relay box connector M (34P) terminals and the combination light switch 12P connector terminals as shown:

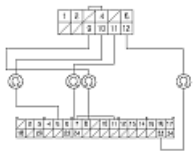
Under-dash fuse/relay box connector M (34P)	Combination light switch 12P connector
5	9 [10]
7	8 [11]
8	10[9]
33	7[12]

[ ]: LHD model

RHD model



LHD model



Is there continuity?
YES - Faulty MICU, replace the under-dash fuse/relay box. ■
NO - Repair an open in the wire.■

DTC Troubleshooting: B1278

DTC B1278:
Headlight ON Position Circuit Malfunction

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Operate each combination light switch position, then turn the combination light switch OFF.
4. Check for DTCs with the HDS.

   Is DTC B1278 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
5. Select LIGHTING from the BODY ELECTRICAL system select menu.
6. Check each combination light switch position value with the DATA LIST menu.

   When the combination light switch turns OFF:

Data List	Value
Headlight Switch (OFF)	ON
Headlight Switch (PARKING)	OFF
Headlight Switch (HEADLIGHT)	OFF

   When the combination light switch turns SMALL:

Data List	Value
Headlight Switch (OFF)	OFF
Headlight Switch (PARKING)	ON
Headlight Switch (HEADLIGHT)	OFF

   When the combination light switch turns ON (headlight):

Data List	Value
Headlight Switch (OFF)	OFF
Headlight Switch (PARKING)	ON
Headlight Switch (HEADLIGHT)	ON

   Are all data list values correct?
   YES - Faulty MICU, replace the under-dash fuse/relay box. ■
   NO - Go to Step 7 .
7. Turn the ignition switch to LOCK (0).
8. Disconnect the combination light switch 12P connector.
9. Turn the ignition switch to ON (II).
10. Select LIGHTING from the BODY ELECTRICAL system select menu.
11. Check each combination light switch position value with the DATA LIST menu.

    When the combination light switch is OFF:

Data List	Value
Headlight Switch (OFF)	OFF
Headlight Switch (PARKING)	OFF
Headlight Switch (HEADLIGHT)	OFF

    Are all data list values indicated OFF?
    YES - Go to Step 15 .
    NO - Go to Step 12 .
12. Turn the ignition switch to LOCK (0).
13. Disconnect under-dash fuse/relay box connector M (34P).
14. Check for continuity between under-dash fuse/relay box connector M (34P) No. 5, No. 7, and No. 8 terminals and body ground individually.

    Is there continuity?

YES - Repair a short to ground in the wire.■
NO - Faulty MICU, replace the under-dash fuse/relay box. ■

15. Turn the ignition switch to LOCK (0).
16. Do the combination light switch test.

Is the combination light switch OK?
YES - Go to Step 17 .
NO - Replace the combination light switch.■

17. Disconnect under-dash fuse/relay box connector M (34P).

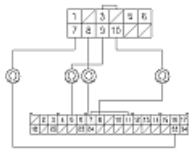
---

18. Check for continuity between under-dash fuse/relay box connector M (34P) terminals and the combination light switch 12P connector terminals as shown:

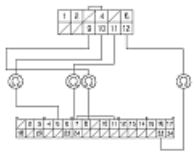
Under-dash fuse/relay box connector M (34P)	Combination light switch 12P connector
5	9 [10]
7	8 [11]
8	10[9]
33	7[12]

[ ]: LHD model

RHD model



LHD model



Is there continuity?
YES - Faulty MICU, replace the under-dash fuse/relay box. ■
NO - Repair an open in the wire.■

DTC Troubleshooting: B1279

DTC B1279:
Dimmer Switch Circuit Malfunction

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Turn the combination light (headlight) switch ON.
4. Change the dimmer switch from low beam to high beam.
5. Turn the combination light switch OFF and then to the passing position.
6. Check for DTCs with the HDS.

   Is DTC B1279 indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
7. Select LIGHTING from the BODY ELECTRICAL system select menu, then enter the DATA LIST.
8. Check each combination light switch position value with the DATA LIST menu.

   When the passing switch is operated

Data List	Value
Headlight Switch (PASSING)	ON
Headlight Switch (High beam)	OFF

   When the headlight switch is turned ON, and the dimmer switch changed from low beam to high beam

Data List	Value
Headlight Switch (PASSING)	OFF
Headlight Switch (High beam)	ON
Headlight Switch (HEADLIGHT)	ON

   Are all data list values correct?
   YES - Faulty MICU; replace the under-dash fuse/relay box. ■
   NO - Go to Step 9 .
9. Turn the ignition switch to LOCK (0).
10. Disconnect the combination light switch 12P connector.
11. Turn the ignition switch to ON (II).
12. Select LIGHTING from the BODY ELECTRICAL system select menu, then enter the DATA LIST.
13. Check each combination light switch position value with the DATA LIST menu.

    When the combination light switch is turned OFF

Data List	Value
Headlight Switch (PASSING)	OFF
Headlight Switch (High beam)	OFF
Headlight Switch (HEADLIGHT)	OFF

    Are all data list values indicated OFF?
    YES - Go to Step 17 .
    NO - Go to Step 14 .
14. Turn the ignition switch to LOCK (0).
15. Disconnect under-dash fuse/relay box connector M (34P).
16. Check for continuity between under-dash fuse/relay box connector M (34P) No. 3, No. 4, and No. 5 terminals and body ground individually.

    Is there continuity?
    YES - Repair a short to ground in the wire.■
    NO - Faulty MICU; replace the under-dash fuse/relay box. ■
17. Turn the ignition switch to LOCK (0).

18. Do the combination light switch test.

Is the combination light switch OK?
YES - Go to Step 19 .
NO - Replace the combination light switch.■

19. Disconnect under-dash fuse/relay box connector M (34P).

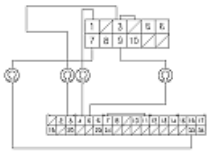
---

20. Check for continuity between under-dash fuse/relay box connector M (34P) terminals and the combination light switch 12P connector terminals as shown:

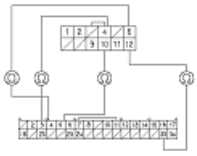
Under-dash fuse/relay box connector M (34P)	Combination light switch 12P connector
3	3 [4]
4	1 [6]
5	9 [10]
33	7 [12]

[ ]: LHD model

RHD model



LHD model



Is there continuity?
YES - Go to Step 21 .
NO - Repair an open in the wire.■

21. Check for continuity between under-dash fuse/relay box connector M (34P) terminals as shown:

From terminal	To terminal
5	3, 4, 7, 8
7	3, 4, 8
8	3, 4

Is there continuity?
YES - Repair a short between the wires.■
NO - Faulty MICU; replace the under-dash fuse/relay box. ■

DTC Troubleshooting: B1280

DTC B1280:
Turn Signal Switch Circuit Malfunction

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Operate the turn signal switch in left and right positions.
4. Check for DTCs with the HDS.

   Is DTC B1280 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
5. Select LIGHTING from the BODY ELECTRICAL system select menu, then enter the DATE LIST.
6. Check each combination light switch position value with the DATA LIST menu.

   When the turn signal switch is in left position:

Data List	Value
Turn Signal Switch (LEFT)	ON
Turn Signal Switch (RIGHT)	OFF

   When the turn signal switch is in right position:

Data List	Value
Turn Signal Switch (LEFT)	OFF
Turn Signal Switch (RIGHT)	ON

   Are all data list values correct?
   YES - Faulty MICU, replace the under-dash fuse/relay box. ■
   NO - Go to Step 7 .
7. Turn the ignition switch to LOCK (0).
8. Disconnect the combination light switch 12P connector.
9. Turn the ignition switch to ON (II).
10. Select the BODY ELECTRICAL system select menu, then enter the LIGHTING SYSTEM.
11. Check each combination light switch position value with the DATA LIST menu.

    When the turn signal switch is in neutral position:

Data List	Value
Turn Signal Switch (LEFT)	OFF
Turn Signal Switch (RIGHT)	OFF

    Are both data list values indicated OFF?
    YES - Go to Step 15 .
    NO - Go to Step 12 .
12. Turn the ignition switch to LOCK (0).
13. Disconnect under-dash fuse/relay box connector M (34P).
14. Check for continuity between under-dash fuse/relay box connector M (34P) No. 2 and No. 6 terminals and body ground individually.

    Is there continuity?
    YES - Repair a short to ground in the wire.■
    NO - Faulty MICU, replace the under-dash fuse/relay box. ■
15. Turn the ignition switch to LOCK (0).
16. Do the combination light switch test.

    Is the combination light switch OK?
    YES - Go to Step 17 .
    NO - Replace the combination light switch.■
17. Disconnect under-dash fuse/relay box connector M (34P).

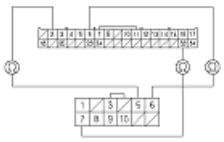
18. Check for continuity between under-dash fuse/relay box connector M (34P) No. 2, No. 6, and No. 33 terminals and the combination light switch 12P connector No. 5 [No. 2], No. 6 [No. 1], and No. 7 [No. 12] terminals.
[ ]: LHD model

Is there continuity?

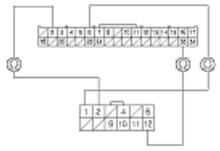
YES - Faulty MICU, replace the under-dash fuse/relay box. ■

NO - Repair an open in the wire.■

RHD model

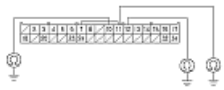


LHD model



DTC Troubleshooting: B1281

DTC B1281:
Front Wiper MIST Position Circuit Malfunction



1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Operate each windshield wiper switch position, then turn the wiper/washer switch OFF.
4. Check for DTCs with the HDS.

   Is DTC B1281 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
5. Select WIPERS from the BODY ELECTRICAL menu.
6. Check each windshield wiper switch position value with the DATA LIST menu.

   When the windshield wiper switch is OFF:

Data List	Value
Windshield Wiper Switch (LOW)	OFF
Windshield Wiper Switch (HIGH)	OFF
Windshield Wiper Switch (MIST)	OFF
Windshield Wiper Switch (INT)	OFF

   Are all data list values indicated OFF?
   YES - Go to Step 15 .
   NO - Go to Step 7 .
7. Turn the ignition switch to LOCK (0).
8. Disconnect the wiper/washer switch 8P connector.
9. Turn the ignition switch to ON (II).
10. Select WIPERS from the BODY ELECTRICAL menu.
11. Check each windshield wiper switch position value with the DATA LIST menu.

Data List	Value
Windshield Wiper Switch (LOW)	OFF
Windshield Wiper Switch (HIGH)	OFF
Windshield Wiper Switch (MIST)	OFF
Windshield Wiper Switch (INT)	OFF

    Are all data list values indicated OFF?
    YES - Replace the wiper/washer switch.■
    NO - Go to Step 12 .
12. Turn the ignition switch to LOCK (0).
13. Disconnect under-dash fuse/relay box connector M (34P).
14. Check for continuity between under-dash fuse/relay box connector M (24P) No. 10, No. 11, and No. 12 terminals and body ground.

    Is there continuity?
    YES - Repair a short to ground in the wire.■
    NO - Faulty MICU, replace the under-dash fuse/relay box. ■
15. Check each windshield wiper switch position value with the DATA LIST menu.

    When the windshield wiper switch is ON (LOW):

Data List	Value
Windshield Wiper Switch (LOW)	ON

    When the windshield wiper switch is ON (HIGH):

Data List	Value
Windshield Wiper Switch (HIGH)	ON

When the windshield wiper switch is MIST:

Data List	Value
Windshield Wiper Switch (MIST)	ON

When the windshield wiper switch is INT:

Data List	Value
Windshield Wiper Switch (INT)	ON

Are all data list values correct?

YES - Faulty MICU, replace the under-dash fuse/relay box. ■

NO - Go to Step 16 .

16. Turn the ignition switch to LOCK (0).
17. Do the wiper/washer switch test.

Is the wiper/washer switch OK?

YES - Go to Step 18 .

NO - Replace the wiper/washer switch.■

18. Disconnect under-dash fuse/relay box connectors M (34P) and Q (16P).

---

19. Check for continuity between under-dash fuse/relay box connector M (34P) terminals and the windshield wiper/wash switch 8P connector terminals as shown:

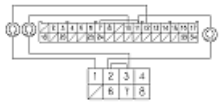
Under-dash fuse/relay box connector M (34P)	Windshield wiper/wash switch 8P connector
10	3 [4]
11	2
12	1 [3]

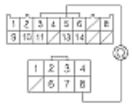
[ ]: LHD model

Under-dash fuse/relay box connector Q (16P)	Windshield wiper/wash switch 8P connector
5	8 [5]

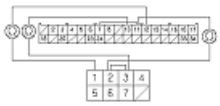
[ ]: LHD model

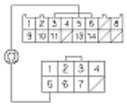
RHD model





LHD model





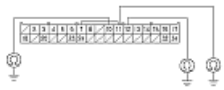
Is there continuity?

YES - Faulty MICU, replace the under-dash fuse/relay box. ■

NO - Repair an open in the wire.■

DTC Troubleshooting: B1282

DTC B1282:
Front Wiper INT Position Circuit Malfunction



1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Operate each windshield wiper switch position, then turn the wiper/washer switch OFF.
4. Check for DTCs with the HDS.

   Is DTC B1282 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
5. Select WIPERS from the BODY ELECTRICAL menu.
6. Check each windshield wiper switch position value with the DATA LIST menu.

   When the windshield wiper switch is OFF:

Data List	Value
Windshield Wiper Switch (LOW)	OFF
Windshield Wiper Switch (HIGH)	OFF
Windshield Wiper Switch (MIST)	OFF
Windshield Wiper Switch (INT)	OFF

   Are all data list values indicated OFF?
   YES - Go to Step 15 .
   NO - Go to Step 7 .
7. Turn the ignition switch to LOCK (0).
8. Disconnect the wiper/washer switch 8P connector.
9. Turn the ignition switch to ON (II).
10. Select the BODY ELECTRICAL system select menu, then enter the WIPERS.
11. Check each windshield wiper switch position value with the DATA LIST menu.

Data List	Value
Windshield Wiper Switch (LOW)	OFF
Windshield Wiper Switch (HIGH)	OFF
Windshield Wiper Switch (MIST)	OFF
Windshield Wiper Switch (INT)	OFF

   Are all data list values indicated OFF?
   YES - Replace the wiper/washer switch.■
   NO - Go to Step 12 .
12. Turn the ignition switch to LOCK (0).
13. Disconnect under-dash fuse/relay box connector M (34P).
14. Check for continuity between under-dash fuse/relay box connector M (34P) No. 10, No. 11, and No. 12 terminals and body ground.

   Is there continuity?
   YES - Repair a short to ground in the wire.■
   NO - Faulty MICU, replace the under-dash fuse/relay box. ■
15. Check each windshield wiper switch position value with the DATA LIST menu.

   When the windshield wiper switch is ON (LOW):

Data List	Value
Windshield Wiper Switch (LOW)	ON

   When the windshield wiper switch is ON (HIGH):

Data List	Value
Windshield Wiper Switch (HIGH)	ON

When the windshield wiper switch is MIST:

Data List	Value
Windshield Wiper Switch (MIST)	ON

When the windshield wiper switch is INT:

Data List	Value
Windshield Wiper Switch (INT)	ON

Are all data list values correct?

YES - Faulty MICU, replace the under-dash fuse/relay box. ■

NO - Go to Step 16 .

16. Turn the ignition switch to LOCK (0).
17. Do the wiper/washer switch test.

Is the wiper/washer switch OK?

YES - Go to Step 18 .

NO - Replace the wiper/washer switch.■

18. Disconnect under-dash fuse/relay box connectors M (34P) and Q (16P).

---

19. Check for continuity between under-dash fuse/relay box connector M (34P) terminals and the windshield wiper/washer switch 8P connector terminals as shown:

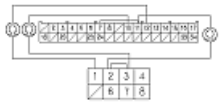
Under-dash fuse/relay box connector M (34P)	Windshield wiper/washer switch 8P connector
10	3 [4]
11	2
12	1 [3]

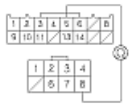
[ ]: LHD model

Under-dash fuse/relay box connector Q (16P)	Windshield wiper/washer switch 8P connector
5	8 [5]

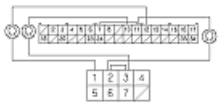
[ ]: LHD model

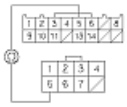
RHD model





LHD model





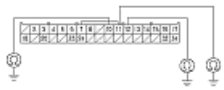
Is there continuity?

YES - Faulty MICU, replace the under-dash fuse/relay box. ■

NO - Repair an open in the wire.■

DTC Troubleshooting: B1283

DTC B1283:
Front Wiper LOW Position Circuit Malfunction



1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Operate each windshield wiper switch position, then turn the wiper/washer switch OFF.
4. Check for DTCs with the HDS.

   Is DTC B1283 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
5. Select WIPER from the BODY ELECTRICAL menu.
6. Check each windshield wiper switch position value with the DATA LIST menu.

   When the windshield wiper switch is OFF:

Data List	Value
Windshield Wiper Switch (LOW)	OFF
Windshield Wiper Switch (HIGH)	OFF
Windshield Wiper Switch (MIST)	OFF
Windshield Wiper Switch (INT)	OFF

   Are all data list values indicated OFF?
   YES - Go to Step 15 .
   NO - Go to Step 7 .
7. Turn the ignition switch to LOCK (0).
8. Disconnect the wiper/washer switch 8P connector.
9. Turn the ignition switch to ON (II).
10. Select WIPER from the BODY ELECTRICAL menu.
11. Check each windshield wiper switch position value with the DATA LIST menu.

Data List	Value
Windshield Wiper Switch (LOW)	OFF
Windshield Wiper Switch (HIGH)	OFF
Windshield Wiper Switch (MIST)	OFF
Windshield Wiper Switch (INT)	OFF

    Are all data list values indicated OFF?
    YES - Replace the wiper/washer switch.■
    NO - Go to Step 12 .
12. Turn the ignition switch to LOCK (0).
13. Disconnect under-dash fuse/relay box connector M (34P).
14. Check for continuity between under-dash fuse/relay box connector M (34P) No. 10, No. 11, and No. 12 terminals and body ground.

    Is there continuity?
    YES - Repair a short to ground in the wire.■
    NO - Faulty MICU, replace the under-dash fuse/relay box. ■
15. Check each windshield wiper switch position value with the DATA LIST menu.

    When the windshield wiper switch is ON (LOW):

Data List	Value
Windshield Wiper Switch (LOW)	ON

    When the windshield wiper switch is ON (HIGH):

Data List	Value
Windshield Wiper Switch (HIGH)	ON

When the windshield wiper switch is MIST:

Data List	Value
Windshield Wiper Switch (MIST)	ON

When the windshield wiper switch is INT:

Data List	Value
Windshield Wiper Switch (INT)	ON

Are all data list values correct?

YES - Faulty MICU, replace the under-dash fuse/relay box. ■

NO - Go to Step 16 .

16. Turn the ignition switch to LOCK (0).
17. Do the wiper/washer switch test.

Is the wiper/washer switch OK?

YES - Go to Step 18 .

NO - Replace the wiper/washer switch.■

18. Disconnect under-dash fuse/relay box connectors M (34P) and Q (16P).

---

19. Check for continuity between under-dash fuse/relay box connector M (34P) terminals and the windshield wiper/washer switch 8P connector terminals as shown:

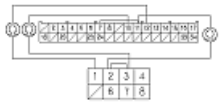
Under-dash fuse/relay box connector M (34P)	Windshield wiper/washer switch 8P connector
10	3 [4]
11	2
12	1 [3]

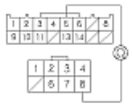
[ ]: LHD model

Under-dash fuse/relay box connector Q (16P)	Windshield wiper/washer switch 8P connector
5	8 [5]

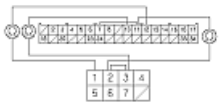
[ ]: LHD model

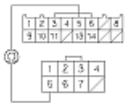
RHD model





LHD model





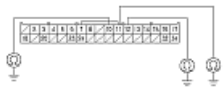
Is there continuity?

YES - Faulty MICU, replace the under-dash fuse/relay box. ■

NO - Repair an open in the wire.■

DTC Troubleshooting: B1284

DTC B1284:
Front Wiper HIGH Position Circuit Malfunction



1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Operate each windshield wiper switch position, then turn the wiper/washer switch OFF.
4. Check for DTCs with the HDS.

   Is DTC B1284 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
5. Select WIPERS from the BODY ELECTRICAL menu.
6. Check each windshield wiper switch position value with the DATA LIST menu.

   When the windshield wiper switch is OFF:

Data List	Value
Windshield Wiper Switch (LOW)	OFF
Windshield Wiper Switch (HIGH)	OFF
Windshield Wiper Switch (MIST)	OFF
Windshield Wiper Switch (INT)	OFF

   Are all data list values indicated OFF?
   YES - Go to Step 15 .
   NO - Go to Step 7 .
7. Turn the ignition switch to LOCK (0).
8. Disconnect the wiper/washer switch 8P connector.
9. Turn the ignition switch to ON (II).
10. Select WIPERS from the BODY ELECTRICAL menu.
11. Check each windshield wiper switch position value with the DATA LIST menu.

Data List	Value
Windshield Wiper Switch (LOW)	OFF
Windshield Wiper Switch (HIGH)	OFF
Windshield Wiper Switch (MIST)	OFF
Windshield Wiper Switch (INT)	OFF

    Are all data list values indicated OFF?
    YES - Replace the wiper/washer switch.■
    NO - Go to Step 12 .
12. Turn the ignition switch to LOCK (0).
13. Disconnect under-dash fuse/relay box connector M (34P).
14. Check for continuity between under-dash fuse/relay box connector M (34P) No. 10, No. 11, and No. 12 terminals and body ground.

    Is there continuity?
    YES - Repair a short to ground in the wire.■
    NO - Faulty MICU, replace the under-dash fuse/relay box. ■
15. Check each windshield wiper switch position value with the DATA LIST menu.

    When the windshield wiper switch is ON (LOW):

Data List	Value
Windshield Wiper Switch (LOW)	ON

    When the windshield wiper switch is ON (HIGH):

Data List	Value
Windshield Wiper Switch (HIGH)	ON

When the windshield wiper switch is MIST:

Data List	Value
Windshield Wiper Switch (MIST)	ON

When the windshield wiper switch is INT:

Data List	Value
Windshield Wiper Switch (INT)	ON

Are all data list values correct?
YES - Faulty MICU, replace the under-dash fuse/relay box. ■
NO - Go to Step 16 .

16. Turn the ignition switch to LOCK (0).
17. Do the wiper/washer switch test.

Is the wiper/washer switch OK?
YES - Go to Step 18 .
NO - Replace the wiper/washer switch.■

18. Disconnect under-dash fuse/relay box connectors M (34P) and Q (16P).

---

19. Check for continuity between under-dash fuse/relay box connector M (34P) terminals and the windshield wiper/washer switch 8P connector terminals as shown:

Under-dash fuse/relay box connector M (34P)	Windshield wiper/washer switch 8P connector
10	3 [4]
11	2
12	1 [3]

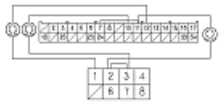
[ ]: LHD model

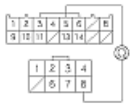
Under-dash fuse/relay box connector Q (16P)	Windshield wiper/washer switch 8P connector
5	8 [5]

[ ]: LHD model

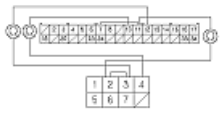
Is there continuity?
YES - Faulty MICU, replace the under-dash fuse/relay box. ■
NO - Repair an open in the wire.■

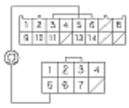
RHD model





LHD model





How to Troubleshoot the SRS

DTC (Diagnostic Trouble Codes)

The self-diagnostic function of the SRS system allows it to locate the causes of system problems and then store this information in memory. For easier troubleshooting, this data can be retrieved via a data link circuit.

- When you turn the ignition switch to ON (II), the SRS indicator should come on. If it goes off after 6 seconds, the system is normal, and is not currently detecting any abnormality.
- If there is an abnormality, the system locates and defines the problem, stores this information in memory, and turns the SRS indicator on. The data remains in the memory even when the ignition switch is turned to LOCK (0) or if the battery is disconnected.
- The data is stored in memory as a diagnostic trouble code (DTC).
- DTCs are either latching or resetting depending on the malfunction. With resetting DTCs, the SRS indicator goes off the next time the ignition switch is turned to ON (II) and the system is normal, but the DTC is still stored. With latching DTCs, the SRS indicator does not turn OFF until the malfunction is repaired and the DTC is cleared.
- When you connect the HDS to the 16P data link connector (DLC), you can retrieve a more detailed DTC in the Honda Systems ‘‘SRS" menu.
- After reading and recording the DTC, proceed with the troubleshooting procedure for that code.

Precautions

- Use only a digital multimeter to check the system. Make sure its output is 10 mA (0.01 A) or less when switched to the smallest value in the ohmmeter range. A tester with a higher output could damage the airbag circuit or cause accidental airbag deployment and possible injury.
- Whenever the ignition switch is in ON (II), or has been turned to LOCK (0) for less than 3 minutes, be careful not to bump the SRS unit; the airbags could accidentally deploy and cause damage or injuries.
- Before you remove the dashboard wire harness or floor wire harness, disconnect the driver's airbag connector, the front passenger's airbag connector, both side airbag connectors, both side curtain airbag connectors, and both seat belt tensioner connectors.
- Make sure the battery is fully charged. If the battery is dead or low, measuring values may not be correct.
- Do not touch a tester probe to the terminals in the SRS unit or harness connectors, and do not connect the SRS unit terminals or the sensor terminals or the sensor terminals with a jumper wire. Use only the backprobe set and the multimeter. Backprobe spring-loaded lock type connectors correctly.

Reading the DTC

1. Make sure the ignition switch is to LOCK (0).
2. Connect the HDS to the data link connector (DLC) (A).
3. Turn the ignition switch to ON (II).
4. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, troubleshoot the DLC circuit.
5. Use the HDS to check for SRS DTCs.
6. Read and record the DTC.
7. Turn the ignition switch to LOCK (0).
8. Disconnect the HDS from the DLC.
9. Do the troubleshooting procedure for the DTC.

Clear the DTC Memory With the HDS

NOTE: Make sure the battery is fully charged before you begin.

1. Make sure the ignition switch is to LOCK (0).
2. Connect the HDS to the data link connector (DLC) (A).
3. Turn the ignition switch to ON (II).
4. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, troubleshoot the DLC circuit.
5. In the SRS MENU of the HDS, select SRS, then DTC to clear DTC(s).
6. Turn the ignition switch to LOCK (0), then wait for 10 seconds.
7. Disconnect the HDS from the DLC.

Troubleshooting Intermittent Failures

If there was a malfunction that sets a DTC, but it does not recur, it will be stored in the memory as an intermittent failure, and the SRS indicator may come on depending on the malfunction detected.
NOTE:

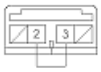
- Check the condition of the battery, and the charging system. Low battery voltage may cause some intermittent failures.
- A faulty cable reel can cause intermittent connections related to the driver's airbag inflator DTCs.

After checking the DTC, troubleshoot as follows:

1. Read the DTC (see Reading the DTC).
2. Clear the DTC memory (see Clear the DTC Memory).
3. Set the parking brake, then start the engine, and let it idle.
4. The SRS indicator comes on for about 6 seconds and then goes off.
5. Shake the related wire harnesses and the connectors, then look for loose connections, and poor grounds.
6. Take a test-drive (quick acceleration, quick braking, and cornering), turn the steering wheel fully left and right, and hold it there for 5 to 10 seconds. If the problem recurs, the SRS indicator will come on.
7. If you cannot duplicate the concern, ask the customer about the conditions when it occurred, or ask the customer to demonstrate the concern.
8. If you cannot duplicate the intermittent failure, the system is OK at this time.

SRS DTC Troubleshooting: 21-1x, 21-2x

DTC 21-1x ("x" can be 0 thru 9 or A thru F):
Open in the Left Side Seat Belt Tensioner
DTC 21-2x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in the Left Side Seat Belt Tensioner
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

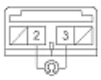
   Is DTC 21-1x or 21-2x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect the floor wire harness 4P connector from the left side seat belt tensioner.
7. Install a jumper wire between the No. 2 and the No. 3 terminals of the floor wire harness 4P connector.
8. Do the battery terminal reconnection procedure.
9. Clear the DTC memory.
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Read the DTC.

    Is DTC 21-1x or 21-2x indicated?
    YES - Go to Step 12 .
    NO - Faulty left side seat belt tensioner; replace the left side seat belt tensioner. ■
12. Turn the ignition switch to LOCK (0).
13. Do the battery terminal disconnection procedure , then wait for 3 minutes.
14. Remove a jumper wire from the floor wire harness 4P connector.
15. Disconnect SRS unit connector B (39P) from the SRS unit.

16. Install a jumper wire between the No. 12 and the No. 13 terminals of SRS unit connector B (39P).

17. Check for continuity between the No. 2 and the No. 3 terminals of floor wire harness 4P connector.

    Is there continuity?
    YES - Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit. ■
    NO - Open or increased resistance in the floor wire harness; replace the floor wire harness.■



SRS DTC Troubleshooting: 21-3x

DTC 21-3x (‘‘x" can be 0 thru 9 or A thru F):
Short to Another Wire or Decreased Resistance in the Left Side Seat Belt Tensioner
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

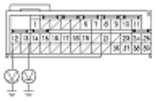
   Is DTC 21-3x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect the floor wire harness 4P connector from the left side seat belt tensioner.
7. Do the battery terminal reconnection procedure.
8. Clear the DTC memory.
9. Turn the ignition switch to ON (II), then wait for 10 seconds.
10. Read the DTC.

    Is DTC 21-3x indicated?
    YES - Go to Step 11 .
    NO - Faulty left side seat belt tensioner; replace the left side seat belt tensioner. ■
11. Turn the ignition switch to LOCK (0).
12. Do the battery terminal disconnection procedure , then wait for 3 minutes.
13. Disconnect SRS unit connector B (39P) from the SRS unit.
14. Connect an SRS short canceller (070AZ-SAA0100) to No. 12 and No. 13 terminals of the SRS unit connector B (39P).
15. Measure the resistance between the No. 12 and No. 13 terminals of SRS unit connector B (39P). There should be 0−1.0 Ω.

    Is the resistance as specified?
    YES - Short in the floor wire harness; replace the floor wire harness.■
    NO - Faulty SRS unit; replace the SRS unit. ■

SRS DTC Troubleshooting: 21-8x

DTC 21-8x (‘‘x" can be 0 thru 9 or A thru F):
Short to Power in the Left Side Seat Belt Tensioner
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 21-8x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect SRS unit connector B (39P) from the SRS unit.
7. Connect an SRS short canceller (070AZ-SAA0100) to the No. 12 and the No. 13 terminals of SRS unit connector A (39P).
8. Do the battery terminal reconnection procedure.
9. Turn the ignition switch to ON (II), then wait for 10 seconds.
10. Measure the voltage between the No. 12 and the No. 13 terminals of SRS unit connector B (39P) and body ground. There should be less than 1 V.

    Is the voltage as specified?
    YES - Faulty SRS unit; replace the SRS unit. ■
    NO - Go to Step 11 .
11. Turn the ignition switch to LOCK (0).
12. Do the battery terminal disconnection procedure , then wait for 3 minutes.
13. Disconnect the floor wire harness 4P connector from the left side seat belt tensioner.
14. Do the battery terminal reconnection procedure.
15. Turn the ignition switch to ON (II), then wait for 10 seconds.

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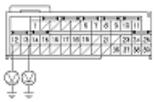
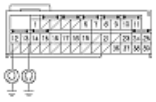
16. Measure the voltage between the No. 12 and the No. 13 terminals of SRS unit connector B (39P) and body ground. There should be less than 1 V.



    Is the voltage as specified?
    YES - Faulty left side seat belt tensioner; replace the left side seat belt tensioner. ■
    NO - Short to power in the floor wire harness; replace the floor wire harness.■

SRS DTC Troubleshooting: 21-9x

DTC 21-9x (‘‘x" can be 0 thru 9 or A thru F):
Short to Ground in the Left Side Seat Belt Tensioner
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 21-9x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect SRS unit connector B (39P) from the SRS unit.
7. Check for continuity between the No. 12 and the No. 13 terminals of SRS unit connector B (39P) and body ground.

   Is there continuity?
   YES - Go to Step 8 .
   NO - Faulty SRS unit; replace the SRS unit. ■
8. Disconnect the floor wire harness 4P connector from the left side seat belt tensioner.

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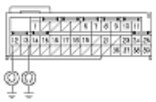
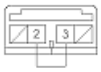
9. Check for continuity between the No. 12 and the No. 13 terminals of SRS unit connector B (39P) and body ground.



   Is there continuity?
   YES - Short to ground in the floor wire harness; replace the floor wire harness.■
   NO - Faulty left side seat belt tensioner; replace the left side seat belt tensioner. ■

SRS DTC Troubleshooting: 22-1x, 22-2x

DTC 22-1x ("x" can be 0 thru 9 or A thru F):
Open in the Right Side Seat Belt Tensioner
DTC 22-2x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in the Right Side Seat Belt Tensioner
NOTE:



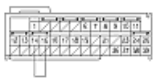
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 22-1x or 22-2x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect the floor wire harness 4P connector from the right side seat belt tensioner.
7. Install a jumper wire between the No. 2 and the No. 3 terminals of the floor wire harness 4P connector.
8. Do the battery terminal reconnection procedure.
9. Clear the DTC memory.
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Read the DTC.

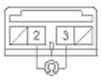
    Is DTC 22-1x or 22-2x indicated?
    YES - Go to Step 12 .
    NO - Faulty right side seat belt tensioner; replace the right side seat belt tensioner. ■
12. Turn the ignition switch to LOCK (0).
13. Do the battery terminal disconnection procedure , then wait for 3 minutes.
14. Remove a jumper wire from the floor wire harness 4P connector.
15. Disconnect SRS unit connector B (39P) from the SRS unit.

16. Install a jumper wire between the No. 14 and the No. 15 terminals of SRS unit connector B (39P).



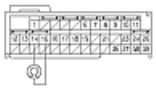
17. Check for continuity between the No. 2 and the No. 3 terminals of floor wire harness 4P connector.

    Is there continuity?
    YES - Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit. ■
    NO - Open or increased resistance in the floor wire harness; replace the floor wire harness.■



SRS DTC Troubleshooting: 22-3x

DTC 22-3x (‘‘x" can be 0 thru 9 or A thru F):
Short to Another Wire or Decreased Resistance in the Right Side Seat Belt Tensioner
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

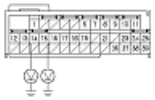
   Is DTC 22-3x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect the floor wire harness 4P connector from the right side seat belt tensioner.
7. Read the DTC.

   Is DTC 22-3x indicated?
   YES - Go to Step 8 .
   NO - Faulty right side seat belt tensioner; replace the right side seat belt tensioner. ■
8. Turn the ignition switch to LOCK (0).
9. Do the battery terminal disconnection procedure , then wait for 3 minutes.
10. Disconnect SRS unit connector B (39P) from the SRS unit.
11. Connect an SRS short canceller (070AZ-SAA0100) to No. 14 and No. 15 terminals of the SRS unit connector B (39P).
12. Measure the resistance between the No. 14 and No. 15 terminals of SRS unit connector B (39P). There should be 0−1.0 Ω.

    Is the resistance as specified?
    YES - Short in the floor wire harness; replace the floor wire harness.■
    NO - Faulty SRS unit; replace the SRS unit. ■

SRS DTC Troubleshooting: 22-8x

DTC 22-8x (“x" can be 0 thru 9 or A thru F):
Short to Power in the Right Side Seat Belt Tensioner
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 22-8x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect SRS unit connector B (39P) from the SRS unit.
7. Connect an SRS short canceller (070AZ-SAA0100) to the No. 14 and the No. 15 terminals of SRS unit connector B (39P).
8. Do the battery terminal reconnection procedure.
9. Turn the ignition switch to ON (II), then wait for 10 seconds.
10. Measure the voltage between the No. 14 and the No. 15 terminals of SRS unit connector B (39P) and body ground. There should be less than 1 V.

    Is the voltage as specified?
    YES - Faulty SRS unit; replace the SRS unit. ■
    NO - Go to Step 11 .
11. Turn the ignition switch to LOCK (0).
12. Do the battery terminal disconnection procedure , then wait for 3 minutes.
13. Disconnect the floor wire harness 4P connector from the right side seat belt tensioner.
14. Do the battery terminal reconnection procedure.
15. Turn the ignition switch to ON (II), then wait for 10 seconds.

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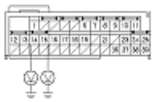
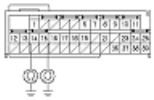
16. Measure the voltage between the No. 14 and the No. 15 terminals of SRS unit connector B (39P) and body ground. There should be less than 1 V.



    Is the voltage as specified?
    YES - Faulty right side seat belt tensioner; replace the right side seat belt tensioner. ■
    NO - Short to power in the floor wire harness; replace the floor wire harness.■

SRS DTC Troubleshooting: 22-9x

DTC 22-9x (‘‘x" can be 0 thru 9 or A thru F):
Short to Ground in the Right Side Seat Belt Tensioner
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 22-9x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect SRS unit connector B (39P) from the SRS unit.
7. Check for continuity between the No. 14 and the No. 15 terminals of SRS unit connector B (39P) and body ground.

   Is there continuity?
   YES - Go to Step 8 .
   NO - Faulty SRS unit; replace the SRS unit. ■
8. Disconnect the floor wire harness 4P connector from the right side seat belt tensioner.

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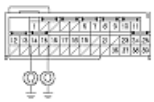
9. Check for continuity between the No. 14 and the No. 15 terminals of SRS unit connector B (39P) and body ground.



   Is there continuity?
   YES - Short to ground in the floor wire harness; replace the floor wire harness.■
   NO - Faulty right side seat belt tensioner; replace the right side seat belt tensioner. ■

SRS DTC Troubleshooting: 31-1x, 31-2x

DTC 31-1x ("x" can be 0 thru 9 or A thru F):
Open in the Left Side Airbag Inflator
DTC 31-2x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in the Left Side Airbag Inflator
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 31-1x or 31-2x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect the floor wire harness 2P connector from the left side airbag.
7. Install a jumper wire between the No. 1 and the No. 2 terminals of floor wire harness 2P connector.
8. Do the battery terminal reconnection procedure.
9. Clear the DTC memory.
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Read the DTC.

    Is DTC 31-1x or 31-2x indicated?
    YES - Go to Step 12 .
    NO - Faulty left side airbag; replace the left side airbag. ■
12. Turn the ignition switch to LOCK (0).
13. Do the battery terminal disconnection procedure , then wait for 3 minutes.
14. Remove a jumper wire from the floor wire harness 2P connector.
15. Disconnect SRS unit connector B (39P) from the SRS unit.

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16. Install a jumper wire between the No. 6 and the No. 7 terminals of SRS unit connector B (39P).

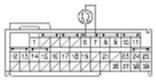
---

17. Check for continuity between the No. 1 and the No. 2 terminals of floor wire harness 2P connector.

    Is there continuity?
    YES - Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit. ■
    NO - Open or increased resistance in the floor wire harness; replace the floor wire harness.■

SRS DTC Troubleshooting: 31-3x

DTC 31-3x (‘‘x" can be 0 thru 9 or A thru F):
Short to Another Wire or Decreased Resistance in the Left Side Airbag Inflator
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

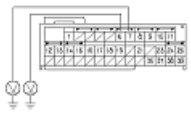
   Is DTC 31-3x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect the floor wire harness 2P connector from the left side airbag.
7. Do the battery terminal reconnection procedure.
8. Clear the DTC memory.
9. Turn the ignition switch to ON (II), then wait for 10 seconds.
10. Read the DTC.

    Is DTC 31-3x indicated?
    YES - Go to Step 11 .
    NO - Faulty left side airbag; replace the left side airbag. ■
11. Turn the ignition switch to LOCK (0).
12. Do the battery terminal disconnection procedure , then wait for 3 minutes.
13. Disconnect SRS unit connector B (39P) from the SRS unit.
14. Connect an SRS short canceller (070AZ-SAA0100) to No. 6 and No. 7 terminals of the SRS unit connector B (39P).
15. Measure the resistance between the No. 6 and No. 7 terminals of SRS unit connector B (39P). There should be 0−1.0 Ω.

    Is the resistance as specified?
    YES - Short in the floor wire harness; replace the floor wire harness.■
    NO - Faulty SRS unit; replace the SRS unit. ■

SRS DTC Troubleshooting: 31-8x

DTC 31-8x (“x" can be 0 thru 9 or A thru F):
Short to Power in the Left Side Airbag Inflator
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 31-8x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect the SRS unit connector B (39P) from the SRS unit.
7. Connect an SRS short canceller (070AZ-SAA0100) to the No. 6 and the No. 7 terminals of SRS unit connector B (39P).
8. Do the battery terminal reconnection procedure.
9. Turn the ignition switch to ON (II), then wait for 10 seconds.
10. Measure the voltage between the No. 6 and the No. 7 terminals of SRS unit connector B (39P) and body ground. There should be less than 1 V.

    Is the voltage as specified?
    YES - Faulty SRS unit; replace the SRS unit. ■
    NO - Go to Step 11 .
11. Turn the ignition switch to LOCK (0).
12. Do the battery terminal disconnection procedure , then wait for 3 minutes.
13. Disconnect the floor wire harness 2P connector from the left side airbag.
14. Do the battery terminal reconnection procedure.
15. Turn the ignition switch to ON (II), then wait for 10 seconds.

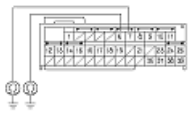
---

16. Measure the voltage between the No. 6 and the No. 7 terminals of SRS unit connector B (39P) and body ground. There should be less than 1 V.

    Is the voltage as specified?
    YES - Faulty left side airbag; replace the left side airbag. ■
    NO - Short to power in the floor wire harness; replace the floor wire harness.■

SRS DTC Troubleshooting: 31-9x

DTC 31-9x (‘‘x" can be 0 thru 9 or A thru F):
Short to Ground in the Left Side Airbag Inflator
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

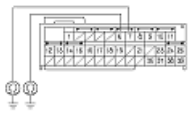
1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 31-9x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect SRS unit connector B (39P) from the SRS unit.
7. Check for continuity between the No. 6 and the No. 7 terminals of SRS unit connector B (39P) and body ground.

   Is there continuity?
   YES - Go to Step 8 .
   NO - Faulty SRS unit; replace the SRS unit. ■
8. Disconnect the floor wire harness 2P connector from the left side airbag.

---

9. Check for continuity between the No. 6 and the No. 7 terminals of SRS unit connector B (39P) and body ground.



   Is there continuity?
   YES - Short to ground in the floor wire harness; replace the floor wire harness.■
   NO - Faulty left side airbag; replace the left side airbag. ■

SRS DTC Troubleshooting: 32-1x, 32-2x

DTC 32-1x ("x" can be 0 thru 9 or A thru F):
Open in the Right Side Airbag Inflator
DTC 32-2x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in the Right Side Airbag Inflator
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

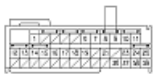
1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 32-1x or 32-2x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect the floor wire harness 2P connector from the right side airbag.
7. Install a jumper wire between the No. 1 and the No. 2 terminals of the floor wire harness 2P connector.
8. Do the battery terminal reconnection procedure.
9. Clear the DTC memory.
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Read the DTC.

    Is DTC 32-1x or 32-2x indicated?
    YES - Go to Step 12 .
    NO - Faulty right side airbag; replace the right side airbag. ■
12. Turn the ignition switch to LOCK (0).
13. Do the battery terminal disconnection procedure , then wait for 3 minutes.
14. Remove a jumper wire from the floor wire harness 2P connector.
15. Disconnect SRS unit connector B (39P) from the SRS unit.

---

16. Install a jumper wire between the No. 8 and the No. 9 terminals of SRS unit connector B (39P).



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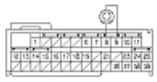
17. Check for continuity between the No. 1 and the No. 2 terminals of floor wire harness 2P connector.

    Is there continuity?
    YES - Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit. ■
    NO - Open or inscreased resistance in the floor wire harness; replace the floor wire harness.■

SRS DTC Troubleshooting: 32-3x

DTC 32-3x (‘‘x" can be 0 thru 9 or A thru F):
Short to Another Wire or Decreased Resistance in the Right Side Airbag Inflator
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

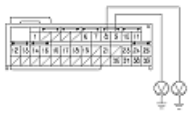
   Is DTC 32-3x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect the floor wire harness 2P connector from the right side airbag.
7. Do the battery terminal reconnection procedure.
8. Clear the DTC memory.
9. Turn the ignition switch to LOCK (0), then wait for 10 seconds.
10. Read the DTC.

    Is DTC 32-3x indicated?
    YES - Go to Step 11 .
    NO - Faulty right side airbag; replace the right side airbag. ■
11. Turn the ignition switch to LOCK (0).
12. Do the battery terminal disconnection procedure , then wait for 3 minutes.
13. Disconnect SRS unit connector B (39P) from the SRS unit.
14. Connect an SRS short canceller (070AZ-SAA0100) to No. 8 and No. 9 terminals of the SRS unit connector B (39P).
15. Measure the resistance between the No. 8 and the No. 9 terminals of SRS unit connector B (39P). There should be 0−1.0 Ω.

    Is the resistance as specified?
    YES - Short in the floor wire harness; replace the floor wire harness.■
    NO - Faulty SRS unit; replace the SRS unit. ■

SRS DTC Troubleshooting: 32-8x

DTC 32-8x (“x" can be 0 thru 9 or A thru F):
Short to Power in the Right Side Airbag Inflator
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 32-8x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect SRS unit connector B (39P) from the SRS unit.
7. Connect an SRS short canceller (070AZ-SAA0100) to the No. 8 and the No. 9 terminals of SRS unit connector B (39P).
8. Do the battery terminal reconnection procedure.
9. Turn the ignition switch to ON (II), then wait for 10 seconds.
10. Measure the voltage between the No. 8 and the No. 9 terminals of SRS unit connector B (39P) and body ground. There should be less than 1 V.

    Is the voltage as specified?
    YES - Faulty SRS unit; replace the SRS unit. ■
    NO - Go to Step 11 .
11. Turn the ignition switch to LOCK (0).
12. Do the battery terminal disconnection procedure , then wait for 3 minutes.
13. Disconnect the floor wire harness 2P connector from the right side airbag.
14. Do the battery terminal reconnection procedure.
15. Turn the ignition switch to ON (II), then wait for 10 seconds.

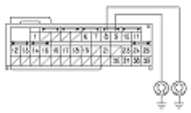
---

16. Measure the voltage between the No. 8 and the No. 9 terminals of SRS unit connector B (39P) and body ground. There should be less than 1 V.

    Is the voltage as specified?
    YES - Faulty right side airbag; replace the right side airbag. ■
    NO - Short to power in the floor wire harness; replace the floor wire harness.■

SRS DTC Troubleshooting: 32-9x

DTC 32-9x (‘‘x" can be 0 thru 9 or A thru F):
Short to Ground in the Right Side Airbag Inflator
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

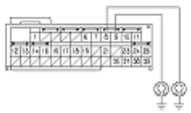
1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 32-9x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect SRS unit connector B (39P) from the SRS unit.
7. Check for continuity between the No. 8 and the No. 9 terminals of floor wire harness 2P connector and body ground.

   Is there continuity?
   YES - Go to Step 8 .
   NO - Faulty SRS unit; replace the SRS unit. ■
8. Disconnect the floor wire harness 2P connector from the right side airbag.

---

9. Check for continuity between the No. 8 and the No. 9 terminals of SRS unit connector B (39P) and body ground.



   Is there continuity?
   YES - Short to ground in the floor wire harness; replace the floor wire harness.■
   NO - Faulty right side airbag; replace the right side airbag. ■

SRS DTC Troubleshooting: 33-1x, 33-2x

DTC 33-1x ("x" can be 0 thru 9 or A thru F):
Open in the Left Side Curtain Airbag Inflator
DTC 33-2x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in the Left Side Curtain Airbag Inflator
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 33-1x or 33-2x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect the floor wire harness 2P connector from the left side curtain airbag.
7. Install a jumper wire between the No. 1 and the No. 2 terminals of floor wire harness 2P connector.
8. Do the battery terminal reconnection procedure.
9. Clear the DTC memory.
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Read the DTC.

    Is DTC 33-1x or 33-2x indicated?
    YES - Go to Step 12 .
    NO - Faulty left side curtain airbag; replace the left side curtain airbag. ■
12. Turn the ignition switch to LOCK (0).
13. Do the battery terminal disconnection procedure , then wait for 3 minutes.
14. Remove a jumper wire from the floor wire harness 2P connector.
15. Disconnect SRS unit connector B (32P) from the SRS unit.

---

16. Install a jumper wire between the No. 10 and the No. 11 terminals of SRS unit connector B (39P).

---

17. Check for continuity between the No. 1 and the No. 2 terminals of floor wire harness 2P connector.

    Is there continuity?
    YES - Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit. ■
    NO - Open or increased resistance in the floor wire harness; replace the floor wire harness.■

SRS DTC Troubleshooting: 33-3x

DTC 33-3x (‘‘x" can be 0 thru 9 or A thru F):
Short to Another Wire or Decreased Resistance in the Left Side Curtain Airbag Inflator
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

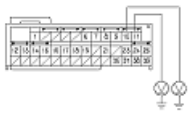
   Is DTC 33-3x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect the floor wire harness 2P connector from the left side curtain airbag.
7. Do the battery terminal reconnection procedure.
8. Clear the DTC memory.
9. Turn the ignition switch to ON (II), then wait for 10 seconds.
10. Read the DTC.

    Is DTC 33-3x indicated?
    YES - Go to Step 11 .
    NO - Faulty left side curtain airbag; replace the left side curtain airbag. ■
11. Turn the ignition switch to LOCK (0).
12. Do the battery terminal disconnection procedure , then wait for 3 minutes.
13. Disconnect SRS unit connector B (39P) from the SRS unit.
14. Connect an SRS short canceller (070AZ-SAA0100) to No. 10 and No. 11 terminals of the SRS unit connector B (39P).
15. Measure the resistance between the No. 10 and No. 11 terminals of the SRS unit connector B (39P). There should be 0−1.0 Ω.

    Is the resistance as specified?
    YES - Short in the floor wire harness; replace the floor wire harness.■
    NO - Faulty SRS unit; replace the SRS unit. ■

SRS DTC Troubleshooting: 33-8x

DTC 33-8x (“x" can be 0 thru 9 or A thru F):
Short to Power in the Left Side Curtain Airbag Inflator
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

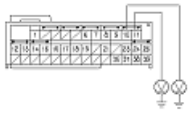
1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 33-8x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect the SRS unit connector B (39P) from the SRS unit.
7. Connect an SRS short canceller (070AZ-SAA0100) to the No. 10 and the No. 11 terminals of SRS unit connector B (39P).
8. Do the battery terminal reconnection procedure.
9. Turn the ignition switch to ON (II), then wait for 10 seconds.
10. Measure the voltage between the No. 10 and the No. 11 terminals of SRS unit connector B (39P) and body ground. There should be less than 1 V.

    Is the voltage as specified?
    YES - Faulty SRS unit; replace the SRS unit. ■
    NO - Go to Step 11 .
11. Turn the ignition switch to LOCK (0).
12. Do the battery terminal disconnection procedure , then wait for 3 minutes.
13. Disconnect the floor wire harness 2P connector from the left side curtain airbag.
14. Do the battery terminal reconnection procedure.
15. Turn the ignition switch to ON (II), then wait for 10 seconds.

---

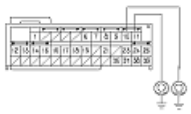
16. Measure the voltage between the No. 10 and the No. 11 terminals of SRS unit connector B (39P) and body ground. There should be less than 1 V.



    Is the voltage as specified?
    YES - Faulty left side curtain airbag; replace the left side curtain airbag. ■
    NO - Short to power in the floor wire harness; replace the floor wire harness.■

SRS DTC Troubleshooting: 33-9x

DTC 33-9x (‘‘x" can be 0 thru 9 or A thru F):
Short to Ground in the Left Side Curtain Airbag Inflator
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 33-9x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect SRS unit connector B (39P) from the SRS unit.
7. Check for continuity between the No. 10 and the No. 11 terminals of SRS unit connector B (39P) and body ground.

   Is there continuity?
   YES - Go to Step 8 .
   NO - Faulty SRS unit; replace the SRS unit. ■
8. Disconnect the floor wire harness 2P connector from the left side curtain airbag.

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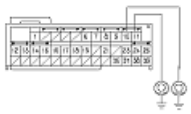
9. Check for continuity between the No. 10 and the No. 11 terminals of SRS unit connector B (39P) and body ground.



   Is there continuity?
   YES - Short to ground in the floor wire harness; replace the floor wire harness.■
   NO - Faulty left side curtain airbag; replace the left side curtain airbag. ■

SRS DTC Troubleshooting: 34-1x, 34-2x

DTC 34-1x ("x" can be 0 thru 9 or A thru F):
Open in the Right Side Curtain Airbag Inflator
DTC 34-2x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in the Right Side Curtain Airbag Inflator
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 34-1x or 34-2x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure, then wait for 3 minutes.
6. Disconnect the floor wire harness 2P connector from the right side curtain airbag.
7. Install a jumper wire between the No. 1 and the No. 2 terminals of the floor wire harness 2P connector.
8. Do the battery terminal reconnection procedure.
9. Clear the DTC memory.
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Read the DTC.

    Is DTC 34-1x or 34-2x indicated?
    YES - Go to Step 12 .
    NO - Faulty right side curtain airbag, replace the right side curtain airbag. ■
12. Turn the ignition switch to LOCK (0).
13. Do the battery terminal disconnection procedure, then wait for 3 minutes.
14. Remove a jumper wire from the floor wire harness 2P connector.
15. Disconnect SRS unit connector B (39P) from the SRS unit.

16. Install a jumper wire between the No. 24 and the No. 25 terminals of SRS unit connector B (39P).

17. Check for continuity between the No. 1 and the No. 2 terminals of the floor wire harness 2P connector.

    Is there continuity?
    YES - Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit . ■
    NO - Open or increased resistance in the floor wire harness; replace the floor wire harness.■

SRS DTC Troubleshooting: 34-3x

DTC 34-3x (‘‘x" can be 0 thru 9 or A thru F):
Short to Another Wire or Decreased Resistance in the Right Side Curtain Airbag Inflator
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

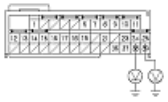
   Is DTC 34-3x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure, then wait for 3 minutes.
6. Disconnect the floor wire harness 2P connector from the right side curtain airbag.
7. Do the battery terminal reconnection procedure.
8. Clear the DTC memory.
9. Turn the ignition switch to ON (II), then wait for 10 seconds.
10. Read the DTC.

    Is DTC 34-3x indicated?
    YES - Go to Step 11 .
    NO - Faulty right side curtain airbag; replace the right side curtain airbag.
11. Turn the ignition switch to LOCK (0).
12. Do the battery terminal disconnection procedure, then wait for 3 minutes.
13. Disconnect SRS unit connector B (39P) from the SRS unit.
14. Connect an SRS short canceller (070AZ-SAA0100) to No. 24 and No. 25 terminals of the SRS unit connector B (39P).
15. Measure the resistance between the No. 24 and No. 25 terminals of the SRS unit connector B (39P). There should be 0−1.0 Ω.

    Is the resistance as specified?
    YES - Short in the floor wire harness; replace the floor wire harness.■
    NO - Faulty SRS unit; replace the SRS unit. ■

SRS DTC Troubleshooting: 34-8x

DTC 34-8x (‘‘x" can be 0 thru 9 or A thru F):
Short to Power in the Right Side Curtain Airbag Inflator
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 34-8x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure, then wait for 3 minutes.
6. Disconnect SRS unit connector B (39P) from the SRS unit.
7. Connect an SRS short canceller (070AZ-SAA0100) to No. 24 and No. 25 terminals of the SRS unit connector B (39P).
8. Do the battery terminal reconnection procedure.
9. Turn the ignition switch to ON (II), then wait for 10 seconds.
10. Measure the voltage between the No. 24 and the No. 25 terminals of SRS unit connector B (39P) and body ground. There should be less than 1 V.

    Is the voltage as specified?
    YES - Faulty SRS unit; replace the SRS unit. ■
    NO - Go to Step 11 .
11. Turn the ignition switch to LOCK (0).
12. Do the battery terminal disconnection procedure, then wait for 3 minutes.
13. Disconnect the floor wire harness 2P connector from the right side curtain airbag.
14. Do the battery terminal reconnection procedure.
15. Turn the ignition switch to ON (II), then wait for 10 seconds.

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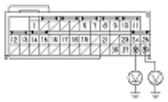
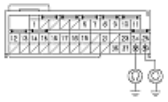
16. Measure the voltage between the No. 24 and the No. 25 terminals of SRS unit connector B (39P) and body ground. There should be less than 1 V.



    Is the voltage as specified?
    YES - Faulty right side curtain airbag; replace the right side curtain airbag. ■
    NO - Short to power in the floor wire harness; replace the floor wire harness.■

SRS DTC Troubleshooting: 34-9x

DTC 34-9x (‘‘x" can be 0 thru 9 or A thru F):
Short to Ground in the Right Side Curtain Airbag Inflator
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 34-9x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure, then wait for 3 minutes.
6. Disconnect SRS unit connector B (39P) from the SRS unit.
7. Check for continuity between the No. 24 and the No. 25 terminals of SRS unit connector B (39P) and body ground.

   Is there continuity?
   YES - Go to Step 8 .
   NO - Faulty SRS unit; replace the SRS unit. ■
8. Disconnect floor wire harness 2P connector from the right side curtain airbag.

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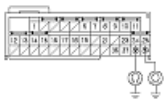
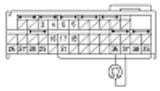
9. Check for continuity between the No. 24 and the No. 25 terminals of SRS unit connector B (39P) and body ground.



   Is there continuity?
   YES - Short to ground in the floor wire harness; replace the floor wire harness.■
   NO - Faulty right side curtain airbag; replace the right side curtain airbag. ■

SRS DTC Troubleshooting: 41-1x

DTC 41-1x (“x" can be 0 thru 9 or A thru F):
No Signal From the Left Front Impact Sensor
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 41-1x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Check the connections between SRS unit connector A (39P) and the SRS unit, between the left engine compartment wire harness 2P connector and the left front impact sensor, and at left engine compartment wire harness 4P connector.

   Are the connections OK?
   YES - Go to Step 7 .
   NO - Repair the poor connections and retest.
7. Disconnect SRS unit connector A (39P) from the SRS unit.
8. Connect an SRS short canceller (070AZ-SAA0100) to the No. 36 and the No. 37 terminals of SRS unit connector A (39P).
9. Disconnect the left engine compartment wire harness 2P connector from the left front impact sensor.
10. Measure the resistance between the No. 36 and the No. 37 terminals of SRS unit connector A (39P). There should be an open circuit or at least 1 MΩ.

    Is the resistance as specified?
    YES - Go to Step 11 .
    NO - Short in the left engine compartment wire harness or dashboard wire harness; replace the faulty harness.■

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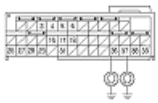
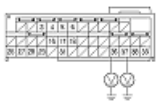
11. Measure the resistance between the No. 36 terminal of SRS unit connector A (39P) and body ground, and between the No. 37 terminal and body ground. There should be an open circuit or at least 1 MΩ.



    Is the resistance as specified?
    YES - Go to Step 12 .
    NO - Short to ground in the left engine compartment wire harness or dashboard wire harness; replace the faulty harness.■
12. Do the battery terminal reconnection procedure.
13. Turn the ignition switch to ON (II).

---

14. Measure the voltage between the No. 36 terminal of SRS unit connector A (39P) and body ground, and between the No. 37 terminal and body ground. There should be less than 1 V.



    Is the voltage as specified?
    YES - Go to Step 15 .
    NO - Short to power in the left engine compartment wire harness or dashboard wire harness; replace the faulty harness.■
15. Turn the ignition switch to LOCK (0).
16. Do the battery terminal disconnection procedure.

---

17. Install a jumper wire between the No. 1 and the No. 2 terminals of left engine compartment wire harness 2P connector.

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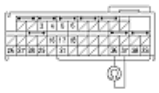
18. Measure the resistance between the No. 36 and the No. 37 terminals of SRS unit connector A (39P). There should be less than 1 Ω.



Is the resistance as specified?

YES - Go to Step 19 .

NO - Open in the left engine compartment wire harness or dashboard wire harness; replace the faulty harness.■

19. Substitute a known-good left front impact sensor and recheck.

20. Connect SRS unit connector A (39P) to the SRS unit.

21. Clear the DTC memory.

22. Turn the ignition switch to ON (II), then wait for 10 seconds.

23. Read the DTC.

Is DTC 41-1x indicated?

YES - Faulty SRS unit; replace the SRS unit. ■

NO - Faulty left front impact sensor; replace the left front impact sensor. ■

SRS DTC Troubleshooting: 41-3x, 41-8x, 41-9x, 41-Ax, 41-Bx

DTC 41-3x, 41-8x, 41-9x, 41-Ax, 41-Bx (‘‘x" can be 0 thru 9 or A thru F):
Internal Failure of the Left Front Impact Sensor
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

Is DTC 41-3x, 41-8x, 41-9x, 41-Ax or 41-Bx indicated?

YES - Faulty left font impact sensor; replace the left front impact sensor. ■
NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.

SRS DTC Troubleshooting: 42-1x

DTC 42-1x (‘‘x" can be 0 thru 9 or A thru F):
No Signal From the Right Front Impact Sensor
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 42-1x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure, then wait for 3 minutes.
6. Check the connections between SRS unit connector A (39P) and the SRS unit, between the right engine compartment wire harness 2P connector and the right front impact sensor, and at right engine compartment wire harness 4P connector.

   Are the connections OK?
   YES - Go to Step 7 .
   NO - Repair the poor connections and retest.
7. Disconnect SRS unit connector A (39P) from the SRS unit.
8. Connect an SRS short canceller (070AZ-SAA0100) to the No. 38 and the No. 39 terminals of SRS unit connector A (39P).
9. Disconnect the right engine compartment wire harness 2P connector from the right front impact sensor.
10. Measure the resistance between the No. 38 and the No. 39 terminals of SRS unit connector A (39P). There should be an open circuit or at least 1 MΩ.

    Is the resistance as specified?
    YES - Go to Step 11 .
    NO - Short in the right engine compartment wire harness or dashboard wire harness; replace the faulty harness.■

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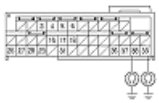
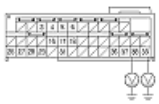
11. Measure the resistance between the No. 38 terminal of SRS unit connector A (39P) and body ground, and between the No. 39 terminal and body ground. There should be an open circuit or at least 1 MΩ.



    Is the resistance as specified?
    YES - Go to Step 12 .
    NO - Short to ground in the right engine compartment wire harness or dashboard wire harness; replace the faulty harness.■
12. Do the battery terminal reconnection procedure.
13. Turn the ignition switch to ON (II).

---

14. Measure the voltage between the No. 38 terminal of SRS unit connector A (39P) and body ground, and between the No. 39 terminal and body ground. There should be less than 1 V.



    Is the voltage as specified?
    YES - Go to Step 15 .
    NO - Short to power in the right engine compartment wire harness or dashboard wire harness; replace the faulty harness.■
15. Turn the ignition switch to LOCK (0).
16. Do the battery terminal disconnection procedure.

---

17. Install a jumper wire between the No. 1 and the No. 2 terminals of right engine compartment wire harness 2P connector.

18. Measure the resistance between the No. 38 and the No. 39 terminals of SRS unit connector A (39P). There should be less than 1 Ω.

Is the resistance as specified?

YES - Go to Step 19 .

NO - Open in the right engine compartment wire harness or dashboard wire harness; replace the faulty harness.■

19. Substitute a known-good right front impact sensor and recheck.

20. Connect SRS unit connector A (39P) to the SRS unit.

21. Clear the DTC memory.

22. Turn the ignition switch to ON (II), then wait for 10 seconds.

23. Read the DTC.

Is DTC 42-1x indicated?

YES - Faulty SRS unit; replace the SRS unit. ■

NO - Faulty right front impact sensor, replace the right front impact sensor. ■

SRS DTC Troubleshooting: 42-3x, 42-8x, 42-9x, 42-Ax, 42-Bx

DTC 42-3x, 42-8x, 42-9x, 42-Ax, 42-Bx ("x" can be 0 thru 9 or A thru F):
Internal Failure of the Right Front Impact Sensor
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

Is DTC 42-3x, 42-8x, 42-9x, 42-Ax, or 42-Bx indicated?

YES - Faulty right front impact sensor; replace the right front impact sensor. ■

NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.

SRS DTC Troubleshooting: 43-3x, 43-8x, 43-9x, 43-Ax, 43-Bx

DTC 43-3x, 43-8x, 43-9x, 43-Ax, 43-Bx ("x" can be 0 thru 9 or A thru F):
Internal Failure of the Left Side Impact Sensor (first)
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

Is DTC 43-3x, 43-8x, 43-9x, 43-Ax, or 43-Bx indicated?

YES - Faulty left side impact sensor (first); replace the left side front impact sensor (first). ■

NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.

SRS DTC Troubleshooting: 44-3x, 44-8x, 44-9x, 44-Ax, 44-Bx

DTC 44-3x, 44-8x, 44-9x, 44-Ax, 44-Bx ("x" can be 0 thru 9 or A thru F):
Internal Failure of the Right Side Impact Sensor (first)
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

Is DTC 44-3x, 44-8x, 44-9x, 44-Ax, or 44-Bx indicated?

YES - Faulty right side impact sensor (first); replace the right side front impact sensor (first). ■

NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.

SRS DTC Troubleshooting: 45-11

DTC 45-11:
No Signal From the Left Side Impact Sensor (second)
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 45-1x indicated?
   YES -
   - If DTC 45-11 is indicated alone, go to Step 4 .
   - If DTC except 45-11 is indicated, faulty left side impact sensor (second); replace the left side impact sensor (second). ■
   - If DTC 43-11 and 45-11 are indicated, faulty left side impact sensor (first); replace the left side impact sensor (first). ■

   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Check the connections between the floor wire harness 2P connector and the left side impact sensor (second), and at floor wire harness 2P connector.

   Are the connections OK?
   YES - Go to Step 7 .
   NO - Repair the poor connections and retest.
7. Disconnect the floor wire harness 4P connector from the left side impact sensor (first).
8. Disconnect the floor wire harness 2P connector from the left side impact sensor (second).
9. Measure the resistance between No. 1 and No. 2 terminals of floor wire harness 2P connector. There should be an open circuit or at least 1 MΩ.

   Is the resistance as specified?
   YES - Go to Step 10 .
   NO - Short in the floor wire harness; replace the floor wire harness.■

---

10. Measure the resistance between No. 1 terminal of floor wire harness 2P connector and body ground, and between the No. 2 terminal and body ground. There should be an open circuit or at least 1 MΩ.

    Is the resistance as specified?
    YES - Go to Step 11 .
    NO - Short to ground in the floor wire harness; replace the floor wire harness.■
11. Do the battery terminal reconnection procedure.
12. Turn the ignition switch to ON (II).

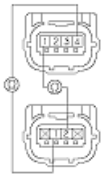
---

13. Measure the voltage between No. 1 terminal of floor wire harness 2P connector and body ground, and between the No. 2 terminal and body ground. There should be less than 1.0 V.

    Is the voltage as specified?
    YES - Go to Step 14 .
    NO - Short to power in the floor wire harness; replace the floor wire harness.■
14. Turn the ignition switch to LOCK (0).

---

15. Measure the resistance between the No. 4 terminal of the floor wire harness 4P connector and the No. 1 terminal of the floor wire harness 2P connector, and between the No. 1 terminal of the floor wire harness 4P connector and the No. 2 terminal of the floor wire harness 2P connector. There should be 0−1.0 Ω.



Is the resistance as specified?
YES - Go to Step 16 .
NO - Open in the floor wire harness; replace the floor wire harness.■

16. Substitute a known-good left side impact sensor (second) and recheck.

17. Connect SRS unit connector B (39P) to the SRS unit.

18. Clear the DTC memory.

19. Turn the ignition switch to ON (II), then wait for 10 seconds.

20. Read the DTC.

Is DTC 45-11 indicated?
YES - Faulty SRS unit; replace the SRS unit. ■
NO - Faulty left side impact sensor (second); replace the left side impact sensor (second). ■

SRS DTC Troubleshooting: 45-3x, 45-8x, 45-9x, 45-Ax, 45-Bx

DTC 45-3x, 45-8x, 45-9x, 45-Ax, 45-Bx (‘‘x" can be 0 thru 9 or A thru F):
Internal Failure of the Left Side Impact Sensor (second)
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

Is DTC 45-3x, 45-8x, 45-9x, 45-Ax, or 45-Bx indicated?

YES - Faulty left side impact sensor (second); replace the left side impact sensor (second). ■
NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.

SRS DTC Troubleshooting: 46-11

DTC 46-11:
No Signal From the Right Side Impact Sensor (second)
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 46-11 indicated?
   YES -
   - If DTC 46-11 is indicated alone, go to Step 4 .
   - If DTC except 46-11 is indicated, faulty right side impact sensor (second); replace the right side impact sensor (second). ■
   - If DTC 44-11 and 46-11 are indicated, faulty right side impact sensor (first); replace the right side impact sensor (first). ■

   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Check the connections between the floor wire harness 2P connector and the right side impact sensor (second), and at floor wire harness 2P connector.

   Are the connections OK?
   YES - Go to Step 7 .
   NO - Repair the poor connections and retest.
7. Disconnect the floor wire harness 4P connector from the right side impact sensor (first).
8. Disconnect the floor wire harness 2P connector from the right side impact sensor (second).
9. Measure the resistance between the No. 1 and No. 2 terminals of floor wire harness 2P connector. There should be an open circuit or at least 1 MΩ.

   Is the resistance as specified?
   YES - Go to Step 10 .
   NO - Short in the floor wire harness; replace the floor wire harness.■

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10. Measure the resistance between No. 1 terminal of floor wire harness 2P connector and body ground, and between the No. 2 terminal and body ground. There should be an open circuit or at least 1 MΩ.

    Is the resistance as specified?
    YES - Go to Step 11 .
    NO - Short to ground in the floor wire harness; replace the floor wire harness.■
11. Do the battery terminal reconnection procedure.
12. Turn the ignition switch to ON (II).

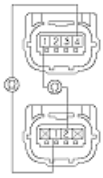
---

13. Measure the voltage between No. 1 terminal of floor wire harness 2P connector and body ground, and between the No. 2 terminal and body ground. There should be less than 1 V.

    Is the voltage as specified?
    YES - Go to Step 14 .
    NO - Short to power in the floor wire harness; replace the floor wire harness.■
14. Turn the ignition switch to LOCK (0).

---

15. Measure the resistance between the No. 1 terminal of the floor wire harness 4P connector and the No. 2 terminal of the floor wire harness 2P connector, and between the No. 4 terminal of the floor wire harness 4P connector and the No. 1 terminal of the floor wire harness 2P connector. There should be 0−1.0 Ω.



Is the resistance as specified?
YES - Go to Step 16 .
NO - Open in the floor wire harness; replace the floor wire harness.■

16. Substitute a known-good right side impact sensor (second) and recheck.

17. Connect SRS unit connector B (39P) to the SRS unit.

18. Clear the DTC memory.

19. Turn the ignition switch to ON (II), then wait for 10 seconds.

20. Read the DTC.

Is DTC 46-11 indicated?
YES - Faulty SRS unit; replace the SRS unit. ■
NO - Faulty right side impact sensor (second); replace the right side impact sensor (second). ■

SRS DTC Troubleshooting: 46-3x, 46-8x, 46-9x, 46-Ax, 46-Bx

DTC 46-3x, 46-8x, 46-9x, 46-Ax, 46-Bx ("x" can be 0 thru 9 or A thru F):
Internal Failure of the Right Side Impact Sensor (second)
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

Is DTC 46-3x, 46-8x, 46-9x, 46-Ax, or 46-Bx indicated?

YES - Faulty right side impact sensor (second); replace the right side impact sensor (second). ■

NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.

SRS DTC Troubleshooting: 51-xx, 52-xx, 53-xx, 54-xx, 55-xx

DTC 51-xx, 52-xx, 53-xx, 54-xx, 55-xx (“x" can be 0 thru 9 or A thru F):
Internal Failure of the SRS Unit
NOTE:

- Before troubleshooting any of these DTCs, check the battery/system voltage and battery cable connections. If the voltage is low, repair the charging system or replace the battery before troubleshooting the SRS. If the battery/system voltage is now OK, ask the customer if the battery ever went dead or if the engine was started and run with the battery in a low state of charge. A dead battery may trigger one or more of these DTCs.
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check that the SRS indicator goes off.

Does the SRS indicator go off?

YES - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
NO - Replace the SRS unit. ■

SRS DTC Troubleshooting: 53-FF

DTC 53-FF:
SRS Unit Programming Error
NOTE:

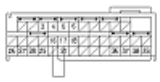
- This DTC is indicated when a SRS unit update is not completed properly.
- Do not turn the ignition switch to ACC (I) or to LOCK (0) while updating the SRS unit. If you turn the ignition switch to ACC (I) or to LOCK (0) before you complete the SRS unit update procedure, the SRS unit can be damaged.
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.

1. Do the SRS unit update procedure.
2. Read the DTC.

   Is DTC 53-FF indicated?
   YES - Replace the original SRS unit. ■
   NO - Update is complete.■

SRS DTC Troubleshooting: 56-31

DTC 56-31:
Lost Communication with the ECM/PCM (PGM-FI system)
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Check for any F-CAN and B-CAN communication DTCs, and troubleshoot those DTCs before doing this troubleshooting procedure.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 56-31 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to ON (II), and see if the malfunction indicator lamp (MIL) comes on.

   Does the MIL come on?
   YES - Go to the MIL Circuit Troubleshooting.
   NO - Go to Step 5 .
5. Turn the ignition switch to LOCK (0).
6. Do the battery terminal disconnection procedure , then wait for 3 minutes.
7. Disconnect SRS unit connector A (39P) from the SRS unit.
8. Install a jumper wire between the No. 16 and the No. 17 terminal of SRS unit connector A (39P).
9. Disconnect ECM/PCM connector A (49P) from the ECM/PCM.

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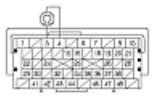
10. Check for continuity between the No. 3 and the No. 4 terminals of the ECM/PCM connector A (49P).



    Is there continuity?
    YES - Faulty SRS unit or poor connection at SRS unit connector A (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit. ■
    NO - Open in the left engine compartment wire harness or the floor wire harness; replace the faulty harness.■

SRS DTC Troubleshooting: 56-32, 56-33

DTC 56-32, 56-33:
Undefined Data Received From the ECM/PCM (PGM-FI system)
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Check for any F-CAN and B-CAN communication DTCs, and troubleshoot those DTCs before doing this troubleshooting procedure.

1. Turn the ignition switch to LOCK (0), then wait for 10 seconds.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check that the malfunction indicator lamp (MIL) comes on.

   Does the MIL come on?
   YES - Go to Step 4 .
   NO - Go to the PGM-FI system troubleshooting.
4. Clear the DTC memory.
5. Turn the ignition switch to LOCK (0), and wait for 10 seconds.
6. Turn the ignition switch to ON (II), then wait for 10 seconds.
7. Read the DTC.

   Is DTC 56-32 or 56-33 indicated?
   YES - Faulty ECM/PCM; replace the ECM/PCM.
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.

SRS DTC Troubleshooting: 85-4x, 85-63, 85-64

DTC 85-4x, 85-63, 85-64 (‘‘x" can be 0 thru 9 or A thru F):
Internal Failure of the OPDS Unit
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator go off?
   YES - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
   NO - Go to Step 3 .
3. Turn the ignition switch to LOCK (0).
4. Initialize the OPDS unit.
5. Turn the ignition switch to ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator go off?
   YES - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. ■
   NO - Replace the OPDS unit and retest. If the problem is still present, replace the OPDS sensor/seat-back cover/pad. ■

SRS DTC Troubleshooting: 85-61, 85-62

DTC 85-61:
No Signal From the OPDS Unit
DTC 85-62:
Non-stipulated Data From the OPDS Unit
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.

1. Clear the DTC memory.
2. Read the DTC.

   Is DTC 85-61 or 85-62 indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
3. Check the No. 8 (7.5 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?
   YES - Go to Step 4 .
   NO - Replace the fuse, then turn the ignition switch to ON (II). If the fuse blows again, check for a short in the No. 8 (7.5 A) fuse circuit (floor wire harness, or OPDS unit harness).
4. Turn the ignition switch to LOCK (0).
5. Disconnect the OPDS unit harness 18P connector (A) from the OPDS unit.
6. Turn the ignition switch to ON (II).

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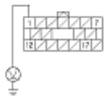
7. Measure the voltage between the No. 1 terminal of the OPDS unit harness 18P connector and body ground. There should be battery voltage.

   Is there battery voltage?
   YES - Go to Step 8 .
   NO - Open between the No. 8 (7.5 A) fuse in the under-dash fuse/relay box and the No. 1 terminal of the OPDS unit 18P connector (floor wire harness or OPDS unit harness); replace the faulty harness.■
8. Turn the ignition switch to LOCK (0).

---

9. Measure the resistance between the No. 12 terminal of the OPDS unit harness 18P connector and body ground. There should be 0−1.0 Ω.

   Is the resistance as specified?
   YES - Go to Step 10 .
   NO - Open between the No. 12 terminal of the OPDS unit harness 18P connector and body ground (G603) or poor connection at G603. ■
10. Do the battery terminal disconnection procedure , then wait for 3 minutes.
11. Disconnect SRS unit connector B (39P) from the SRS unit.

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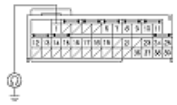
12. Measure the resistance between No. 1 terminal of SRS unit connector B (39P) and body ground. There should be 1 MΩ.

    Is the resistance as specified?
    YES - Go to Step 13 .
    NO - Short to ground between the No. 1 terminal of the SRS unit connector B (39P) and the No. 7 terminal of the OPDS unit harness 18P connector (floor wire harness or OPDS unit harness); replace the faulty harness.■

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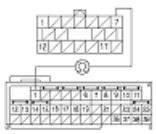
13. Measure the resistance between the No. 1 terminal of SRS unit connector B (39P) and the No. 7 terminal of the OPDS unit harness 18P connector. There should be 0−1.0 Ω.

    Is the resistance as specified?
    YES - Go to Step 14 .
    NO - Open between the No. 1 terminal of the SRS unit connector B (39P) and the No. 7 terminal of the OPDS unit harness 18P connector (floor wire harness or OPDS unit harness); replace the faulty harness.■
14. Do the battery terminal reconnection procedure.
15. Turn the ignition switch to ON (II).

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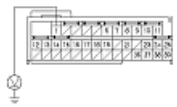
16. Measure the voltage between the No. 1 terminal of the SRS unit connector B (39P) and body ground. There should be 1 V.



Is there battery voltage?

YES - Go to Step 17 .

NO - Short to power between the No. 1 terminal of the SRS unit connector B (39P) and the No. 7 terminal of the OPDS unit harness 18P connector (floor wire harness or OPDS unit harness); replace the faulty harness.■

17. Replace the OPDS unit.

18. Initialize the OPDS unit.

19. Clear the DTC.

20. Read the DTC.

Is the DTC 85-61 or 85-62 indicated?

YES - Replace the SRS unit. ■

NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.

SRS DTC Troubleshooting: 85-71, 85-78

DTC 85-71, 85-78:
OPDS Unit Does Not Initialized
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 85-71 or 85-78 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Initialize the OPDS unit.
5. Turn the ignition switch to LOCK (0), then wait for 10 seconds.
6. Turn the ignition switch to ON (II), then wait for 10 seconds.
7. Read the DTC.

   Is SRS DTC indicated?
   YES - Replace the OPDS unit. ■
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.

SRS DTC Troubleshooting: 85-79

DTC 85-79:
OPDS Initial Check Failure
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator go off?
   YES - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
   NO - Go to Step 3 .
3. Turn the ignition switch to LOCK (0).
4. Make sure nothing is on the front passenger's seat.
5. Clear the DTC memory.
6. Turn the ignition switch to ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator go off?
   YES - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures.
   NO - Go to Step 7 .
7. Turn the ignition switch to LOCK (0).
8. Initialize the OPDS unit.
9. Turn the ignition switch to ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator go off?
   YES - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures.
   NO - Replace the OPDS unit and retest. If the problem is still present, replace the OPDS sensor/seat-back cover/pad. ■

SRS DTC Troubleshooting: 86-1x, 86-2x

DTC 86-1x ("x" can be 0 thru 9 or A thru F):
Faulty OPDS Seat-Back Sensor
DTC 86-2x ("x" can be 0 thru 9 or A thru F):
Faulty OPDS Seat Support Sensor
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.

1. Clear the DTC memory.
2. Read the DTC.

   Is DTC 86-1x or 86-2x indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
3. Check the connection at the OPDS sensor harness connectors (A) and the OPDS unit harness 18P connector (B).

   Is the connection OK?
   YES - Go to Step 4 .
   NO - Repair the poor connection, and clear the DTC. ■
4. Replace the front passenger's seat-back cover/pad, and initialize the OPDS.
5. Clear the DTC memory.
6. Read the DTC.

   Is DTC 86-1x or 86-2x indicated?
   YES - Replace the OPDS unit. ■
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.

SRS DTC Troubleshooting: A1-1x

DTC A1-1x (‘‘x" can be 0 thru 9 or A thru F):
Faulty Power Supply (VA line)
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC A1-1x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Check the No. 8 (7.5 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?
   YES - Go to Step 6 .
   NO - Replace the fuse, then turn the ignition switch to ON (II). If the fuse blows again, check for a short to ground in the dashboard wire harness or in the under-dash fuse/relay box No. 8 (7.5 A) fuse circuit; replace the dashboard wire harness. If the problem is still there, replace the under-dash fuse/relay box. ■
6. Turn the ignition switch to LOCK (0).
7. Do the battery terminal disconnection procedure , then wait for 3 minutes.
8. Disconnect SRS unit connector A (39P) from the SRS unit.
9. Do the battery terminal reconnection procedure.
10. Turn the ignition switch to ON (II).
11. Measure the voltage between the No. 26 terminal of SRS unit connector A (39P) and body ground. There should be battery voltage.

    Is the voltage as specified?
    YES - Faulty SRS unit or poor connection at SRS unit connector A (39P) and the SRS unit; check the connection. If the connection is OK, replace the SRS unit. ■
    NO - Open in the dashboard wire harness; replace the dashboard wire harness.■

SRS DTC Troubleshooting: A2-1x

DTC A2-1x (‘‘x" can be 0 thru 9 or A thru F):
Faulty Power Supply (VB line)
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC A2-1x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Check the No. 6 (10 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?
   YES - Go to Step 6 .
   NO - Replace the fuse, then turn the ignition switch to ON (II). If the fuse blows again, check for a Short to ground in the dashboard wire harness or in the under-dash fuse/relay box No. 6 (10 A) fuse circuit; replace the dashboard wire harness. If the problem is still there, replace the under-dash fuse/relay box. ■
6. Turn the ignition switch to LOCK (0).
7. Do the battery terminal disconnection procedure , then wait for 3 minutes.
8. Disconnect SRS unit connector A (39P) from the SRS unit.
9. Do the battery terminal reconnection procedure.
10. Turn the ignition switch to ON (II).
11. Measure the voltage between the No. 27 terminal of SRS unit connector A (39P) and body ground. There should be battery voltage.

    Is the voltage as specified?
    YES - Faulty SRS unit or poor connection at SRS unit connector A (39P) and the SRS unit; check the connection. If the connection is OK, replace the SRS unit. ■
    NO - Open in the dashboard wire harness; replace the dashboard wire harness.■

SRS DTC Troubleshooting: A3-1x

DTC A3-1x (‘‘x" can be 0 thru 9 or A thru F):
SRS Unit Connector A Not Properly Installed
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC A3-1x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Check the connection between the SRS unit connector A (39P) and the SRS unit.

   Is the connection OK?
   YES - Go to Step 5 .
   NO - Repair the poor connection and retest.
5. Turn the ignition switch to LOCK (0).
6. Do the battery terminal disconnection procedure , then wait for 3 minutes.
7. Disconnect SRS unit connector A (39P) from the SRS unit.
8. Check for bent or damaged terminals on the SRS unit.

   Are any terminals bent or damaged?
   YES - Replace the dashboard wire harness.■
   NO - Replace the SRS unit. ■

SRS DTC Troubleshooting: A4-1x

DTC A4-1x (‘‘x" can be 0 thru 9 or A thru F):
SRS Unit Connector B Not Properly Installed
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC A4-1x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Check the connection between the SRS unit connector B (39P) and the SRS unit.

   Is the connection OK?
   YES - Go to Step 5 .
   NO - Repair the poor connection and retest.
5. Turn the ignition switch to LOCK (0).
6. Do the battery terminal disconnection procedure , then wait for 3 minutes.
7. Disconnect SRS unit connector B (39P) from the SRS unit.
8. Check for bent or damaged terminals on the SRS unit.

   Are any terminals bent or damaged?
   YES - Replace the floor wire harness.■
   NO - Replace the SRS unit. ■

SRS DTC Troubleshooting: Ex-11

DTC Ex-11 ("x" can be 0 thru 9 or A thru F):
Control Operation Recorded
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

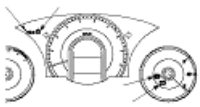
1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

Is DTC Ex-11 indicated?

YES - Faulty SRS unit; replace the SRS unit. ■
NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.

How to Troubleshoot the VSA System

System Indicator



This system has four indicators:

- ABS indicator (A)
- Brake system indicator (B)
- VSA indicator (C)
- VSA activation indicator (D)

When the system is OK, each indicator comes on for about 2 seconds after turning the ignition switch to ON (II), then goes off.
When the system detects a problem, a DTC will be set and, depending upon the failure, the VSA modulator-control unit will determine which indicator(s) will be turned on. If the problem goes away (system returns to normal), the indicator(s) will be controlled in the following way depending upon the DTC that was set:

- The indicator(s) will come on and stay on when the ignition switch is ON (II).
- The indicator(s) will automatically go off.
- The indicator(s) will go off after the vehicle is driven.

ABS Indicator

The ABS indicator comes on when the ABS function is lost. The brakes still work like a conventional system.

Brake System Indicator

The brake system indicator comes on when the EBD function is lost, the parking brake is applied, and/or the brake fluid level is low.
NOTE: If two or more wheel speed sensors fail, the brake system indicator will come on.

VSA Indicator

The VSA indicator comes on when the VSA function is lost.

VSA Activation Indicator

The VSA activation indicator blinks when the VSA function is activating. The VSA activation indicator comes on, when the VSA is turned OFF by using the VSA OFF switch, or the VSA function is lost.

Diagnostic Trouble Code (DTC)

- The memory can hold all DTCs. However, when the same DTC is detected more than once, the more recent DTC is written over the earlier one. Therefore, when the same problem is detected repeatedly, it is memorized as a single DTC.
- The DTCs are indicated in ascending number order, not in the order they occur.
- The DTCs are memorized in the EEPROM. Therefore, the memorized DTCs cannot be erased by disconnecting the battery. Do the specified procedures to clear the DTCs.

Self-diagnosis

- Self-diagnosis can be classified into two categories:
  - Initial diagnosis: Done right after the ignition switch is turned to ON (II) and until the ABS and VSA indicators go off.
  - Regular diagnosis: Done right after the initial diagnosis until the ignition switch is turned to LOCK (0).
- When the system detects a problem, the VSA modulator-control unit shifts to fail-safe mode.

Kickback

The pump motor operates when the VSA modulator-control unit is functioning, and the fluid in the reservoir is forced out to the master cylinder, causing kickback at the brake pedal.

Pump Motor

- The pump motor operates when the VSA modulator-control unit is functioning.
- The VSA modulator-control unit checks the pump motor operation one time after completing initial diagnosis during regular diagnosis when the vehicle is driven over 15 km/h (10 mph).

Brake Fluid Replacement/Air Bleeding

Brake fluid replacement and air bleeding procedures are identical to the procedures used on vehicles without the VSA system.

How to Troubleshoot DTCs

The troubleshooting procedures assume that the cause of the problem is still present and the ABS and/or VSA indicator is still on. Following a troubleshooting procedure for a code that has been cleared but does not reset can result in incorrect diagnosis.

1. Question the customer about the conditions when the problem occurred, and try to reproduce the same conditions for troubleshooting. Find out when the ABS and/or VSA indicator came on, such as during activation, after activation, when the vehicle was traveling at a certain speed, etc. If necessary, have the customer demonstrate the concern.
2. When the ABS or VSA indicator does not come on during the test-drive, but troubleshooting is done based on the DTC, check for loose connectors, poor contact of the terminals, etc. before you start troubleshooting.
3. After troubleshooting, or the repairs are done, clear the DTCs, and test-drive the vehicle under the same conditions that originally set the DTCs. Make sure the ABS and VSA indicators do not come on.
4. Check for DTCs from other systems which are connected via F-CAN. If there are DTCs that are related to F-CAN, the most likely cause was that the ignition switch was turned to ON (II) with the VSA modulator-control unit connector disconnected. Clear the DTCs. Check for fuel and emissions, and VSA codes, first. Be sure to troubleshoot those first.

Intermittent Failures

The term ‘‘intermittent failure" means a system may have had a failure, but it checks OK now. If the indicator(s) of the system does not come on, check for loose connectors or poor contacts in the terminals related to the circuit that you are troubleshooting.

How to Use the HDS (Honda Diagnostic System)

1. If the system indicators stay on, connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the VSA modulator-control unit. If it doesn't, troubleshoot the DLC circuit.
4. Check the diagnostic trouble code (DTC) and note it. Then refer to the indicated DTC's troubleshooting, and do the appropriate troubleshooting procedure.
   NOTE:
   - The HDS communication will be stopped when the vehicle speed is at 50 km/h (31 mph) or more.
   - The HDS can read the DTC, the current data, and other system data.
   - For specific operations, refer to the Help menu that came with the HDS.

How to Retrieve DTCs

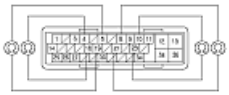
1. With the ignition switch in LOCK (0), connect the HDS to the data link connector (DLC) under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the VSA modulator-control unit. If it doesn't troubleshoot the DLC circuit.
4. Follow the prompts on the HDS to display the DTC(s) on the screen. After determining the DTC, refer to the DTC troubleshooting.
5. Turn the ignition switch to LOCK (0).

How to Clear DTCs

1. With the ignition switch in LOCK (0), connect the HDS to the data link connector (DLC) under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the VSA modulator-control unit. If it doesn't troubleshoot the DLC circuit.
4. Clear the DTC(s) by following the screen prompts on the HDS.
5. Turn the ignition switch to LOCK (0).

VSA DTC Troubleshooting: 11-13, 13-13, 15-13, 17-13

DTC 11-13:
Right-front Wheel Speed Sensor Circuit Malfunction
DTC 13-13:
Left-front Wheel Speed Sensor Circuit Malfunction
DTC 15-13:
Right-rear Wheel Speed Sensor Circuit Malfunction
DTC 17-13:
Left-rear Wheel Speed Sensor Circuit Malfunction



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

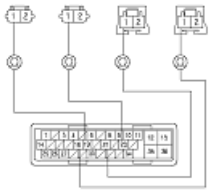
   Is DTC 11-13, 13-13, 15-13, and/or 17-13 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose terminals between the wheel speed sensor 2P connector and the VSA modulator-control unit 36P connector. Refer to intermittent failures troubleshooting. ■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the VSA modulator-control unit 36P connector.
7. Disconnect the appropriate wheel speed sensor 2P connector.
8. Check for continuity between the appropriate VSA modulator-control unit 36P connector wheel speed sensor +B and GND terminals (see table).

DTC	VSA Modulator-control Unit 36P Connector Terminal	
11-13	No. 23	No. 10
13-13	No. 19	No. 6
15-13	No. 18	No. 4
17-13	No. 21	No. 8

   Is there continuity?
   YES - Repair short in the wires between the appropriate wheel speed sensor and the VSA modulator-control unit.■
   NO - Go to Step 9 .

9. Check for continuity between the appropriate VSA modulator-control unit 36P connector terminal and the wheel speed sensor 2P connector terminal.

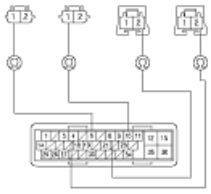
DTC	VSA Modulator-control Unit 36P Connector Terminal	Appropriate Wheel Speed Sensor 2P Connector Terminal
11-13	No. 23	Right-front
13-13	No. 19	Left-front
15-13	No. 18	Right-rear
17-13	No. 21	Left-rear



   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wire between the appropriate wheel speed sensor and the VSA modulator-control unit.■

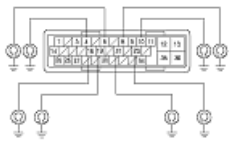
10. Check for continuity between the appropriate VSA modulator-control unit 36P connector terminal and the wheel speed sensor 2P connector terminal.

DTC	VSA Modulator-control Unit 36P Connector Terminal	Appropriate Wheel Speed Sensor 2P Connector Terminal
11-13	No. 10	Right-front
13-13	No. 6	Left-front
15-13	No. 4	Right-rear
17-13	No. 8	Left-rear



   Is there continuity?
   YES - Go to Step 11 .
   NO - Repair open in the wire between the appropriate wheel speed sensor and the VSA modulator-control unit.■

11. Check for continuity between the appropriate VSA modulator-control unit 36P connector terminal and the wheel speed sensor 2P connector terminal (see table).



DTC	VSA Modulator-control Unit 36P Connector Terminal	
11-13	No. 23	No. 10
13-13	No. 19	No. 6
15-13	No. 18	No. 4
17-13	No. 21	No. 8

Is there continuity?

YES - Repair short to body ground in the wire between the appropriate wheel speed sensor and the VSA modulator-control unit.■

NO - Go to Step 12 .

12. Turn the ignition switch to ON (II).

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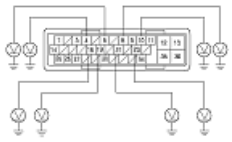
13. Measure the voltage between body ground and the appropriate VSA modulator-control unit 36P connector terminal (see table).



DTC	VSA Modulator-control Unit 36P Connector Terminal	
11-13	No. 23	No. 10
13-13	No. 19	No. 6
15-13	No. 18	No. 4
17-13	No. 21	No. 8

Is there 0.1 V or more?

YES - Repair short to power in the wire between the appropriate wheel speed sensor and the VSA modulator-control unit.■

NO - Go to Step 14 .

14. Turn the ignition switch to LOCK (0).
15. Substitute a known-good wheel speed sensor.
16. Reconnect all connectors.
17. Turn the ignition switch to ON (II).
18. Check for DTCs with the HDS.
19. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
20. Check for DTCs with the HDS.

Is DTC 11-13, 13-13, 15-13, and/or 17-13 indicated?

YES - Go to Step 21 .

NO - Replace the original wheel speed sensor. ■

21. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
22. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
23. Check for DTCs with the HDS.

Is DTC 11-13, 13-13, 15-13, and/or 17-13 indicated?

YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .

NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 11-14, 13-14, 15-14, 17-14

DTC 11-14:
Right-front Wheel Speed Sensor Power Source Malfunction
DTC 13-14:
Left-front Wheel Speed Sensor Power Source Malfunction
DTC 15-14:
Right-rear Wheel Speed Sensor Power Source Malfunction
DTC 17-14:
Left-rear Wheel Speed Sensor Power Source Malfunction

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 11-14, 13-14, 15-14, and/or 17-14 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose terminals between the wheel speed sensor 2P connector and the VSA modulator-control unit 36P connector. Refer to intermittent failures troubleshooting. ■
5. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
6. Turn the ignition switch to ON (II).
7. Check for DTCs with the HDS.

   Is DTC 11-14, 13-14, 15-14, and/or 17-14 indicated?
   YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
   NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 12-11, 14-11, 16-11, 18-11

DTC 12-11:
Right-front Wheel Speed Sensor Electrical Noise or Intermittent Interruption
DTC 14-11:
Left-front Wheel Speed Sensor Electrical Noise or Intermittent Interruption
DTC 16-11:
Right-rear Wheel Speed Sensor Electrical Noise or Intermittent Interruption
DTC 18-11:
Left-rear Wheel Speed Sensor Electrical Noise or Intermittent Interruption
NOTE: These DTCs may be caused by electrical interference. Check for aftermarket devices installed in the vehicle when these DTC are indicated.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.
4. Check for DTCs with the HDS.

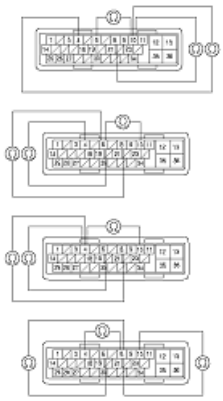
   Is DTC 12-11, 14-11, 16-11, and/or 18-11 indicated?
   YES - If the DTC 12-12, 14-12, 16-12, or 18-12 is indicated at the same time, do the DTC 12-12, 14-12, 16-12, or 18-12 troubleshooting. If DTC 12-12, 14-12, 16-12, or 18-12 is not indicated, go to Step 5 .
   NO - If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time. Check for loose terminals between the wheel speed sensor 2P connector and the VSA modulator-control unit 36P connector. Refer to intermittent failures troubleshooting. ■
5. Turn the ignition switch to LOCK (0).
6. Check that the appropriate wheel speed sensor is properly mounted.

DTC	Appropriate Wheel Speed Sensor
12-11	Right-front
14-11	Left-front
16-11	Right-rear
18-11	Left-rear

   Is the wheel speed sensor installation OK?
   YES - Go to Step 7 .
   NO - Reinstall the wheel speed sensor, and check the mounting position. ■
7. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
8. Test-drive the vehicle.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.
9. Check for DTCs with the HDS.

   Is DTC 12-11, 14-11, 16-11, and/or 18-11 indicated?
   YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
   NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 12-12, 14-12, 16-12, 18-12



DTC 12-12:
Right-front Wheel Speed Sensor Short to the Other Sensor Circuit
DTC 14-12:
Left-front Wheel Speed Sensor Short to the Other Sensor Circuit
DTC 16-12:
Right-rear Wheel Speed Sensor Short to the Other Sensor Circuit
DTC 18-12:
Left-rear Wheel Speed Sensor Short to the Other Sensor Circuit

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle. Drive the vehicle at 20 km/h (13 mph) or more, and go a distance of 100 m (328 ft) or more.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.
4. Check for DTCs with the HDS.

   Is DTC 12-12, 14-12, 16-12, and/or 18-12 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose terminals between the wheel speed sensor 2P connector and the VSA modulator-control unit 36P connector. Refer to intermittent failures troubleshooting. ■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the VSA modulator-control unit 36P connector.
7. Check for continuity between the appropriate VSA modulator-control unit 36P connector wheel speed sensor GND terminals (see table).

DTC	VSA Modulator-control Unit 36P Connector Terminal			
	Appropriate Terminal	Other Terminals		
12-12	No. 10	No. 6	No. 4	No. 8
14-12	No. 6	No. 10	No. 4	No. 8
16-12	No. 4	No. 10	No. 6	No. 8
18-12	No. 8	No. 10	No. 6	No. 4

   Is there continuity?
   YES - Repair short in the wires between the appropriate wheel speed sensor and the VSA modulator-control unit.■
   NO - Go to Step 8 .
8. Reconnect the VSA modulator-control unit 36P connector.
9. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
10. Test-drive the vehicle. Drive the vehicle at 20 km/h (13 mph) or more, and go a distance of 100 m (328 ft) or more.
    NOTE: Drive the vehicle on a straight section of road, not on a lift.
11. Check for DTCs with the HDS.

    Is DTC 12-12, 14-12, 16-12, and/or 18-12 indicated?
    YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
    NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 12-21, 14-21, 16-21, 18-21

DTC 12-21:
Right-front Wheel Speed Sensor Installation Error
DTC 14-21:
Left-front Wheel Speed Sensor Installation Error
DTC 16-21:
Right-rear Wheel Speed Sensor Installation Error
DTC 18-21:
Left-rear Wheel Speed Sensor Installation Error

1. Test-drive the vehicle. Drive the vehicle at 10 km/h (7 mph) or more.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.

2. Check the RIGHT-FRONT, LEFT-FRONT, RIGHT-REAR, LEFT-REAR WHEEL SPEED in the VSA DATA LIST with the HDS.

   Are all four values the same?
   YES - Intermittent failure, the system is OK at this time. Check for loose terminals between the wheel speed sensor 2P connector and the VSA modulator-control unit 36P connector. Refer to intermittent failures troubleshooting. ■
   NO - Go to Step 3 .

3. Turn the ignition switch to LOCK (0).

4. Check that the appropriate wheel speed sensor is properly mounted.

DTC	Appropriate Wheel Speed Sensor
12-21	Right-front
14-21	Left-front
16-21	Right-rear
18-21	Left-rear

   Is the wheel speed sensor installation OK?
   YES - Replace the appropriate wheel speed sensor. ■
   NO - Reinstall the wheel speed sensor, and check the mounting position. ■

VSA DTC Troubleshooting: 12-22, 14-22, 16-22, 18-22

DTC 12-22:
Right-front Wheel Speed Sensor Installation Error (30 km/h (19 mph) or More)
DTC 14-22:
Left-front Wheel Speed Sensor Installation Error (30 km/h (19 mph) or More)
DTC 16-22:
Right-rear Wheel Speed Sensor Installation Error (30 km/h (19 mph) or More)
DTC 18-22:
Left-rear Wheel Speed Sensor Installation Error (30 km/h (19 mph) or More)

1. Test-drive the vehicle. Drive the vehicle between 30 km/h (19 mph) and 50 km/h (31 mph) for 70 seconds or more.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.

2. Check the RIGHT-FRONT, LEFT-FRONT, RIGHT-REAR, LEFT-REAR WHEEL SPEED in the VSA DATA LIST with the HDS.

   Are all four values the same?
   YES - Intermittent failure, the system is OK at this time. Check for loose terminals between the wheel speed sensor 2P connector and the VSA modulator-control unit 36P connector. Refer to intermittent failures troubleshooting. ■
   NO - Go to Step 3 .

3. Turn the ignition switch to LOCK (0).

4. Check that the appropriate wheel speed sensor is properly mounted.

DTC	Appropriate Wheel Speed Sensor
12-22	Right-front
14-22	Left-front
16-22	Right-rear
18-22	Left-rear

   Is the wheel speed sensor installation OK?
   YES - Replace the appropriate wheel speed sensor. ■
   NO - Reinstall the wheel speed sensor, and check the mounting position. ■

VSA DTC Troubleshooting: 12-23, 14-23, 16-23, 18-23

DTC 12-23:
Right-front Wheel Speed Sensor Installation Error (0 to 15 km/h (0 to 9 mph))
DTC 14-23:
Left-front Wheel Speed Sensor Installation Error (0 to 15 km/h (0 to 9 mph))
DTC 16-23:
Right-rear Wheel Speed Sensor Installation Error (0 to 15 km/h (0 to 9 mph))
DTC 18-23:
Left-rear Wheel Speed Sensor Installation Error (0 to 15 km/h (0 to 9 mph))

1. Test-drive the vehicle. Drive the vehicle between 1 km/h (1 mph) and 15 km/h (9 mph).
   NOTE: Drive the vehicle on a straight section of road, not on a lift.

2. Check the RIGHT-FRONT, LEFT-FRONT, RIGHT-REAR, LEFT-REAR WHEEL SPEED in the VSA DATA LIST with the HDS.

   Are all four values the same?
   YES - Intermittent failure, the system is OK at this time. Check for loose terminals between the wheel speed sensor 2P connector and the VSA modulator-control unit 36P connector. Refer to intermittent failures troubleshooting. ■
   NO - Go to Step 3 .

3. Turn the ignition switch to LOCK (0).

4. Check that the appropriate wheel speed sensor is properly mounted.

DTC	Appropriate Wheel Speed Sensor
12-23	Right-front
14-23	Left-front
16-23	Right-rear
18-23	Left-rear

   Is the wheel speed sensor installation OK?
   YES - Replace the appropriate wheel speed sensor. ■
   NO - Reinstall the wheel speed sensor, and check the mounting position. ■

VSA DTC Troubleshooting: 21-11, 22-11, 23-11, 24-11

DTC 21-11:
Right-front Magnetic Encoder Malfunction (Pulse Missing)
DTC 22-11:
Left-front Magnetic Encoder Malfunction (Pulse Missing)
DTC 23-11:
Right-rear Magnetic Encoder Malfunction (Pulse Missing)
DTC 24-11:
Left-rear Magnetic Encoder Malfunction (Pulse Missing)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle. Drive the vehicle at 20 km/h (13 mph) or more, and go a distance of 100 m (328 ft) or more.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.
4. Check for DTCs with the HDS.

   Is DTC 21-11, 22-11, 23-11, and/or 24-11 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose terminals between the wheel speed sensor 2P connector and the VSA modulator-control unit 36P connector. Refer to intermittent failures troubleshooting. ■
5. Turn the ignition switch to LOCK (0).
6. Inspect the appropriate magnetic encoder for dirt or debris.

DTC	Appropriate Magnetic Encoder	Note
21-11	Right-front	Remove the driveshaft outboard joint from the appropriate wheel hub.
22-11	Left-front	
23-11	Right-rear	Remove the hub bearing unit.
24-11	Left-rear	

   Is the magnetic encoder surface OK?
   YES - Replace the wheel bearing (front) or the hub bearing unit (rear):■

   - Front: Replace the front wheel bearing.
   - Rear: Replace the rear hub bearing unit.

   NO - Clean off dust or dirt from the appropriate magnetic encoder surface on the wheel bearing or the hub bearing unit, then go to Step 1 and recheck. If the DTC is still present, replace the appropriate wheel bearing or hub bearing unit.

VSA DTC Troubleshooting: 25-12, 25-13, 26-12, 26-13, 28-12, 28-13

DTC 25-12:
Yaw Rate Sensor Internal Circuit Malfunction (Open, Short)
DTC 25-13:
Yaw Rate Sensor Internal Circuit Malfunction
DTC 26-12:
Lateral Acceleration Sensor Internal Circuit Malfunction (Open, Short)
DTC 26-13:
Lateral Acceleration Sensor Internal Circuit Malfunction
DTC 28-12:
Longitudinal Acceleration Sensor Internal Circuit Malfunction (Open, Short)
DTC 28-13:
Longitudinal Acceleration Sensor Communication Error

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

Is DTC 25-12, 25-13, 26-12, 26-13, 28-12, or 28-13 indicated?
YES - Replace the yaw rate-lateral/longitudinal acceleration sensor. ■
NO - Intermittent failure, the system is OK at this time.■

VSA DTC Troubleshooting: 25-17, 25-18, 25-19

DTC 25-17:
Yaw Rate-Lateral/Longitudinal Acceleration Sensor Power Source Voltage Malfunction
DTC 25-18:
Yaw Rate-Lateral/Longitudinal Acceleration Sensor Internal Circuit Malfunction
DTC 25-19:
Yaw Rate-Lateral/Longitudinal Acceleration Sensor Startup Time Malfunction

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

Is DTC 25-17 or 25-18 indicated?

YES - If the DTC 61-01, 61-21, 61-22, 61-23, and/or 62-21 is indicated at the same time, check the battery performance, and do the alternator and regulator circuit troubleshooting. If the DTC 61-01, 61-21, 61-22, 61-23, and/or 62-21 is not indicated at the same time, replace the yaw rate-lateral/longitudinal acceleration sensor. ■

NO - Intermittent failure, the system is OK at this time.■

VSA DTC Troubleshooting: 25-21, 25-23, 26-21, 26-23, 28-21, 28-23

DTC 25-21:
Yaw Rate Sensor Neutral Position Malfunction
DTC 25-23:
Yaw Rate Sensor Circuit Intermittent Interruption
DTC 26-21:
Lateral Acceleration Sensor Neutral Position Malfunction
DTC 26-23:
Lateral Acceleration Sensor Circuit Intermittent Interruption
DTC 28-21:
Longitudinal Acceleration Sensor Neutral Position Malfunction
DTC 28-23:
Longitudinal Acceleration Sensor Circuit Intermittent Interruption

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Wait 60 seconds or more.
5. Check for DTCs with the HDS.

Is DTC 25-21, 25-23, 26-21, 26-23, 28-21, or 28-23 indicated?
YES - Replace the yaw rate-lateral/longitudinal acceleration sensor. ■
NO - Intermittent failure, the system is OK at this time.■

VSA DTC Troubleshooting: 25-22

DTC 25-22:
Yaw Rate Sensor Stuck

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle. Drive the vehicle at 10 km/h (7 mph) or more.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.
4. Check for DTCs with the HDS.

   Is DTC 25-22 indicated?
   YES - Go to Step 5 .
   NO - If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time.■
5. Test-drive the vehicle. Check the YAW RATE S in the VSA DATA LIST with the HDS while driving in corners.

   Does the indicated value change?
   YES - Intermittent failure, the system is OK at this time.■
   NO - Replace the yaw rate-lateral/longitudinal acceleration sensor. ■

VSA DTC Troubleshooting: 25-24, 25-25, 26-24, 26-25, 28-24, 28-25

DTC 25-24:
Yaw Rate Sensor Gain Low
DTC 25-25:
Yaw Rate Sensor Gain High
DTC 26-24:
Lateral Acceleration Sensor Gain Low
DTC 26-25:
Lateral Acceleration Sensor Gain High
DTC 28-24:
Longitudinal Acceleration Sensor Gain Low
DTC 28-25:
Longitudinal Acceleration Sensor Gain High
NOTE: When the vehicle is listed and driven on up speed and down speed repeatedly, it can cause this DTC.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle. Drive the vehicle at 15 km/h (10 mph) or more.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.
4. Check for DTCs with the HDS.

   Is DTC 25-24, 25-25, 26-24, 26-25, 28-24, or 28-25 indicated?
   YES - Replace the yaw rate-lateral/longitudinal acceleration sensor. ■
   NO - Intermittent failure, the system is OK at this time.■

VSA DTC Troubleshooting: 26-22

DTC 26-22:
Lateral Acceleration Sensor Stuck

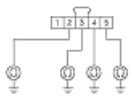
1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle. Drive the vehicle at 10 km/h (7 mph) or more.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.
4. Check for DTCs with the HDS.

   Is DTC 26-22 indicated?
   YES - Go to Step 5 .
   NO - If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time.■
5. Test-drive the vehicle. Check the LATERAL ACCELERATION SENSOR in the VSA DATA LIST with the HDS while driving in corners.

   Does the indicated value change?
   YES - Intermittent failure, the system is OK at this time.■
   NO - Replace the yaw rate-lateral/longitudinal acceleration sensor. ■

VSA DTC Troubleshooting: 27-11, 27-26

DTC 27-11:
Steering Angle Sensor DIAG Signal Error (Initial)
DTC 27-26:
Steering Angle Sensor DIAG Signal Error (Main)

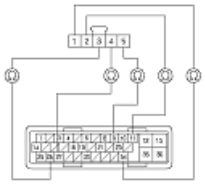


1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 27-11 or 27-26 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose terminals between the steering angle sensor 5P connector and the VSA modulator-control unit 36P connector. Refer to intermittent failures troubleshooting. ■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the steering angle sensor 5P connector.
7. Disconnect the VSA modulator-control unit 36P connector.
8. Check for continuity between body ground and steering angle sensor 5P connector terminals No. 2, No. 3, No. 4, and No. 5 individually.

   Is there continuity?
   YES - Repair short to body ground in the wire between the steering angle sensor and the VSA modulator-control unit.■
   NO - Go to Step 9 .

9. Check for continuity between the VSA modulator-control unit 36P connector terminal and the steering angle sensor 5P connector terminal individually.



Sign	VSA Modulator-control Unit 36P Connector Terminal	Steering Angle Sensor 5P Connector Terminal
SVCC	No. 9	No. 5
STR-A	No. 11	No. 2
STR-D	No. 26	No. 3
STR-B	No. 27	No. 4
SGND	No. 34	No. 1

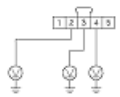
   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wire between the steering angle sensor and the VSA modulator-control unit.■
10. Substitute a known-good steering angle sensor.
11. Reconnect all connectors.
12. Turn the ignition switch to ON (II).
13. Clear the DTC with the HDS.
14. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
15. Check for DTCs with the HDS.

    Is DTC 27-11 or 27-26 indicated?
    YES - Go to Step 16 .
    NO - Replace the original steering angle sensor. ■
16. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
17. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
18. Check for DTCs with the HDS.

    Is DTC 27-11 or 27-26 indicated?
    YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
    NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 27-21, 27-22

DTC 27-21:
Steering Angle Sensor Stuck Neutral Position
DTC 27-22:
Steering Angle Sensor Stuck Offset Position



1. Turn the ignition switch to ON (II).
2. Turn the steering wheel left and right 90 degrees or more. Check the STEERING ANGLE in the VSA DATA LIST with the HDS.

   Is there +90 ° or more, and −90 ° or less?
   YES - Intermittent failure, the system is OK at this time. Check for loose terminals between the steering angle sensor 5P connector and the VSA modulator-control unit 36P connector. Refer to intermittent failures troubleshooting. ■
   NO - Go to Step 3 .
3. Turn the ignition switch to LOCK (0).
4. Disconnect the steering angle sensor 5P connector.
5. Disconnect the VSA modulator-control unit 36P connector.
6. Turn the ignition switch to ON (II).
7. Measure the voltage between body ground and steering angle sensor 5P connector terminals No. 2, No. 3, and No. 4 individually.

   Is there 0.1 V or more?
   YES - Repair short to power in the wire between the steering angle sensor and the VSA modulator-control unit.■
   NO - Replace the steering angle sensor. ■

VSA DTC Troubleshooting: 27-23

DTC 27-23:
Steering Angle Sensor Counter Malfunction

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Turn the steering wheel from lock-to-lock several times.
6. Check for DTCs with the HDS.

   Is DTC 27-23 indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check for loose terminals between the steering angle sensor 5P connector and the VSA modulator-control unit 36P connector. Refer to intermittent failures troubleshooting. ■
7. Turn the ignition switch to LOCK (0).
8. Disconnect the steering angle sensor 5P connector.
9. Disconnect the VSA modulator-control unit 36P connector.
10. Check for continuity between steering angle sensor 5P connector terminals No. 2 and No. 4.

    Is there continuity?
    YES - Repair short in the wires between the steering angle sensor and the VSA modulator-control unit.■
    NO - Go to Step 11 .

11. Check for continuity between steering angle sensor 5P connector terminals No. 5 and No. 2, and No. 5 and No. 4 individually.

    Is there continuity?
    YES - Repair short in the wires between the steering angle sensor and the VSA modulator-control unit.■
    NO - Go to Step 12 .

12. Check for continuity between steering angle sensor 5P connector terminals No. 1 and No. 2, and No. 1 and No. 4 individually.

    Is there continuity?
    YES - Repair short in the wires between the steering angle sensor and the VSA modulator-control unit.■
    NO - Replace the steering angle sensor. ■

VSA DTC Troubleshooting: 27-24

DTC 27-24:
Steering Angle Sensor Exchange Malfunction

1. Turn the ignition switch to ON (II).
2. Turn the steering wheel one turn. Check the STEERING ANGLE in the VSA DATA LIST with the HDS.

Is there about 288−432 °?
YES - Intermittent failure, the system is OK at this time.■
NO - Replace the steering angle sensor. ■

VSA DTC Troubleshooting: 28-22

DTC 28-22:
Longitudinal Acceleration Sensor Stuck

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle. Drive the vehicle at 10 km/h (7 mph) or more.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.
4. Check for DTCs with the HDS.

   Is DTC 28-22 indicated?
   YES - Go to Step 5 .
   NO - If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time.■
5. Test-drive the vehicle. Check the LONGITUDINAL ACCELERATION SENSOR in the VSA DATA LIST with the HDS while driving in corners.

   Does the indicated value change?
   YES - Intermittent failure, the system is OK at this time.■
   NO - Replace the yaw rate-lateral/longitudinal acceleration sensor. ■

VSA DTC Troubleshooting: 31-xx, 32-xx, 33-xx, 34-xx, 35-xx, 36-xx, 37-xx, 38-xx

DTC 31-xx *:
ABS Right-front Inlet Solenoid Valve Malfunction
DTC 32-xx *:
ABS Right-front Outlet Solenoid Valve Malfunction
DTC 33-xx *:
ABS Left-front Inlet Solenoid Valve Malfunction
DTC 34-xx *:
ABS Left-front Outlet Solenoid Valve Malfunction
DTC 35-xx *:
ABS Right-rear Inlet Solenoid Valve Malfunction
DTC 36-xx *:
ABS Right-rear Outlet Solenoid Valve Malfunction
DTC 37-xx *:
ABS Left-rear Inlet Solenoid Valve Malfunction
DTC 38-xx *:
ABS Left-rear Outlet Solenoid Valve Malfunction
*: Any two-character subcode (see table).

Subcode	Malfunction	Note (DTC)
01	Solenoid Initial Pulse	31-01, 32-01, 33-01, 34-01, 35-01, 36-01, 37-01, 38-01
02	Initial Feedback Signal	31-02, 33-02, 35-02, 37-02
11	Feedback Signal	31-11, 33-11, 35-11, 37-11
21	Solenoid Pulse	31-21, 32-21, 33-21, 34-21, 35-21, 36-21, 37-21, 38-21
22	Solenoid Speculative	31-22, 32-22, 33-22, 34-22, 35-22, 36-22, 37-22, 38-22
23	Solenoid Stuck ON	31-23, 32-23, 33-23, 34-23, 35-23, 36-23, 37-23, 38-23
24	Feedback Signal/Solenoid Stuck ON	31-24, 33-24, 35-24, 37-24

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 31-xx, 32-xx, 33-xx, 34-xx, 35-xx, 36-xx, 37-xx, or 38-xx indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
6. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
7. Check for DTCs with the HDS.

   Is DTC 31-xx, 32-xx, 33-xx, 34-xx, 35-xx, 36-xx, 37-xx, or 38-xx indicated?
   YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
   NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 41-21, 42-21, 43-21, 44-21

DTC 41-21:
Right-front Wheel Lock
DTC 42-21:
Left-front Wheel Lock
DTC 43-21:
Right-rear Wheel Lock
DTC 44-21:
Left-rear Wheel Lock
The DTCs may be indicated under these conditions:

- The vehicle goes into a spin.
- The ABS or VSA continues to operate for a long time.
- Snow, dirt, or debris build-up on the wheel speed sensor or magnetic encoder.
- Misadjusted brake pedal position switch.
- Contaminated brake fluid.

1. Raise the vehicle, and support it with safety stands in the proper locations.
2. Turn the appropriate wheel by hand.

DTC	Appropriate Wheel
41-21	Right-front
42-21	Left-front
43-21	Right-rear
44-21	Left-rear

Is there brake drag?
YES - Repair the brake drag.■
NO - Go to Step 3 .

3. Check that the appropriate wheel speed sensor is properly mounted.

Is the wheel speed sensor installation OK?
YES - Go to Step 4 .
NO - Reinstall the wheel speed sensor, and check the mounting position. ■

4. Turn the ignition switch to ON (II).
5. Clear the DTC with the HDS.
6. Test-drive the vehicle. Drive the vehicle at 10 km/h (7 mph) for 20 seconds or more.
NOTE: Drive the vehicle on a straight section of road, not on a lift.
7. Check for DTCs with the HDS.

Is DTC 41-21, 42-21, 43-21, and/or 44-21 indicated?
YES - Go to Step 8 .
NO - If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time.■

8. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
9. Test-drive the vehicle. Drive the vehicle at 10 km/h (7 mph) for 20 seconds or more.
NOTE: Drive the vehicle on a straight section of road, not on a lift.
10. Check for DTCs with the HDS.

Is DTC 41-21, 42-21, 43-21, and/or 44-21 indicated?
YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 51-11, 51-13

DTC 51-11:
Motor Lock
DTC 51-13:
Motor Drive Circuit Malfunction

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Wait 5 seconds.
5. Operate any one of the four solenoids, as listed, in the VSA FUNCTION TEST five times with the HDS.

-LFT FT SOLENOID
-RT FT SOLENOID
-LFT REAR SOLENOID
-RT REAR SOLENOID

6. Check for DTCs with the HDS.

   Is DTC 51-11 or 51-13 indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time.■

7. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
8. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
9. Wait 5 seconds.
10. Operate any one of the four solenoids, as listed, in the VSA FUNCTION TEST five times with the HDS.

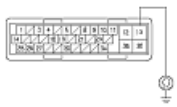
-LFT FT SOLENOID
-RT FT SOLENOID
-LFT REAR SOLENOID
-RT REAR SOLENOID

11. Check for DTCs with the HDS.

    Is DTC 51-11 or 51-13 indicated?
    YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
    NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 51-12

DTC 51-12:
Motor Drive Circuit Malfunction



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check the DTCs with the HDS.

   Is DTC 51-12 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose terminals at the VSA modulator-control unit 36P connector. Refer to intermittent failures troubleshooting. ■
5. Turn the ignition switch to LOCK (0).
6. Check the No. 58 (30 A) fuse in the under-hood fuse/relay box.

   Is the fuse blown?
   YES - Go to Step 7 .
   NO - Reinstall the checked fuse, then go to Step 9 .
7. Disconnect the VSA modulator-control unit 36P connector.
8. Check for continuity between VSA modulator-control unit 36P connector terminal No. 13 and body ground.

   Is there continuity?
   YES - Repair short to body ground in the wire between the No. 58 (30 A) fuse in the under-hood fuse/relay box and the VSA modulator-control unit.■
   NO - Install a new No. 58 (30 A) fuse in the under-hood fuse/relay box, then go to Step 10 .
9. Disconnect the VSA modulator-control unit 36P connector.

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10. Measure the voltage between VSA modulator-control unit 36P connector terminal No. 13 and body ground.

    Is there battery voltage?
    YES - Go to Step 11 .
    NO - Repair open in the wire between the No. 58 (30 A) fuse in the under-hood fuse/relay box and the VSA modulator-control unit.■
11. Reconnect the VSA modulator-control unit 36P connector.
12. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
13. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
14. Check for DTCs with the HDS.

    Is DTC 51-12 indicated?
    YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
    NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 52-12

DTC 52-12:
Motor Stuck OFF

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Operate any one of the four solenoids, as listed, in the VSA FUNCTION TEST five times with the HDS.

-LFT FT SOLENOID
-RT FT SOLENOID
-LFT REAR SOLENOID
-RT REAR SOLENOID

5. Check for DTCs with the HDS.

   Is DTC 52-12 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■

6. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
7. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
8. Operate any one of the four solenoids, as listed, in the VSA FUNCTION TEST five times with the HDS.

-LFT FT SOLENOID
-RT FT SOLENOID
-LFT REAR SOLENOID
-RT REAR SOLENOID

9. Check for DTCs with the HDS.

   Is DTC 52-12 indicated?
   YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
   NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 53-01, 53-12

DTC 53-01:
Motor Relay Stuck ON 1
DTC 53-12:
Motor Relay Stuck ON 2

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 53-01 or 53-12 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose terminals at the VSA modulator-control unit 36P connector. Refer to intermittent failures troubleshooting. ■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the VSA modulator-control unit 36P connector.
7. Check for continuity between VSA modulator-control unit 36P connector terminal No. 36 and body ground.

   Is there continuity?
   YES - Go to Step 8 .
   NO - Repair open in the wire between the VSA modulator-control unit and body ground (G402 *1 , G203 *2).■
   *1: LHD model
   *2: RHD model
8. Reconnect the VSA modulator-control unit 36P connector.
9. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
10. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
11. Check for DTCs with the HDS.

    Is DTC 53-01 or 53-12 indicated?
    YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
    NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 54-03, 54-04, 54-21

DTC 54-03:
Fail-safe Relay 1 Stuck ON
DTC 54-04:
Fail-safe Relay 1 Stuck OFF (Initial)
DTC 54-21:
Fail-safe Relay 1 Stuck OFF (Main)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 54-03, 54-04, or 54-21 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch to LOCK (0).
6. Check the No. 37 (30 A) fuse in the under-hood fuse/relay box.

   Is the fuse blown?
   YES - Go to Step 7 .
   NO - Reinstall the checked fuse, then go to Step 10 .
7. Disconnect the VSA modulator-control unit 36P connector.
8. Check for continuity between VSA modulator-control unit 36P connector terminal No. 12 and body ground.

   Is there continuity?
   YES - Repair short to body ground in the wire between the No. 37 (30 A) fuse in the under-hood fuse/relay box and the VSA modulator-control unit.■
   NO - Install a new No. 37 (30 A) fuse in the under-hood fuse/relay box, then go to Step 9 .
9. Reconnect the VSA modulator-control unit 36P connector.
10. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
11. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
12. Check for DTCs with the HDS.

    Is DTC 54-03, 54-04, or 54-21 indicated?
    YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
    NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 56-01, 56-02, 56-11

DTC 56-01:
Initial VIG FET Stuck OFF (Initial)
DTC 56-02:
Initial VIG FET Stuck ON
DTC 56-11:
VIG FET Stuck OFF (Main)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 56-01, 56-02, or 56-11 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
6. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
7. Check for DTCs with the HDS.

   Is DTC 56-01, 56-02, or 56-11 indicated?
   YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
   NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 61-01, 61-21, 61-22, 61-23

DTC 61-01:
VSA Modulator-control Unit Initial IG Low Voltage
DTC 61-21:
VSA Modulator-control Unit Power Source Low Voltage 1
DTC 61-22:
VSA Modulator-control Unit Power Source Low Voltage 2
DTC 61-23:
VSA Modulator-control Unit Power Source Low Voltage 3

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then start the engine.
4. Check for DTCs with the HDS.

   Is DTC 61-01, 61-21, 61-22, or 61-23 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose terminals at the VSA modulator-control unit 36P connector. Refer to intermittent failures troubleshooting. ■
5. Check and note BATTERY voltage in the VSA DATA LIST with the HDS.
6. Using a voltmeter, measure and note the voltage between the battery terminals.
   NOTE: If the voltage is below 9.5 V, check the battery, and troubleshoot the alternator regulator circuit.
7. Compare the voltage noted in Step 5 to the voltage in Step 6 .

   Is the difference between the two voltage readings less then 3 V?
   YES - Intermittent failure, the system is OK at this time. Check for loose terminals at the VSA modulator-control unit 36P connector. Refer to intermittent failures troubleshooting. If the code resets after clearing, go to Step 8 .
   NO - Go to Step 8 .
8. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
9. Turn the ignition switch to LOCK (0), then start the engine.
10. Check for DTCs with the HDS.

    Is DTC 61-01, 61-21, 61-22, or 61-23 indicated?
    YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
    NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 62-21

DTC 62-21:
VSA Modulator-control Unit IG High Voltage

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then start the engine.
4. Check for DTCs with the HDS.

   Is DTC 62-21 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Check and note BATTERY voltage in the VSA DATA LIST with the HDS.
6. Using a voltmeter, measure and note the voltage between the battery terminals.
   NOTE: If the voltage is beyond 15.1 V, troubleshoot the alternator regulator circuit.
7. Compare the voltage noted in Step 5 to the voltage in Step 6 .

   Is the difference between the two voltage readings less than 3 V?
   YES - Intermittent failure, the system is OK at this time. Check for loose terminals at the VSA modulator-control unit 36P connector. Refer to intermittent failures troubleshooting. If the code resets after clearing, go to Step 8 .
   NO - Go to Step 8 .
8. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
9. Turn the ignition switch to LOCK (0), then start the engine.
10. Check for DTCs with the HDS.

    Is DTC 62-21 indicated?
    YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
    NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 64-11

DTC 64-11:
Steering Angle Sensor Power Circuit Low Voltage

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 64-11 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the steering angle sensor 5P connector.
7. Disconnect the VSA modulator-control unit 36P connector.
8. Check for continuity between steering angle sensor 5P connector terminal No. 5 and body ground.

   Is there continuity?
   YES - Repair short to body ground in the wire between the steering angle sensor and the VSA modulator-control unit.■
   NO - Go to Step 9 .
9. Reconnect all connectors.
10. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
11. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
12. Check for DTCs with the HDS.

    Is DTC 64-11 indicated?
    YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
    NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 64-12

DTC 64-12:
Steering Angle Sensor Power Circuit High Voltage

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 64-12 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose terminals between the steering angle sensor 5P connector and the VSA modulator-control unit 36P connector. Refer to intermittent failures troubleshooting. ■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the steering angle sensor 5P connector.
7. Disconnect the VSA modulator-control unit 36P connector.
8. Turn the ignition switch to ON (II).
9. Measure the voltage between steering angle sensor 5P connector terminal No. 5 and body ground.

   Is there 0.1 V or more?
   YES - Repair short to power in the wire between the steering angle sensor and the VSA modulator-control unit.■
   NO - Go to Step 10 .
10. Turn the ignition switch to LOCK (0).
11. Reconnect all connectors.
12. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
13. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
14. Check for DTCs with the HDS.

    Is DTC 64-12 indicated?
    YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
    NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 65-21

DTC 65-21:
Brake Fluid Level Stuck ON
NOTE: Bleeding the brake system while the ignition switch is ON can cause this DTC.

1. Check the brake fluid level in the master cylinder reservoir.

   Is the brake fluid level OK?
   YES - Go to Step 2 .
   NO - Do the brake pad inspection: Front, rear, check for brake fluid leaks or replace worn pads. Fill the fluid reservoir to the correct level or replace the pads, then go to Step 2 and recheck.

2. Turn the ignition switch to ON (II).
3. Clear the DTC with the HDS.
4. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
5. Check for DTCs with the HDS.

   Is DTC 65-21 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■

6. Release the parking brake.
7. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
8. Check the brake system indicator in the gauge control module.

   Does the indicator come on then go off?
   YES - Go to Step 13 .
   NO - Go to Step 9 .

9. Check the BRAKE FLUID LEVEL SWITCH in the VSA DATA LIST with the HDS.

   Does the HDS indicate the BRAKE FLUID LEVEL SWITCH as OFF?
   YES - Substitute a known-good gauge control module, then go to Step 1 and recheck. If no DTCs are indicated, replace the original gauge control module.
   NO - Go to Step 10 .

10. Disconnect the brake fluid level switch 2P connector, then check the BRAKE FLUID LEVEL SWITCH in the VSA DATA LIST.

    Does the HDS indicate OFF?
    YES - Replace the brake fluid reservoir tank (the brake fluid level switch is included).
    NO - Go to Step 11 .

11. Disconnect the gauge control module 32P connector.
12. Check for continuity between brake fluid level switch 2P connector terminal No. 2 and body ground.

    Is there continuity?
    YES - Repair short to body ground in the wire between the gauge control module and the brake fluid level switch.■
    NO - Substitute a known-good gauge control module, then go to Step 1 and recheck. If no DTCs are indicated, replace the original gauge control module.

13. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
14. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
15. Check for DTCs with the HDS.

    Is DTC 65-21 indicated?
    YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 2 .
    NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 66-11, 66-14, 66-16, 66-17, 66-18, 66-19

DTC 66-11:
Pressure Sensor (Inside of VSA Modulator-control Unit) Malfunction
DTC 66-14:
Pressure Sensor (Inside of VSA Modulator-control Unit) Malfunction
DTC 66-16:
Pressure Sensor (Inside of VSA Modulator-control Unit) Malfunction
DTC 66-17:
Pressure Sensor (Inside of VSA Modulator-control Unit) Malfunction
DTC 66-18:
Pressure Sensor (Inside of VSA Modulator-control Unit) Malfunction
DTC 66-19:
Pressure Sensor (Inside of VSA Modulator-control Unit) Malfunction

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 66-11, 66-14, 66-16, 66-17, 66-18, or 66-19 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
6. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
7. Check for DTCs with the HDS.

   Is DTC 66-11, 66-14, 66-16, 66-17, 66-18, or 66-19 indicated?
   YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
   NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 66-12

DTC 66-12:
Pressure Sensor (Inside of VSA Modulator-control Unit) Malfunction

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 66-12 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the steering angle sensor 5P connector.
7. Disconnect the VSA modulator-control unit 36P connector.
8. Check for continuity between steering angle sensor 5P connector terminal No. 5 and body ground.

   Is there continuity?
   YES - Repair short to body ground in the wire between the steering angle sensor and the VSA modulator-control unit.■
   NO - Go to Step 9 .
9. Turn the ignition switch to ON (II).

---

10. Measure the voltage between steering angle sensor 5P connector terminal No. 5 and body ground.

    Is there 0.1 V or more?
    YES - Repair short to power in the wire between the steering angle sensor and the VSA modulator-control unit.■
    NO - Go to Step 11 .
11. Turn the ignition switch to LOCK (0).

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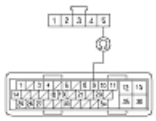
12. Check for continuity between VSA modulator-control unit 36P connector terminal No. 9 and steering angle sensor 5P connector terminal No. 5.



    Is there continuity?
    YES - Go to Step 13 .
    NO - Repair open in the wire between the steering angle sensor and the VSA modulator-control unit.■
13. Reconnect all connectors.
14. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
15. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
16. Check for DTCs with the HDS.

    Is DTC 66-12 indicated?
    YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
    NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 66-15

DTC 66-15:
Pressure Sensor (Inside of VSA Modulator-control Unit) Malfunction
NOTE: Brake fluid leaks from brake system can cause this DTC. Check for brake fluid leaks first.

1. Test-drive the vehicle.
2. Turn the ignition switch to LOCK (0).
3. Raise the vehicle, and support it with safety stands in the proper locations.
4. Turn all four wheels by hand.

   Is there brake drag?
   YES - Repair the brake drag.■
   NO - Go to Step 5 .
5. Turn the ignition switch to ON (II).
6. Check the BRAKE PRESS in the VSA DATA LIST with the HDS while moving the brake pedal.

   Does the indicated value change?
   YES - Intermittent failure, the system is OK at this time.■
   NO - Go to Step 7 .
7. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
8. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
9. Check for DTCs with the HDS.

   Is DTC 66-15 indicated?
   YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
   NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 68-21

DTC 68-21:
Brake Pedal Position Switch Stuck OFF

1. Turn the ignition switch to ON (II).
2. Check the BRAKE PRESS in the VSA DATA LIST with the HDS. Do not press the brake pedal.

   Is there 10 MPa or less?
   YES - Go to Step 3 .
   NO - Check for brake drag or a misadjusted brake pedal position switch. If they are normal, go to Step 20 .
3. Check the BRAKE SWITCH in the VSA DATA LIST with the HDS while moving the brake pedal.

   Does it indicate ON when the pedal is pressed, and OFF when the pedal is released?
   YES - Intermittent failure, the system is OK at this time. Check for loose terminals between the brake pedal position switch 4P connector, ECM/PCM connector A (49P), and the VSA modulator-control unit 36P connector. Refer to intermittent failures troubleshooting. ■
   NO - Go to Step 4 .
4. Turn the ignition switch to LOCK (0).
5. Disconnect the brake pedal position switch 4P connector.
6. Connect brake pedal position switch 4P connector terminals No. 1 and No. 2 with a jumper wire.
7. Turn the ignition switch to ON (II).
8. Check the BRAKE SWITCH in the VSA DATA LIST with the HDS.

   Does it indicate ON?
   YES - Check the brake pedal position switch adjustment. If it is OK, replace the brake pedal position switch .■
   NO - Go to Step 9 .
9. Disconnect the jumper wire.
10. Turn the ignition switch to LOCK (0).
11. Check the No. 24 (15 A) fuse in the under-hood fuse/relay box.

    Is the fuse blown?
    YES - Go to Step 12 .
    NO - Reinstall the checked fuse, then go to Step 16 .

---

12. Check for continuity between brake pedal position switch 4P connector terminal No. 1 and body ground.

    Is there continuity?
    YES - Repair short to body ground in the wire between the No. 24 (15 A) fuse in the under-hood fuse/relay box and the brake pedal position switch.■
    NO - Go to Step 13 .
13. Short the SCS line with the HDS.
14. Disconnect ECM/PCM connector A (49P).

---

15. Check for continuity between brake pedal position switch 4P connector terminal No. 2 and body ground.

    Is there continuity?
    YES - Repair short to body ground in the wire between the brake pedal position switch and the ECM/PCM.■
    NO - Install a new No. 24 (15 A) fuse in the under-hood fuse/relay box, then go to Step 18 .
16. Short the SCS line with the HDS.
17. Disconnect ECM/PCM connector A (49P).

---

18. Measure the voltage between brake pedal position switch 4P connector terminal No. 1 and body ground.

    Is there battery voltage?
    YES - Go to Step 19 .
    NO - Repair open in the wire between the No. 24 (15 A) fuse in the under-hood fuse/relay box and the brake pedal position switch.■

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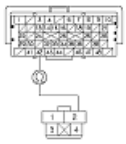
19. Check for continuity between brake pedal position switch 4P connector terminal No. 2 and ECM/PCM connector A (49P) terminal No. 42.



Is there continuity?

YES - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then go to Step 1 and recheck. If the ECM/PCM was updated and DTCs are not indicated, troubleshooting is complete. If the ECM/PCM was substituted and DTCs are not indicated, replace the original ECM/PCM.

NO - Repair open in the wire between the ECM/PCM and the brake pedal position switch.■

20. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.

21. Test-drive the vehicle. Drive the vehicle at 10 km/h (7 mph) or more.
NOTE: Drive the vehicle on a straight section of road, not on a lift.

22. Check for DTCs with the HDS.

Is DTC 68-21 indicated?

YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .

NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 68-22

DTC 68-22:
Brake Pedal Position Switch Stuck ON

1. Turn the ignition switch to ON (II).
2. Check the BRAKE PRESS in the VSA DATA LIST with the HDS. Do not press the brake pedal.

   Is there 10 MPa or more?
   YES - Check the brake pedal height. If the brake pedal height is OK, go to Step 10 .
   NO - Go to Step 3 .
3. Check the BRAKE SWITCH in the VSA DATA LIST with the HDS while moving the brake pedal.

   Does it indicate ON when the pedal is pressed, and OFF when the pedal is released?
   YES - Intermittent failure, the system is OK at this time.■
   NO - Go to Step 4 .
4. Check the BRAKE SWITCH in the VSA DATA LIST with the HDS, and disconnect the brake pedal position switch 4P connector.

   Does the indicator change from ON to OFF?
   YES - Replace the brake pedal position switch. ■
   NO - Go to Step 5 .
5. Turn the ignition switch to LOCK (0).
6. Short the SCS line with the HDS.
7. Disconnect ECM/PCM connector A (49P).
8. Turn the ignition switch to ON (II).
9. Measure the voltage between brake pedal position switch 4P connector terminal No. 2 and body ground.

   Is there 0.1 V or more?
   YES - Repair short to power in the wire between the ECM/PCM and the brake pedal position switch.■
   NO - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then go to Step 1 and recheck. If the ECM/PCM was updated and DTCs are not indicated, troubleshooting is complete. If the ECM/PCM was substituted and DTCs are not indicated, replace the original ECM/PCM.
10. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
11. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
12. Check for DTCs with the HDS.

    Is DTC 68-22 indicated?
    YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
    NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 71-21, 71-22, 71-23, 71-24, 71-25, 71-26, 71-27, 71-28, 71-29, 71-2A, 71-2B, 71-2C

DTC 71-21:
Right-front or Left-rear Different Diameter Tyre Malfunction
DTC 71-22:
Left-front or Right-rear Different Diameter Tyre Malfunction
DTC 71-23:
Right-front and Right-rear Different Diameter Tyre Malfunction
DTC 71-24:
Left-front and Left-rear Different Diameter Tyre Malfunction
DTC 71-25:
Right-front and Left-front Different Diameter Tyre Malfunction
DTC 71-26:
Right-rear and Left-rear Different Diameter Tyre Malfunction
DTC 71-27:
Right-front or Left-rear Different Diameter Tyre Malfunction
DTC 71-28:
Left-front or Right-rear Different Diameter Tyre Malfunction
DTC 71-29:
Right-front and Right-rear Different Diameter Tyre Malfunction
DTC 71-2A:
Left-front and Left-rear Different Diameter Tyre Malfunction
DTC 71-2B:
Right-front and Left-front Different Diameter Tyre Malfunction
DTC 71-2C:
Right-rear and Left-rear Different Diameter Tyre Malfunction
NOTE: The DTC will be indicated when the vehicle has a different diameter tyre(s) compared to the other tyres.

DTC	Sectional	Note
71-21	Right-front or left-rear	
71-22	Left-front or right-rear	
71-23	Right-front and right-rear	
71-24	Left-front and left-rear	
71-25	Right-front and left-front	
71-26	Right-rear and left-rear	
71-27	Right-front or left-rear	
71-28	Left-front or right-rear	
71-29	Right-front and right-rear	
71-2A	Left-front and left-rear	
71-2B	Right-front and left-front	
71-2C	Right-rear and left-rear	

1. Check the tyres for proper inflation and the correct size.
2. Turn the ignition switch to ON (II).
3. Clear the DTC with the HDS.
4. Test-drive the vehicle.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.
5. Check for DTCs with the HDS.

Is DTC 71-21, 71-22, 71-23, 71-24, 71-25, 71-26, 71-27, 71-28, 71-29, 71-2A, 71-2B, or 71-2C indicated?
YES - Replace tyres as needed until all their diameters match.■
NO - Intermittent failure, the system is OK at this time.■

VSA DTC Troubleshooting: 81-07

DTC 81-07:
Central Processing Unit (CPU) Internal Circuit Malfunction

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 81-07 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the steering angle sensor 5P connector.
7. Disconnect the VSA modulator-control unit 36P connector.
8. Turn the ignition switch to ON (II).
9. Measure the voltage between steering angle sensor 5P connector terminal No. 5 and body ground.

   Is there 0.1 V or more?
   YES - Repair short to power in the wire between the steering angle sensor and the VSA modulator-control unit.■
   NO - Go to Step 10 .
10. Turn the ignition switch to LOCK (0).
11. Reconnect all connectors.
12. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software substitute a known-good VSA modulator-control unit.
13. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
14. Check for DTCs with the HDS.

    Is DTC 81-07 indicated?
    YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
    NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 81-11, 81-52, 81-54, 81-56, 81-58

DTC 81-11:
Central Processing Unit (CPU) Internal Circuit Malfunction
DTC 81-52:
Central Processing Unit (CPU) Internal Circuit Malfunction
DTC 81-54:
Central Processing Unit (CPU) Internal Circuit Malfunction
DTC 81-56:
Central Processing Unit (CPU) Internal Circuit Malfunction
DTC 81-58:
Central Processing Unit (CPU) Internal Circuit Malfunction

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.
4. Check for DTCs with the HDS.

   Is DTC 81-11, 81-52, 81-54, 81-56, or 81-58 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
6. Test-drive the vehicle.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.
7. Check for DTCs with the HDS.

   Is DTC 81-11, 81-52, 81-54, 81-56, or 81-58 indicated?
   YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
   NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 81-3D, 81-3E, 81-59

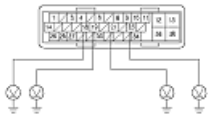
DTC 81-3D:
Central Processing Unit (CPU) Internal Circuit Malfunction
DTC 81-3E:
Central Processing Unit (CPU) Internal Circuit Malfunction
DTC 81-59:
Central Processing Unit (CPU) Internal Circuit Malfunction

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Turn the steering wheel from lock-to-lock several times.
5. Check for DTCs with the HDS.

   Is DTC 81-3D, 81-3E, or 81-59 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■
6. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
7. Start the engine.
8. Turn the steering wheel from lock-to-lock several times.
9. Check for DTCs with the HDS.

   Is DTC 81-3D, 81-3E, or 81-59 indicated?
   YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
   NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 81-51, 81-53, 81-55, 81-57



DTC 81-51:
Central Processing Unit (CPU) Internal Circuit Malfunction
DTC 81-53:
Central Processing Unit (CPU) Internal Circuit Malfunction
DTC 81-55:
Central Processing Unit (CPU) Internal Circuit Malfunction
DTC 81-57:
Central Processing Unit (CPU) Internal Circuit Malfunction

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.
4. Check for DTCs with the HDS.

   Is DTC 81-51, 81-53, 81-55, or 81-57 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the VSA modulator-control unit 36P connector.
7. Turn the ignition switch to ON (II).
8. Measure the voltage between body ground and the appropriate VSA modulator-control unit 36P connector terminals (see table).

DTC	VSA Modulator-control Unit 36P Connector Terminal
81-51	No. 23
81-53	No. 19
81-55	No. 18
81-57	No. 21

   Is there 0.1 V or more?
   YES - Repair short to power in the wire between the appropriate wheel speed sensor and the VSA modulator-control unit.■
   NO - Go to Step 9 .
9. Turn the ignition switch to LOCK (0).
10. Reconnect the VSA modulator-control unit 36P connector.
11. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
12. Test-drive the vehicle.
    NOTE: Drive the vehicle on a straight section of road, not on a lift.
13. Check for DTCs with the HDS.

    Is DTC 81-51, 81-53, 81-55, or 81-57 indicated?
    YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
    NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 81-xx

DTC 81-xx *:
Central Processing Unit (CPU) Internal Circuit Malfunction
*: Any two-character subcode (Except these combinations: DTC 81-07, 81-11, 81-3D, 81-3E, 81-51, 81-52, 81-53, 81-54, 81-55, 81-56, 81-57, 81-58, and 81-59)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 81-xx indicated?
   YES - If the DTC 81-07, 81-11, 81-3D, 81-3E, 81-51, 81-52, 81-53, 81-54, 81-55, 81-56, 81-57, 81-58, or 81-59 is indicated at the same time, do the appropriate troubleshooting. If DTC 81-07, 81-11, 81-3D, 81-3E, 81-51, 81-52, 81-53, 81-54, 81-55, 81-56, 81-57, 81-58, or 81-59 is not indicated. Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
6. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
7. Check for DTCs with the HDS.

   Is DTC 81-xx indicated?
   YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
   NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 83-13, 83-14

DTC 83-13:
ECM/PCM Communication Error (Engine Malfunction)
DTC 83-14:
ECM/PCM Communication Error (A/T Malfunction)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.
4. Check for DTCs with the HDS.

   Is DTC 83-13 or 83-14 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose terminals between ECM/PCM connector A (49P) and the VSA modulator-control unit 36P connector. Refer to intermittent failures troubleshooting. ■
5. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
6. Clear the DTC with the HDS.
7. Test-drive the vehicle.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.
8. Check for DTCs with the HDS.

   Is DTC 83-13 or 83-14 indicated?
   YES - Go to Step 9 .
   NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. ■
9. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
10. Test-drive the vehicle.
    NOTE: Drive the vehicle on a straight section of road, not on a lift.
11. Check for DTCs with the HDS.

    Is DTC 83-13 or 83-14 indicated?
    YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
    NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 84-21

DTC 84-21:
VSA Sensor Neutral Position not Writing

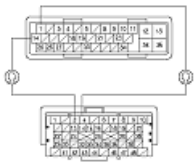
1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Do the VSA sensor neutral position memorization.
4. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
5. Check for DTCs with the HDS.

   Is DTC 84-21 indicated?
   YES - Go to Step 6 .
   NO - The system is OK at this time.■
6. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
7. Do the VSA sensor neutral position memorization.
8. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
9. Check for DTCs with the HDS.

   Is DTC 84-21 indicated?
   YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
   NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 86-01

DTC 86-01:
F-CAN Bus-off Malfunction



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

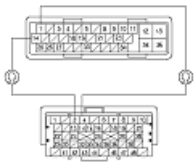
   Is DTC 86-01 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose terminals between ECM/PCM connector A (49P) and the VSA modulator-control unit 36P connector. Refer to intermittent failures troubleshooting. ■
5. Turn the ignition switch to LOCK (0).
6. Short the SCS line with the HDS.
7. Disconnect ECM/PCM connector A (49P).
8. Disconnect the VSA modulator-control unit 36P connector.
9. Check for continuity between VSA modulator-control unit 36P connector terminal and ECM/PCM connector A (49P) terminal (see table).

Sign	VSA Modulator-control Unit 36P Connector Terminal	ECM/PCM Connector A (49P) Terminal
CAN-L	No. 1	No. 4
CAN-H	No. 14	No. 3

   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wire between the ECM/PCM and the VSA modulator-control unit.■
10. Reconnect all connectors.
11. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
12. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
13. Check for DTCs with the HDS.

    Is DTC 86-01 indicated?
    YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
    NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 86-11, 86-21, 86-22, 86-23, 86-24, 86-25, 84-41



DTC 86-11:
F-CAN Communication with ECM/PCM Malfunction
DTC 86-21:
F-CAN Communication with Engine Malfunction
DTC 86-22:
F-CAN Communication with Engine Malfunction
DTC 86-23:
F-CAN Communication with Engine Malfunction
DTC 86-24:
F-CAN Communication with Engine Malfunction
DTC 86-25:
F-CAN Communication with Engine Malfunction
DTC 86-41:
F-CAN Communication with EAT/TCM Malfunction

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle. Drive the vehicle at 10 km/h (7 mph) or more.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.
4. Check for DTCs with the HDS.

   Is DTC 86-11, 86-21, 86-22, 86-23, 86-24, 86-25, and/or 86-41 indicated?
   YES - If the DTC 86-01 is indicated at the same time, do the DTC 86-01 troubleshooting. If the DTC 86-01 is not indicated, go to Step 5 .
   NO - If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time. Check for loose terminals between ECM/PCM connector A (49P) and the VSA modulator-control unit 36P connector. Refer to intermittent failures troubleshooting. ■
5. Turn the ignition switch to LOCK (0).
6. Short the SCS line with the HDS.
7. Disconnect ECM/PCM connector A (49P).
8. Disconnect the VSA modulator-control unit 36P connector.
9. Check for continuity between the VSA modulator-control unit 36P connector terminal and ECM/PCM connector A (49P) terminal (see table).

Sign	VSA Modulator-control Unit 36P Connector Terminal	ECM/PCM Connector A (49P) Terminal
CAN-L	No. 1	No. 4
CAN-H	No. 14	No. 3

   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wire between the ECM/PCM and the VSA modulator-control unit.■
10. Reconnect all connectors.
11. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
12. Clear the DTC with the HDS.
13. Test-drive the vehicle. Drive the vehicle at 10 km/h (7 mph) or more.
    NOTE: Drive the vehicle on a straight section of road, not on a lift.
14. Check for DTCs with the HDS.

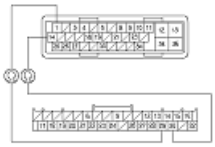
    Is DTC 86-11, 86-21, 86-22, 86-23, 86-24, 86-25, and/or 86-41 indicated?
    YES - Go to Step 15 .
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. ■
15. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
16. Test-drive the vehicle. Drive the vehicle at 10 km/h (7 mph) or more.
    NOTE: Drive the vehicle on a straight section of road, not on a lift.
17. Check for DTCs with the HDS.

    Is DTC 86-11, 86-21, 86-22, 86-23, 86-24, 86-25, and/or 86-41 indicated?
    YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .

NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 86-31

DTC 86-31:
F-CAN Communication with Gauge Control Module Malfunction



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 86-31 indicated?
   YES - If the DTC 86-01 is indicated at the same time, do the DTC 86-01 troubleshooting. If the DTC 86-01 is not indicated, go to Step 5 .
   NO - If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time. Check for loose terminals between the gauge control module 32P connector and the VSA modulator-control unit 36P connector. Refer to intermittent failures troubleshooting. ■
5. Turn the ignition switch to ON (II).

   Do the gauge indicators come on?
   YES - Go to Step 6 .
   NO - Do the gauge control module troubleshooting. ■
6. Turn the ignition switch to LOCK (0).
7. Disconnect the gauge control module 32P connector.
8. Disconnect the VSA modulator-control unit 36P connector.
9. Check for continuity between the VSA modulator-control unit 36P connector terminal and gauge control module 32P connector terminal (see table).

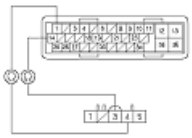
Sign	VSA Modulator-control Unit 36P Connector Terminal	Gauge Control Module 32P Connector Terminal
CAN-L	No. 1	No. 29
CAN-H	No. 14	No. 30

   Is there continuity?
   YES - Check for loose terminals in the gauge control module 32P connector. If necessary, substitute a known-good gauge control module, then go to Step 1 and recheck. If no DTCs are indicated, replace the original gauge control module. If DTC 86-31 resets, go to Step 10 .
   NO - Repair open in the wire between the gauge control module and the VSA modulator-control unit.■
10. Reconnect all connectors.
11. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
12. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
13. Check for DTCs with the HDS.

    Is DTC 86-31 indicated?
    YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
    NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 86-71

DTC 86-71:
F-CAN Communication with Yaw Rate-Lateral/Longitudinal Acceleration Sensor Malfunction



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for DTCs with the HDS.

   Is DTC 86-71 indicated?
   YES - If the DTC 86-01 is indicated at the same time, do the DTC 86-01 troubleshooting. If the DTC 86-01 is not indicated, go to Step 4 .
   NO - If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time. Check for loose terminals at the yaw rate-lateral/longitudinal acceleration sensor 5P connector and the VSA modulator-control unit 36P connector. Refer to intermittent failures troubleshooting. ■
4. Turn the ignition switch to LOCK (0).
5. Disconnect the yaw rate-lateral/longitudinal acceleration sensor 5P connector.
6. Disconnect the VSA modulator-control unit 36P connector.
7. Check for continuity between the VSA modulator-control unit 36P connector terminal and the yaw rate-lateral/longitudinal acceleration sensor 5P connector terminal (see table).

Sign	VSA Modulator-control Unit 36P Connector Terminal	Yaw Rate-lateral/Longitudinal Acceleration Sensor 5P Connector Terminal
CAN-L	No. 1	No. 4
CAN-H	No. 14	No. 3

   Is there continuity?
   YES - Go to Step 8 .
   NO - Repair open in the wire between the yaw rate-lateral acceleration sensor and the VSA modulator-control unit.■
8. Turn the ignition switch to ON (II).

---

9. Measure the voltage between yaw rate-lateral/longitudinal acceleration sensor 5P connector terminal No. 1 and body ground.

   Is there battery voltage?
   YES - Go to Step 10 .
   NO - Repair open in the wire between the No. 11 (7.5 A) fuse in the driver's under-dash fuse/relay box and the yaw rate-lateral/longitudinal acceleration sensor.■
10. Turn the ignition switch to LOCK (0).
11. Reconnect the yaw rate-lateral/longitudinal acceleration sensor 5P connector.
12. Turn the ignition switch to ON (II).

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13. Measure the voltage between yaw rate-lateral/longitudinal acceleration sensor 5P connector terminal No. 5 and body ground.

   Is there 0.1 V or less?
   YES - Replace the yaw rate-lateral/longitudinal acceleration sensor. ■
   NO - Repair open in the wire between the yaw rate-lateral/longitudinal acceleration sensor and body ground (G503).■

VSA DTC Troubleshooting: 107-22

DTC 107-22:
Central Processing Unit (CPU) Internal Circuit Malfunction

1. Turn the ignition switch to LOCK (0) to cool the VSA modulator-control unit, and wait 1 hour or more.
2. Turn the ignition switch to ON (II).
3. Clear the DTC with the HDS.
4. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
5. Check for DTCs with the HDS.

   Is DTC 107-22 indicated?
   YES - Go to Step 6 .
   NO - The system is OK at this time.■
6. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
7. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
8. Check for DTCs with the HDS.

   Is DTC 107-22 indicated?
   YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
   NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 108-21

DTC 108-21:
Steering Angle Sensor Malfunction

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.
4. Check for DTCs with the HDS.

   Is DTC 108-21 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch to LOCK (0).
6. Substitute a known-good steering angle sensor.
7. Turn the ignition switch to ON (II).
8. Clear the DTC with the HDS.
9. Test-drive the vehicle.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.
10. Check for DTCs with the HDS.

    Is DTC 108-21 indicated?
    YES - Go to Step 11 .
    NO - Replace the original steering angle sensor. ■
11. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
12. Test-drive the vehicle.
    NOTE: Drive the vehicle on a straight section of road, not on a lift.
13. Check for DTCs with the HDS.

    Is DTC 108-21 indicated?
    YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
    NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 116-11

DTC 116-11:
The Functional Abnormalities of i-SHIFT System

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle.
   NOTE: Drive the vehicle on a straight section of road, not a lift.
4. Check for DTCs with the HDS.

   Is DTC 116-11 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose terminals in the VSA modulator-control unit 36P connector. Refer to intermittent failures troubleshooting.
5. Check for i-SHIFT system DTCs with the HDS.

   Are any i-SHIFT system DTCs indicated?
   YES - Do the applicable troubleshooting for the i-SHIFT system, then go to Step 6 .
   NO - Go to Step 9 .
6. Clear the DTC with the HDS.
7. Test-drive the vehicle.
   NOTE: Drive the vehicle on a straight section of road, not on a lift.
8. Check for DTCs with the HDS.

   Is DTC 116-11 indicated?
   YES - Go to Step 9 .
   NO - Troubleshooting is complete.■
9. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
10. Test-drive the vehicle.
    NOTE: Drive the vehicle on a straight section of road, not on a lift.
11. Check for DTCs with the HDS.

    Is DTC 116-11 indicated?
    YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
    NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA DTC Troubleshooting: 121-xx, 122-xx, 123-xx, 124-xx

DTC 121-xx *:
VSA Solenoid Valve Malfunction
DTC 122-xx *:
VSA Solenoid Valve Malfunction
DTC 123-xx *:
VSA Solenoid Valve Malfunction
DTC 124-xx *:
VSA Solenoid Valve Malfunction
*: Any two-character subcode (see table).

DTC		Sectional	Valve
121	-01	Right-front and left-rear	Regulator
	-02		
	-11		
	-21		
	-24		
122	-01		Suction
	-21		
	-22		
	-23		
123	-01	Left-front and right-rear	Regulator
	-02		
	-11		
	-21		
	-24		
124	-01		Suction
	-21		
	-22		
	-23		

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 121-xx, 122-xx, 123-xx, or 124-xx indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Update the VSA modulator-control unit if it does not have the latest software. If the unit already has the latest software, substitute a known-good VSA modulator-control unit.
6. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
7. Check for DTCs with the HDS.

   Is DTC 121-xx, 122-xx, 123-xx, or 124-xx indicated?
   YES - Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated, substitute a known-good VSA modulator-control unit, then retest. If the VSA modulator-control unit was substituted, go to Step 1 .
   NO - If the VSA modulator-control unit was updated, troubleshooting is complete. If the VSA modulator-control unit was substituted, replace the original VSA modulator-control unit. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

Special Information

Special Information

⚠WARNING

You CAN be KILLED or SERIOUSLY HURT if you don't follow instructions.

⚠CAUTION

You CAN be HURT if you don't follow instructions.

NOTE: Gives helpful information.

⚠CAUTION

Detailed descriptions of standard workshop procedures, safety principles and service operations are not included. Please note that this manual does contain warnings and cautions against some specific service methods which could cause PERSONAL INJURY, damage a vehicle, or make it unsafe. Please understand that these warnings cannot cover all conceivable ways in which service, whether or not recommended by Honda, might be done or of the possible hazardous consequences of each conceivable way, nor could Honda investigate all such ways. Anyone using service procedures or tools, whether or not recommended by Honda, must satisfy himself thoroughly that neither personal safety or vehicle safety will be jeopardized.

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Service Publication Office

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Symbols

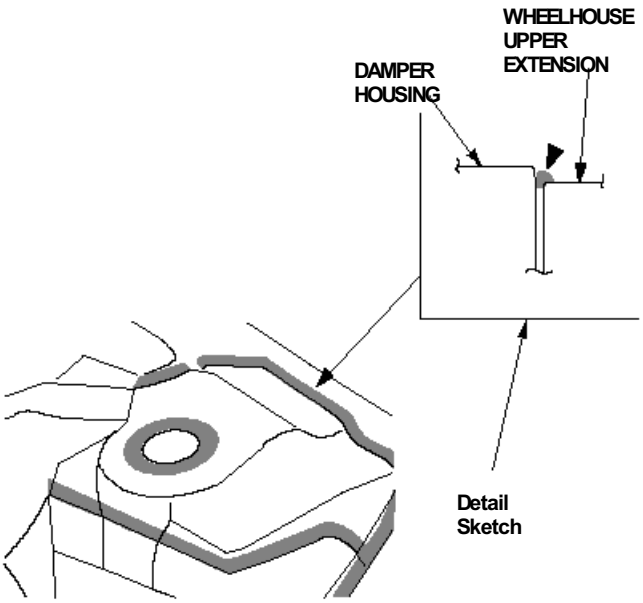
Replacement

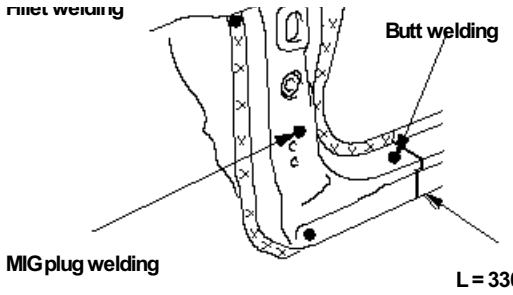
The welding symbols in the removal/installation have these meanings.
× : 2-Plate spot welding
⊗ : 3-Plate spot welding
⊠ : 4-Plate spot welding
● : MIG plug welding
⬬ : MIG welding
L= Welding length Unit: mm (in.)
( ): The number of welds

of positioning bosses and/or holes shown in the detail sketches.
ne holes.

Black dots: Measuring point

▶ **: Sealing locations**



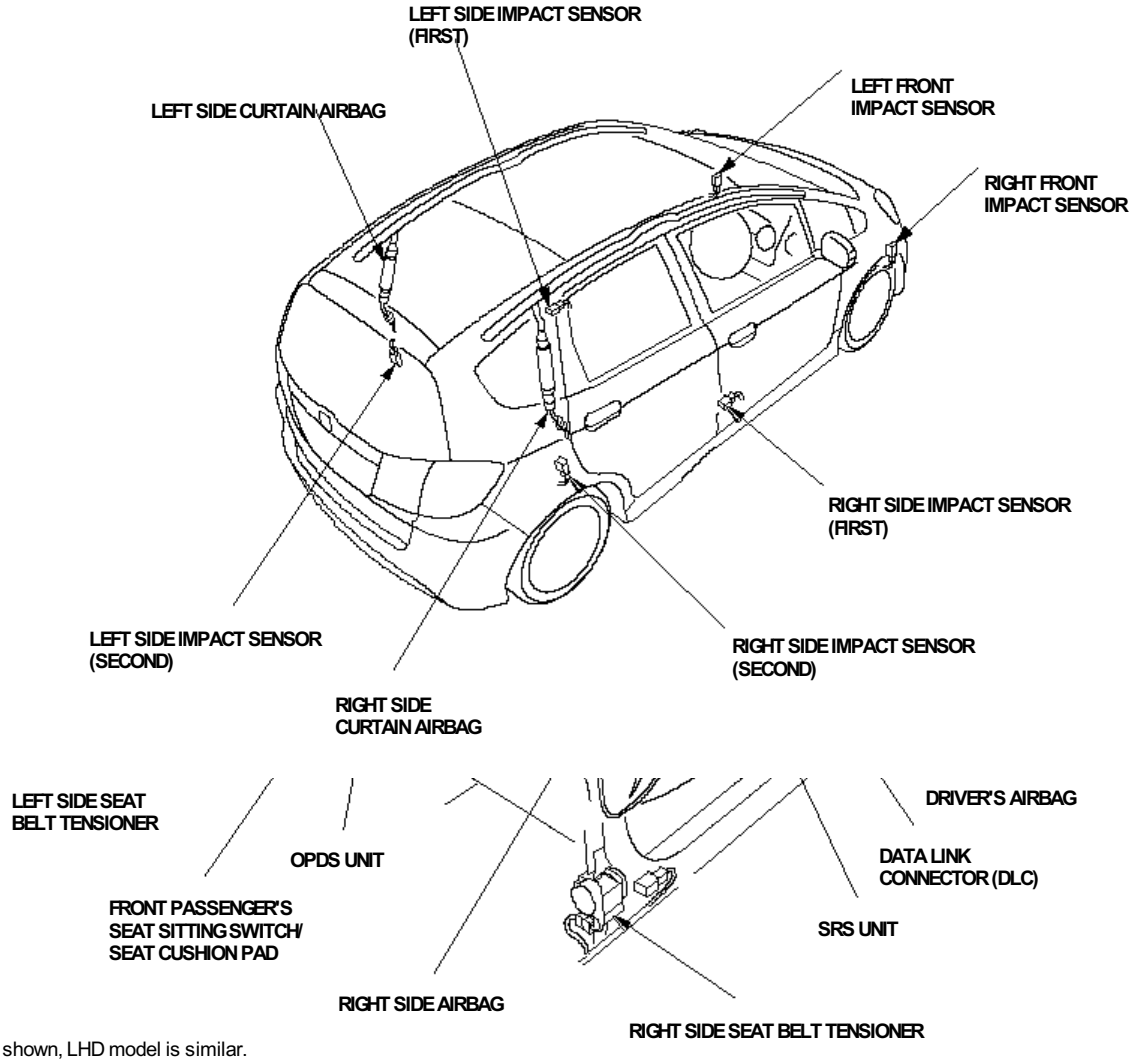


SRS Information

This model has an SRS which includes a driver's airbag in the steering wheel hub, a passenger's airbag in the dashboard above the glove box, the seat belt tensioners in the front seat belt retractors, the side airbags in the front seat-backs, and the side curtain airbags in the sides of the roof. The SRS unit is separate from the airbag assembly and has built-in sensors. The following precautions should be observed when doing sheet metal work, paint work, and repair work around the locations of the SRS components.

- The SRS unit (including the safing sensor and the impact sensor) is located under the dashboard and the side impact sensors are located in each side sill and rear wheel arch. The front impact sensors are located behind the right and left ends of the front bumper. Avoid any strong impact with a hammer or other tools when repairing the front side frame, the lower part of the dashboard, the side sill, and rear wheel arch. Do not apply heat to these areas with a torch, etc.
- Take extra care when painting or doing body work in the area below the center pillar. Do not expose the seat belt retractor and tensioner to heat guns, welding, or spraying equipment.
- SRS electrical wiring harnesses and connectors are identified with yellow color coding. Take care when repairing this area. Prevent damage to the harness.
- Do not apply heat of more than 100 °C (212 °F) when drying painted surfaces anywhere around the SRS components locations.
- If strong impact or high temperature need to be applied to the areas around the locations of SRS components, remove the components before performing the repair work.
- If any of the SRS related components are damaged or deformed, be sure to replace them.

NOTE: For after-deployment procedures, and removal and replacement of SRS related components, refer to the Fit/Jazz Shop Manual.



RHD model is shown, LHD model is similar.

SRS Component Replacement/Inspection After Deployment

NOTE:

- Before doing any SRS repairs, check the DTCs, refer to the appropriate Fit/Jazz Shop Manual, for the less obvious deployed components (seat belt tensioners, front impact sensors, side airbag sensors, etc.)
- Do not replace the OPDS unit unless it is physically damaged or a specific fault was found during DTC troubleshooting in the appropriate Fit/Jazz Shop Manual.

After a collision where the seat belt tensioners deployed, replace these items:

- SRS unit
- Seat belt tensioners
- Front impact sensors

After a collision where the front airbag(s) deployed, replace these items:

- SRS unit
- Deployed airbag(s)
- Seat belt tensioners
- Front impact sensors

After a collision where the side airbag(s) deployed, replace these items:

- SRS unit
- Deployed side airbag(s)
- Side impact sensor(s) (first)
- Side impact sensor(s) (second)
- Center pillar lower trim
- Complete seat frame

After a collision where a side curtain airbag has deployed, replace the items for the side(s) that deployed:

- SRS unit
- Deployed side curtain airbag(s)
- Seat belt tensioner(s)
- Side impact sensor(s) (first)
- Side impact sensor(s) (second)
- Front pillar trim
- Center pillar upper trim
- Quarter pillar trim
- Headliner
- Front grab handle
- Rear grab handle
- All related trim clips
- Sunvisor

After a moderate to severe side or rear collision, inspect for any damage on the side curtain airbag or other related components. Replace the components as needed.
After a collision, where a side curtain airbag has deployed, replace all trim clips on that side, even if they appear to be undamaged. Replace the clips on these parts:

- Front pillar trim
- Center pillar lower trim
- Quarter pillar trim

During the repair process, inspect these areas:

- Inspect all the SRS wire harnesses. Replace, do not repair, any damaged harnesses.
- Inspect the cable reel for heat damage. If there is any damage, replace the cable reel.

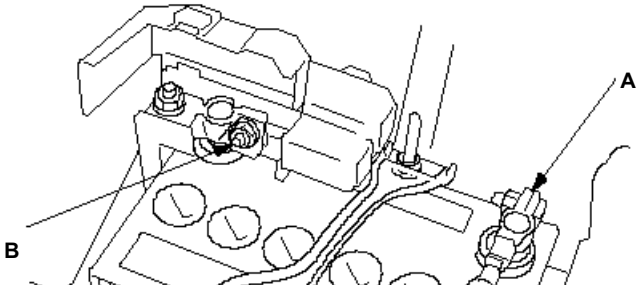
After the vehicle is completely repaired, turn the ignition switch to ON (II). If the SRS indicator comes on for about 6 seconds and then goes off, the SRS is OK. If the indicator does not function properly, use the HDS to read the DTC, refer to the appropriate Fit/Jazz Shop Manual. If you cannot retrieve a code, do the SRS Symptom Troubleshooting in the appropriate Fit/Jazz Shop Manual.

Battery Terminal Disconnection/Reconnection

Disconnection

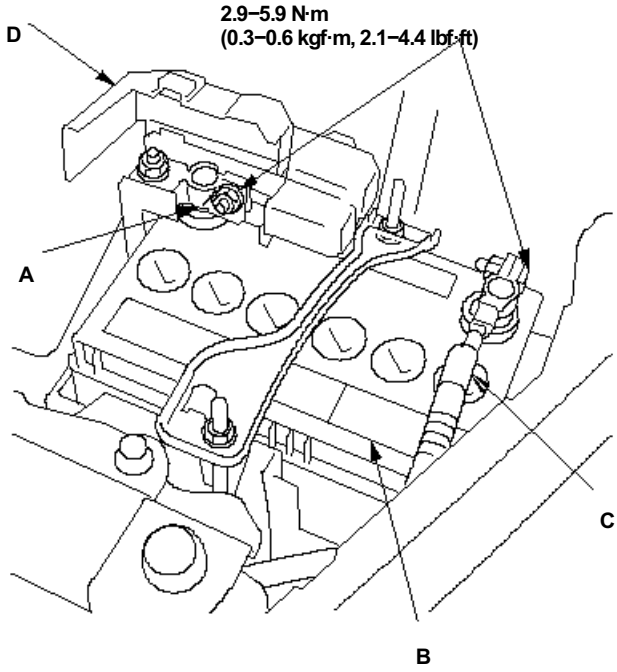
NOTE: Some system store data in memory is lost when the battery is disconnected. Do the following procedures before disconnecting the battery.

1. Make sure you have the anti-theft code(s) for the audio and/or the navigation system (if equipped).
   NOTE: For some models, it maybe necessary to write down the audio presets (AM and FM), because the audio unit does not retain the presets after the battery is disconnected.
2. Make sure the ignition switch is in LOCK (0).
3. Disconnect and isolate the negative cable (A) from the battery.
   NOTE: Always disconnect the negative cable from the battery first.



d. Do the following procedures to restore the systems back to normal

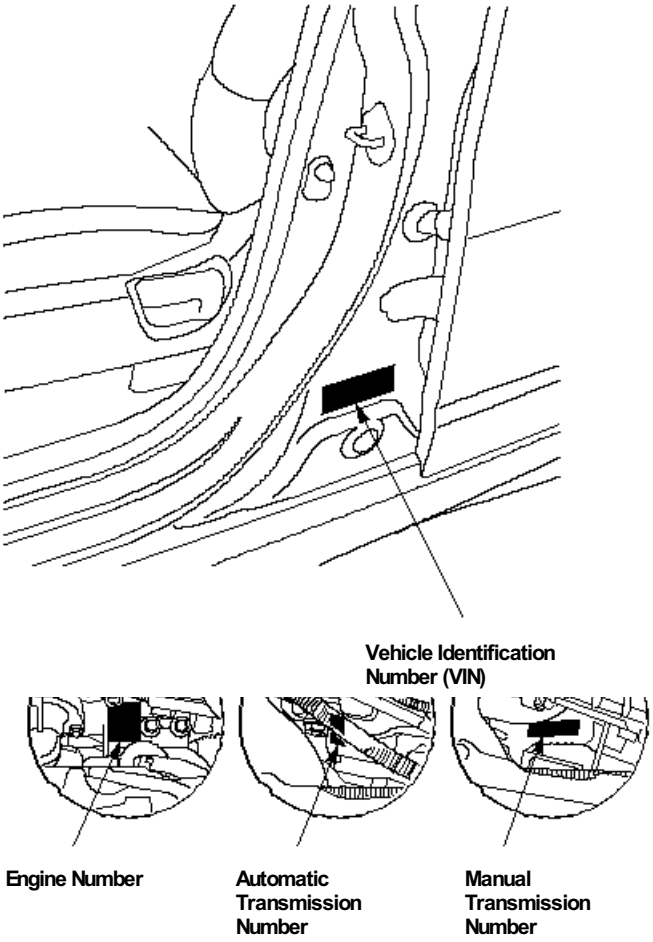
negative cable (C) to the battery.



n (if equipped).

Identification Number Locations

NOTE: The illustration shows the RHD model, LHD model is similar.

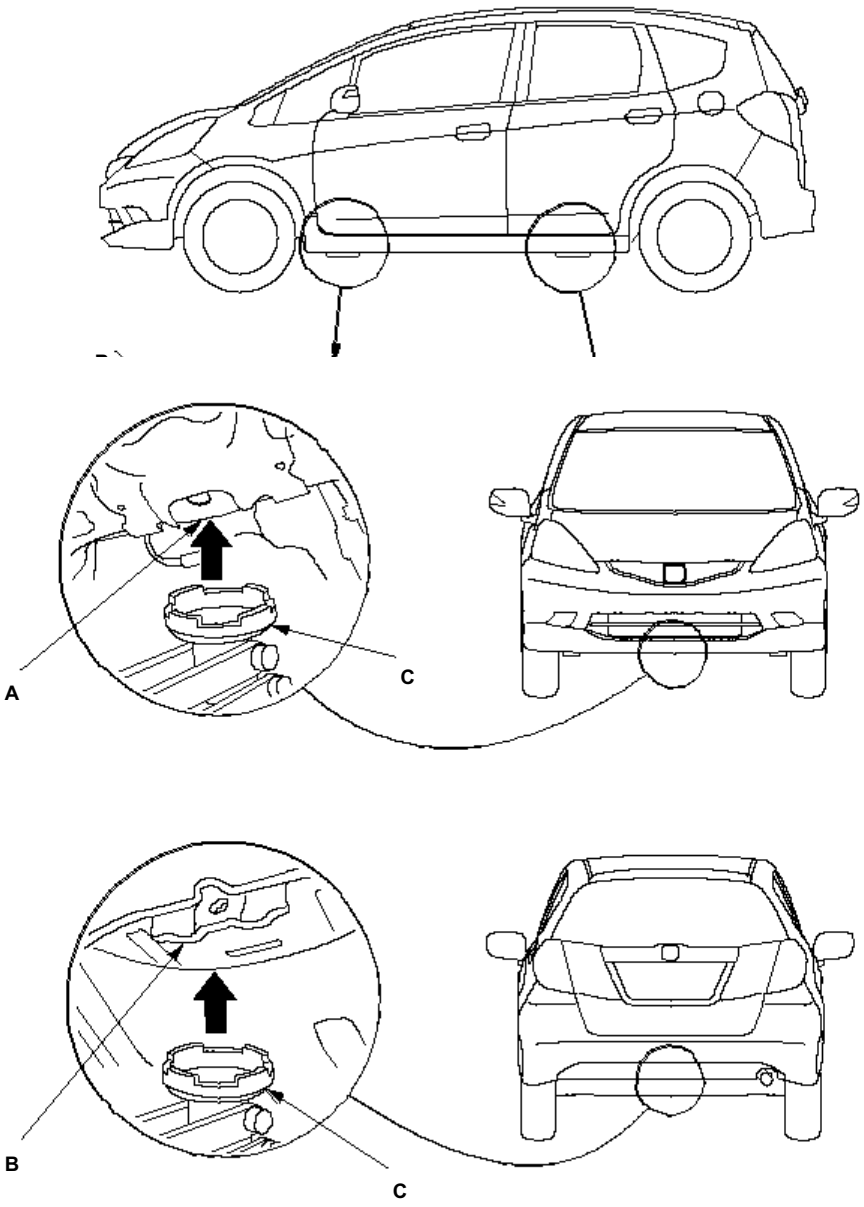


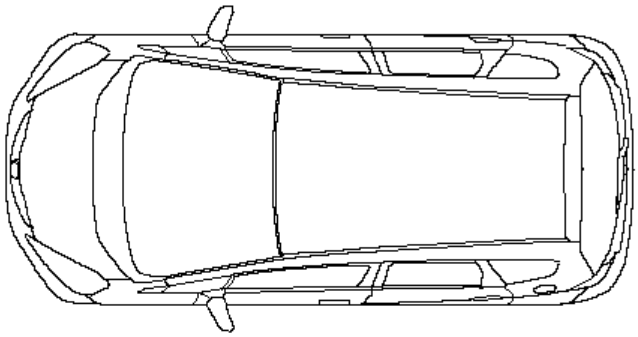
Lift and Support Points

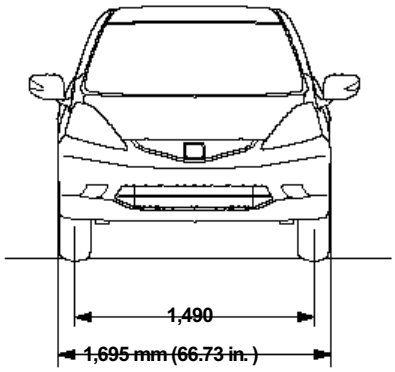
NOTE: If you are going to remove heavy components such as the suspension from the rear of the vehicle, first support the front of the vehicle with tall safety stands. When substantial weight is removed from the rear of the vehicle, the center of gravity can change causing the vehicle to tip forward on the lift.

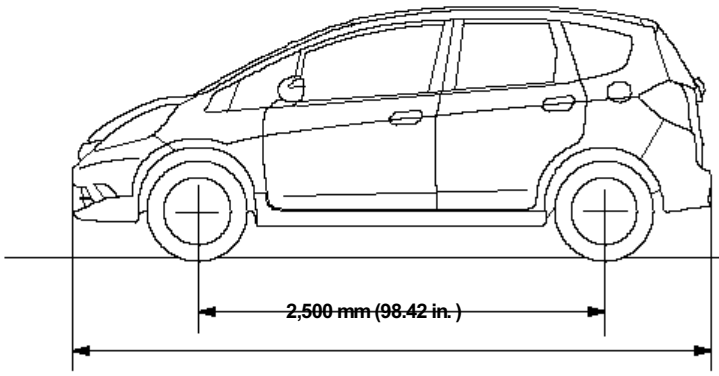
Vehicle Lift

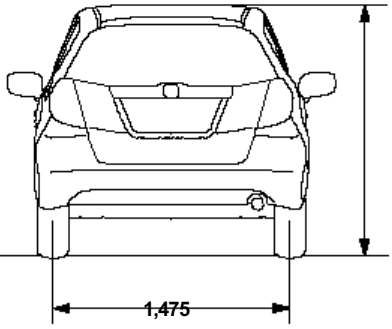
1. Position the hoist lift blocks (A) under the vehicle's front support points (B) and rear support points (C).









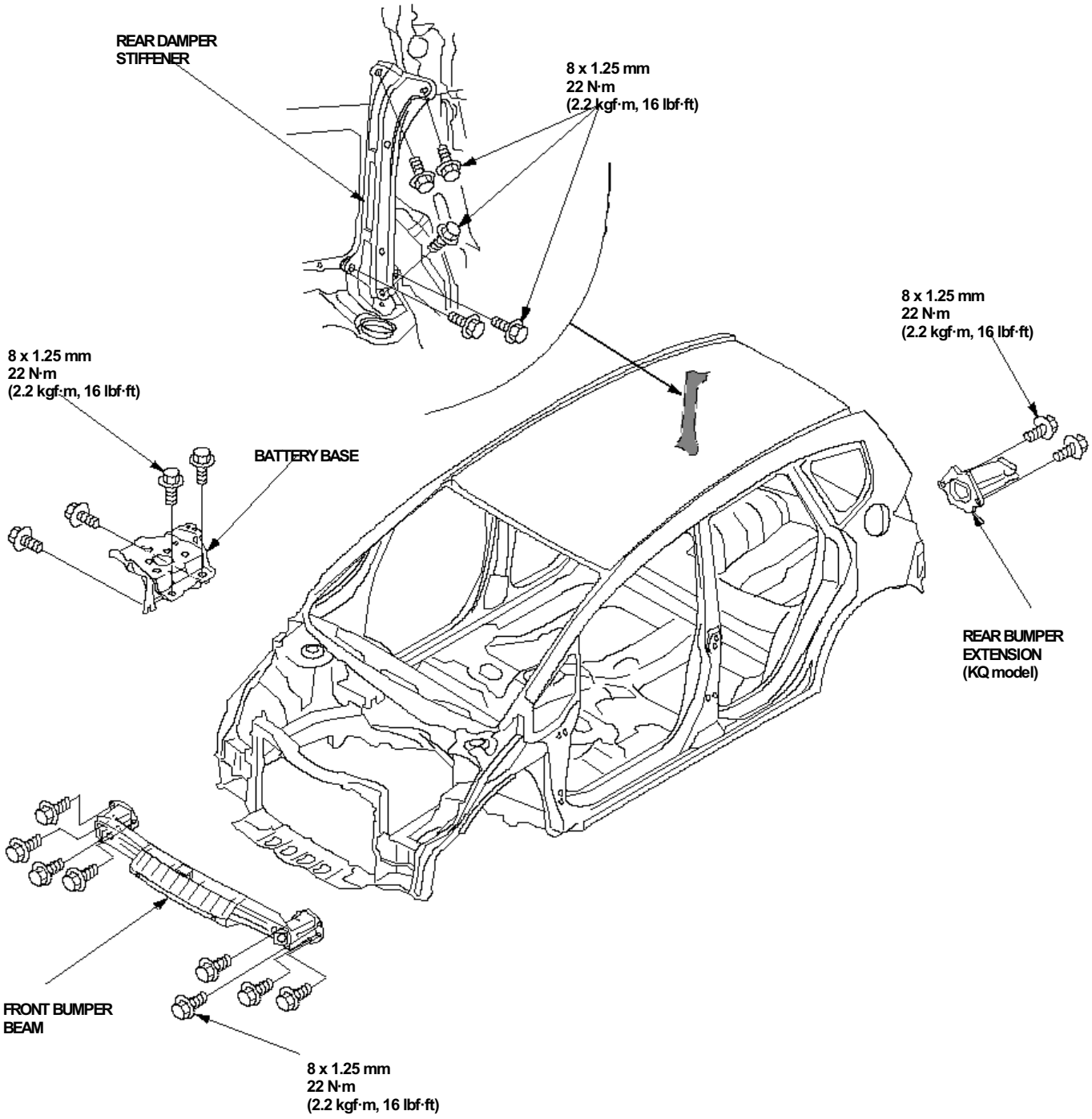


L13Z1 Engine models: 3,900 mm (153.5 in.)
L15A7 Engine models: 3,920 mm (154.3 in.)

Exterior Parts Removal/Installation

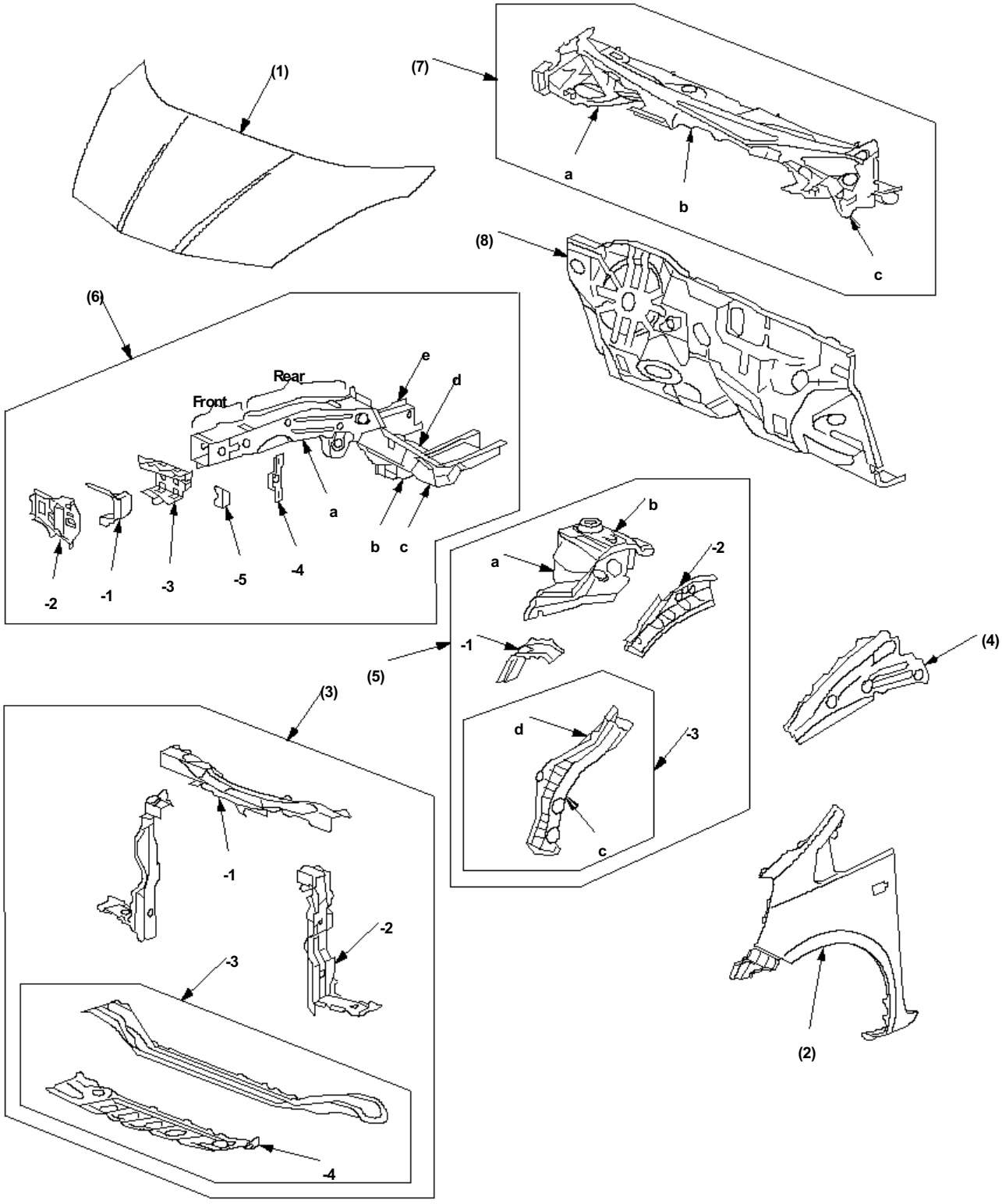
NOTE:

- When removing the front fender, do not deform the upper portion (A) of the front fender.
- When adjusting the door in or out, replace the mounting bolts (B) (90102-SFA-305).
- Apply spot sealer to the mating surface, then install the front fender, the hood, the doors, the tailgate, and the hinges.
- Before attaching the front fender, apply sealer to the mating surface of the front fender and front pillar outer panel.



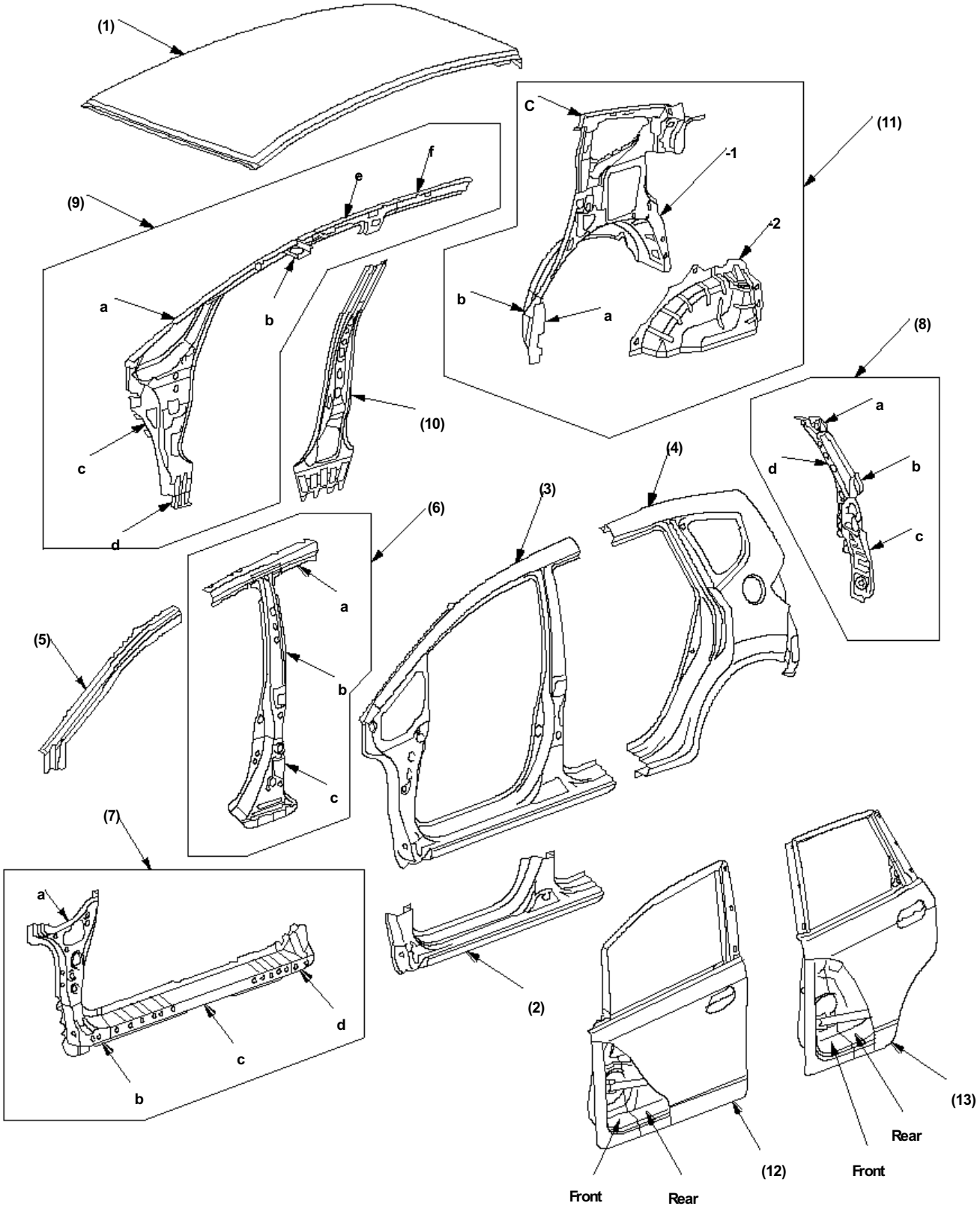
Front Body Construction

NOTE: Confirm that the sold as repair parts, refer to the appropriate Parts Catalog.



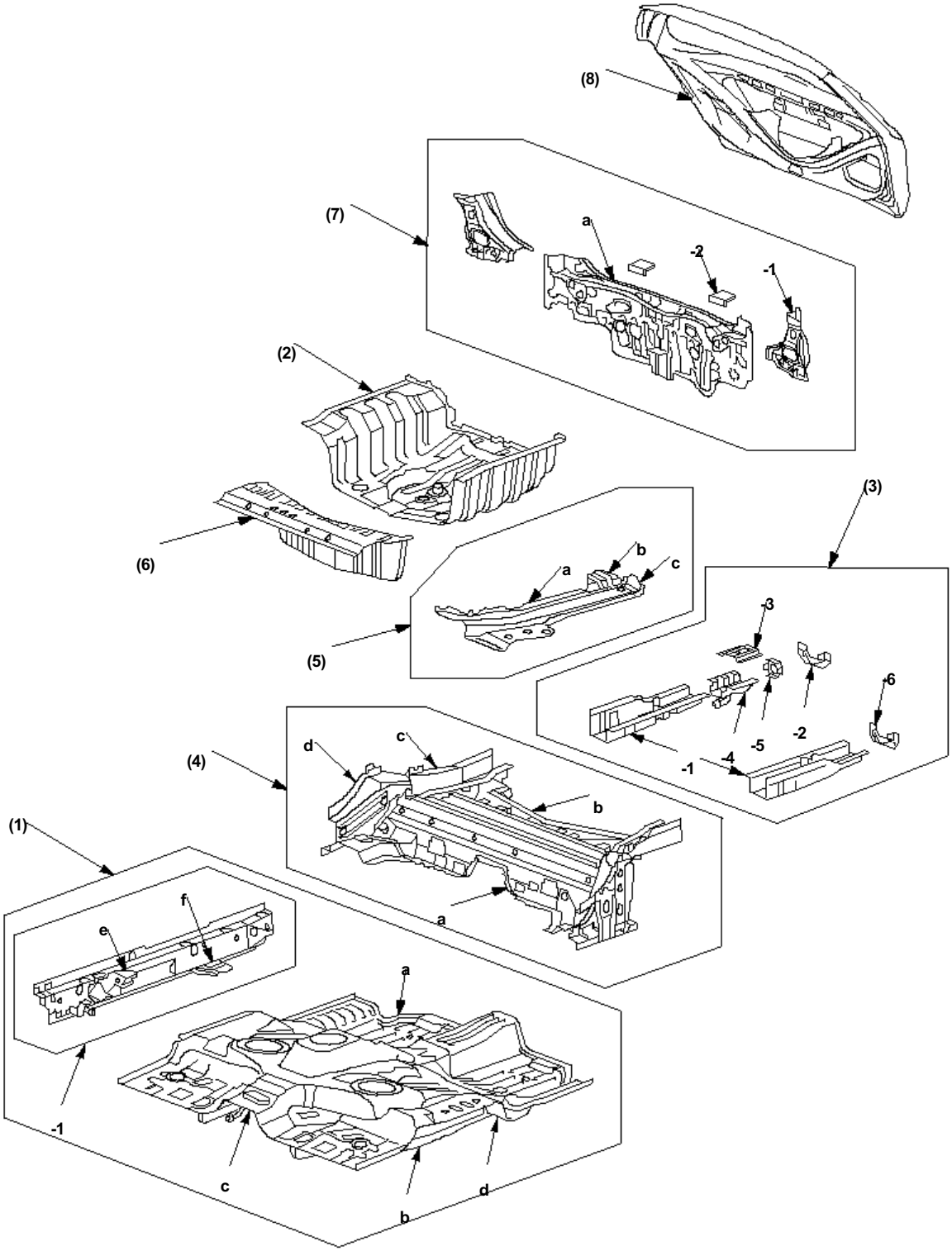
Roof and Side Panel Construction

NOTE: Confirm that the sold as repair parts, refer to the appropriate Parts Catalog.



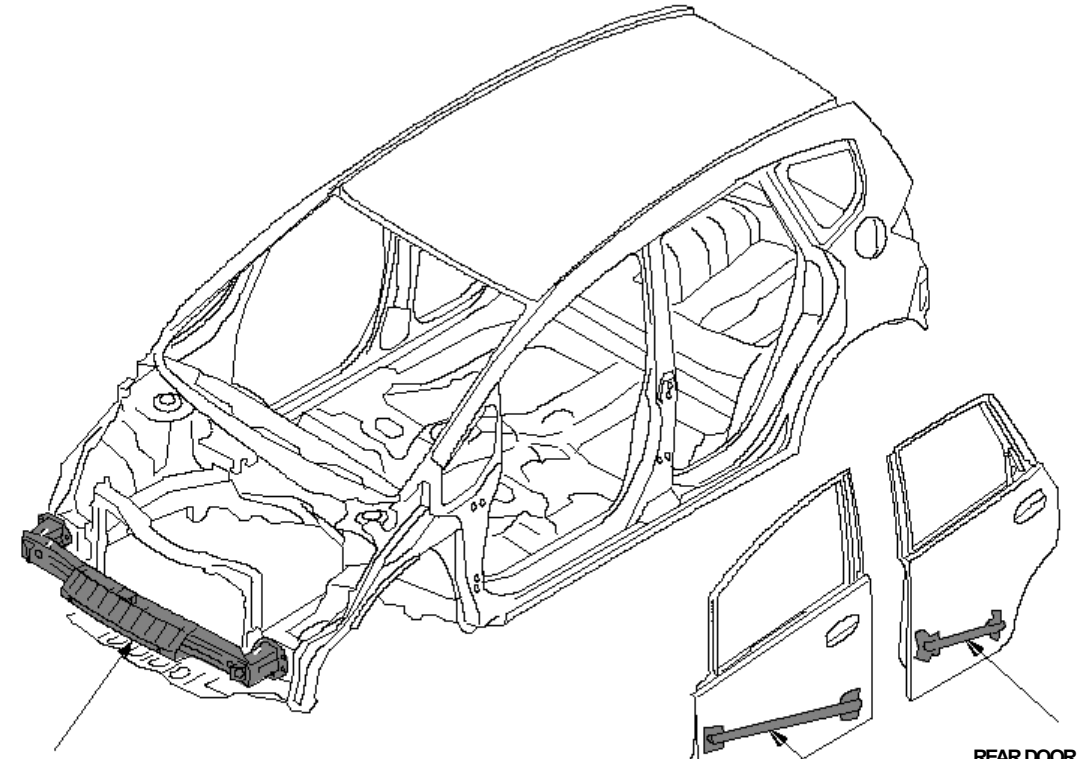
Floor and Rear Body Construction

NOTE: Confirm that the sold as repair parts, refer to the appropriate Parts Catalog.



Door and Bumper Reinforcement Beams

The door and bumper reinforcement beams used on Fit/Jazz vehicles are made from a metal equivalent to high-strength steel.
If high-strength steel is heated, the strength of the steel will be reduced. If high-strength steel is damaged, for example. In an accident, and the door and bumper reinforcement beams are bent, the beams may crack when attempting to straighten them. If a door beam is damaged, the whole door panel assembly should be replaced.
For this reason, the door and bumper reinforcement beams should NEVER be replaced; they should be replaced if they are damaged.



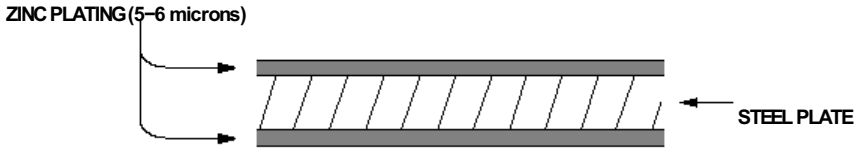
FRONT BUMPER REINFORCEMENT BEAM
Do not repair.

REAR DOOR REINFORCEMENT BEAM
Do not repair.

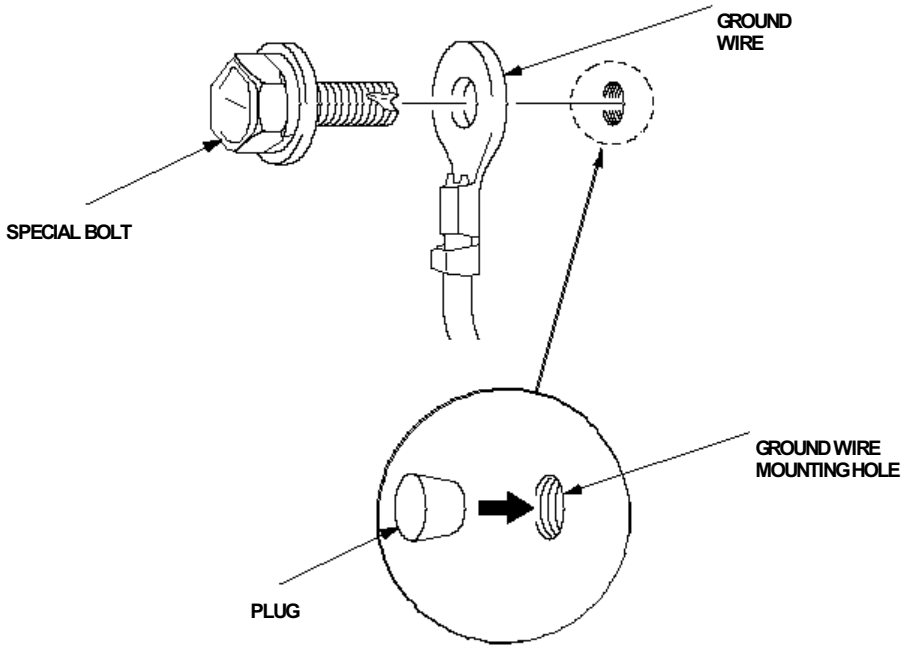
FRONT DOOR REINFORCEMENT BEAM
Do not repair.

Zinc-plated Steel Plate Repair

The zinc-plated steel plate used in some panels of the Fit/Jazz require different repair techniques than ordinary steel plate. Refer to "Front Body Construction" , "Roof and Side Panel Construction" , "Floor and Rear Body Construction" for the location of the zinc-plated panels.



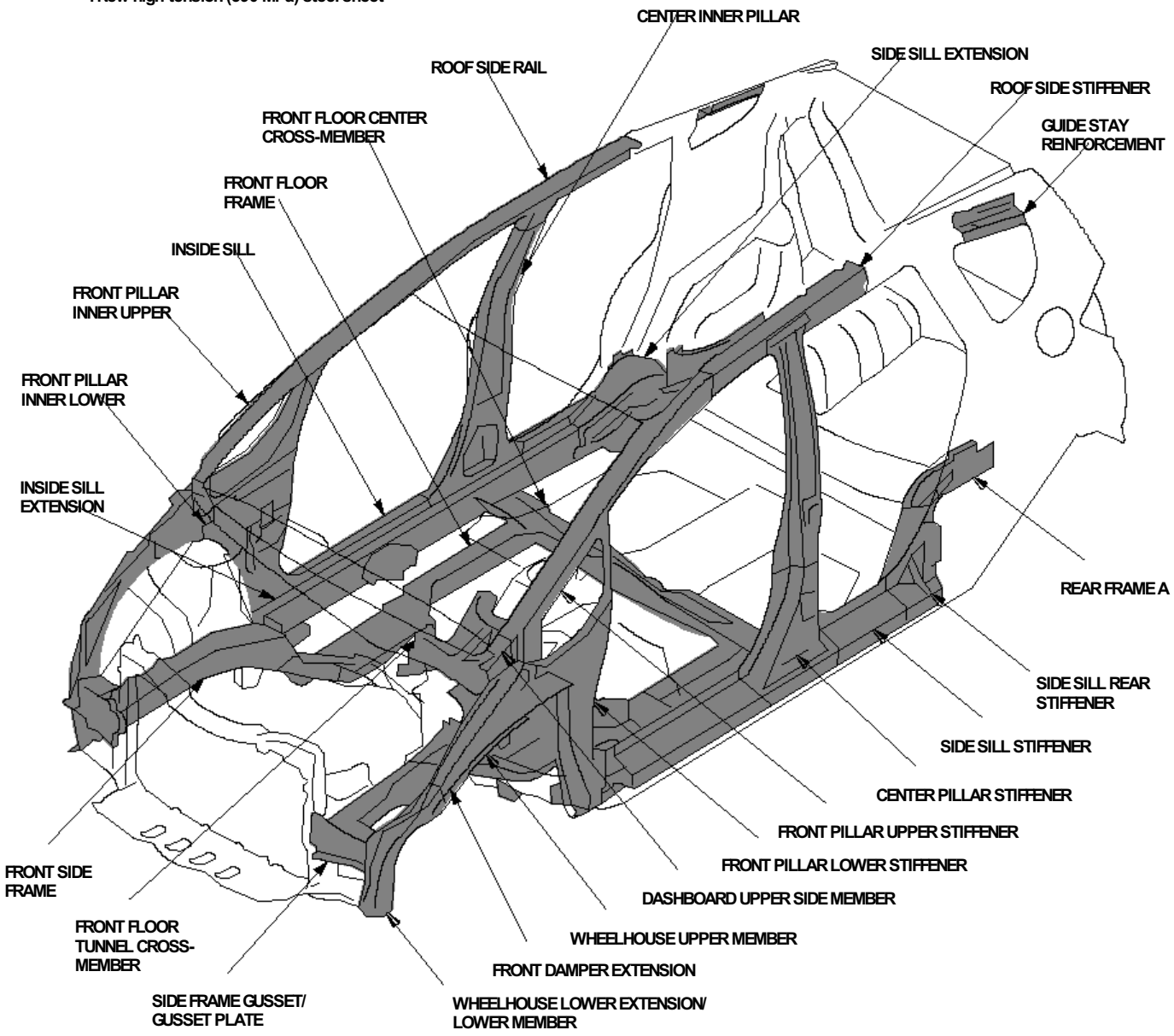
4. When doing paint work, protect the ground wire and the ground wire mounting hole threads with a bolt or a plug.



High-tension Steel Sheet Framed Area

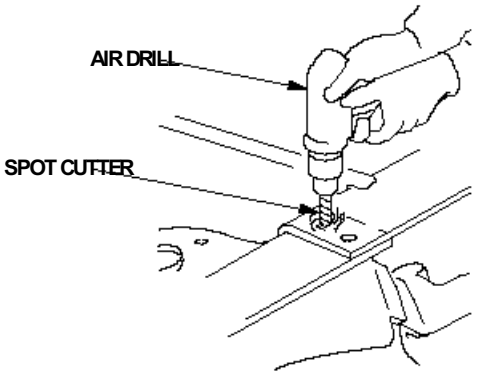
The new high-tension steel sheet has greater tensioner strength than the conventional high-tension steel sheet. Although it's a thinner sheet, it maintains the same strength capacity as the previous thicker ones. Because the manufacturing press process has improved, the usage area has expanded. For this vehicle, the new high-tension steel sheet is used for its main frame and its cabin construction part to make the new model lightweight and to strengthen the safety capacity of the high-crush absorption frame.

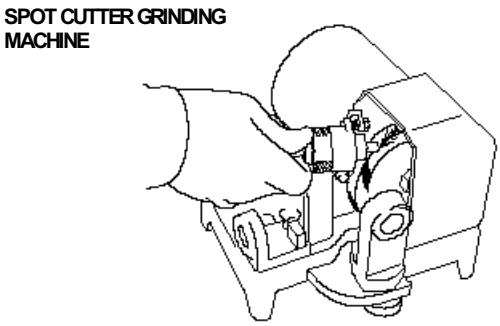
: New high-tension (590 MPa) steel sheet

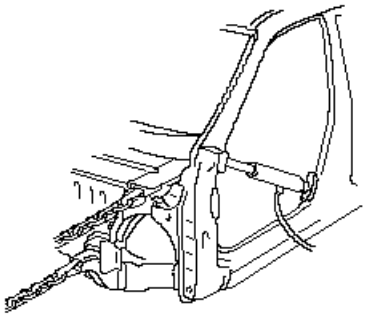


Precautions for High-tension Steel Parts Area Repair

- The new high-tension steel parts of the frame are all spot welded together. In order to disassemble, drill a hole in the sections that are spot welded together with a very sharp spot weld bit.
- The new high-tension steel sheet is more rigid than previous steel sheets, making it difficult to strengthen. When an automobile's frame is partially constructed with the new high-tension steel sheet, it should be strengthened using an accurate frame straightening system. Inspect the body and frame once the repair is complete for stress-related damage to the sections that are not made from the new high-tension steel.
- High-tension steel has more memory than normal steel, and it is necessary to monitor the body dimensions closely during the straightening process.
- Spot welding is a acceptable for replacement parts as long as the proper number of welds is used in the repair. For replacement part welding locations, refer to ‘‘Replacement" in this manual. If spot welding does not provide acceptable repairs, plug the welds using an MIG welder.



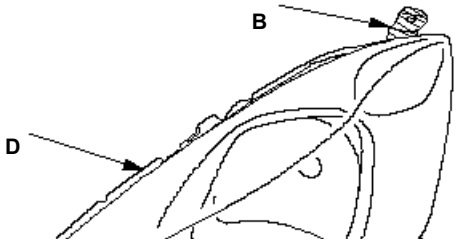




Headlight Bracket Replacement

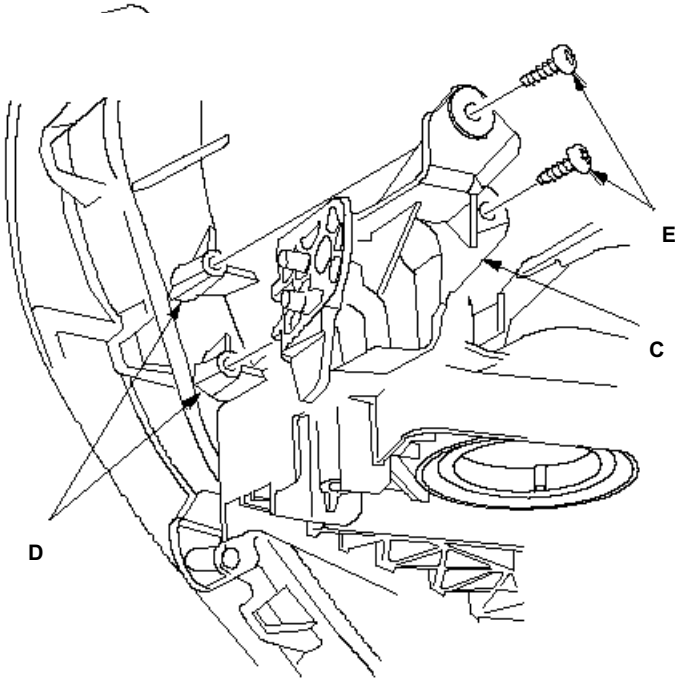
NOTE: Put on gloves to protect your hands.
When the Front bracket (A), the upper bracket (B) and/or the lower bracket (C) of the headlight assembly (D) are broken, it can be reinstalled using the repair brackets if it meets this criteria;

- There is no damage to the headlight assembly.
- The sealing of the headlight lens and headlight housing is maintained.



he lower bracket (C) so that the bosses (D) of the headlight housing
a with 400 grit sandpaper. Take care not to scratch the headlight

ver repair bracket (C) on the bosses of the headlight housing (D), then



Paint Safety Precautions

⚠WARNING

Most paints contain substances that are harmful if inhaled or swallowed. Read the paint label before opening the container.

Observe the following precautions to maintain a safe painting work area.

- Wear an approved respirator and eye protection when painting.
- Wear approved gloves and appropriate clothing when painting. Avoid contact with skin.
- Spray paint only in a well ventilated area.
- Cover spilled paint with sand, or wipe it up at once.
- If paint gets in your mouth or on your skin, rinse and wash thoroughly with water. If paint gets in your eyes, flush with water and get prompt medical attention.
- After the painting work is finished, wash your face and gargle with water.
- Paint is flammable. Store it in a safe place, and keep it away from sparks, flames, or cigarettes.

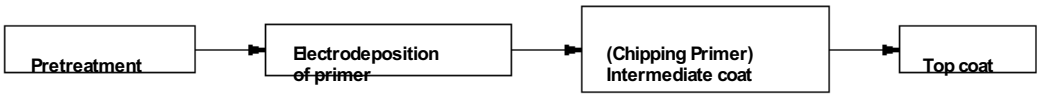
Paint General Information

The 3-coat·3-bake (3C·3B) paint finish gives the Fit/Jazz a deep gloss and stunning finish. This manual provides information on paint defects, repair, and refinishing. Throughout, the objective is to explain in a simple yet comprehensive manner the basic items you should know about paint repairs. Select the correct material for the defect and repaint or refinish in the correct manner as described in this manual.

Basic Rules for Repairing a Paint Finish

To repair paint damage, always use the 2-part acrylic urethane paints designated; polish and bake each of the three coats, as in production, to maintain the original film thickness, and to assure the same quality as the original finish.

Outline of factory painting process



After the body has been cleaned with pure water, it is placed in an electrolytic bath of soluble primer (cationic electrodeposition). This produces a thorough corrosion inhibiting coating on the inner surface and corners of the body, pillars, sills, and panel joints. Chipping primer is then applied to the most susceptible areas.

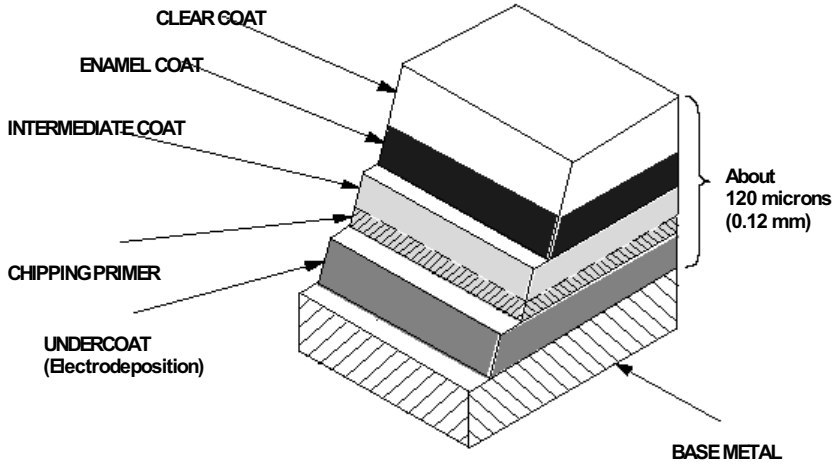
Intermediate coat

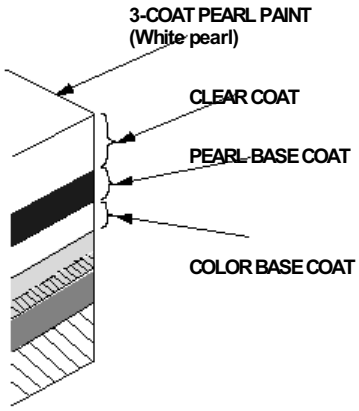
The intermediate coat is applied to the prepared surface to further protect against damage.

Top coat

Enamel paint and either polyester or acrylic resin paint are used in the top coat for higher solidity, smoothness, brightness, and weather resistance.

Sectional view of paint coats

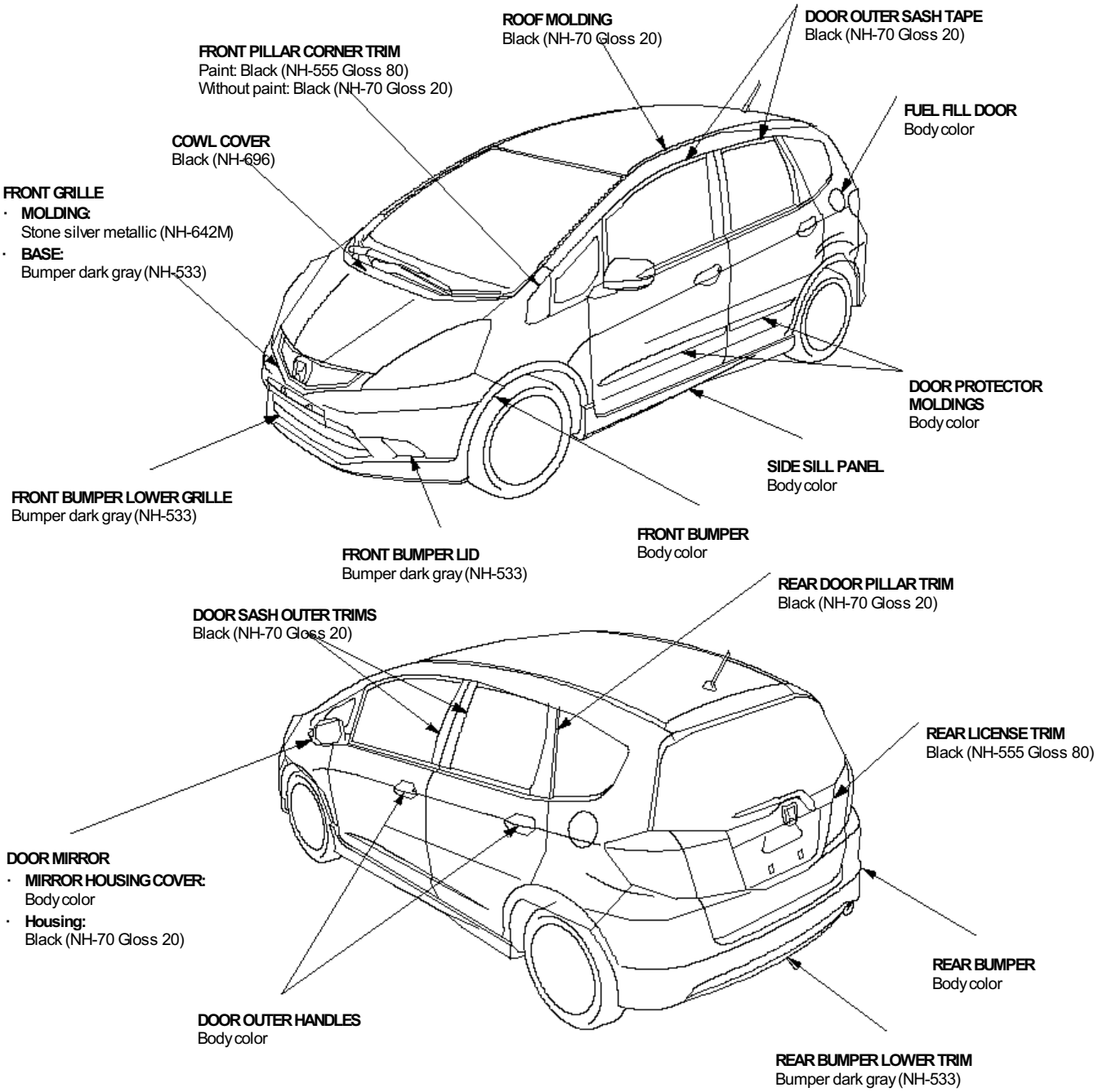




Color Chart Paint Specifications

Paint code	NH-578	NH-700M	NH-630M	B-92P	Y-66P	R-513	BG-53M
Color Name	Taffeta White	Alabaster Silver M.	Silver Stone M.	Nighthawk Black P.	Helios Yellow P.	Rallye Red	Brilliant Sky M.

P: Pearl Paint/M: Metallic Paint



Features of Plastic Materials

- Check each of the plastic parts for solvent resistance and heat resistance before you do any repair work.
- Select the repair material according to materials of the plastic parts.
- Alcohol can be used for degreasing in small amounts, and for short periods of time. Do not soak.
- Contact your paint and material supplier for other recommended cleaners for the type of plastic you are working on.

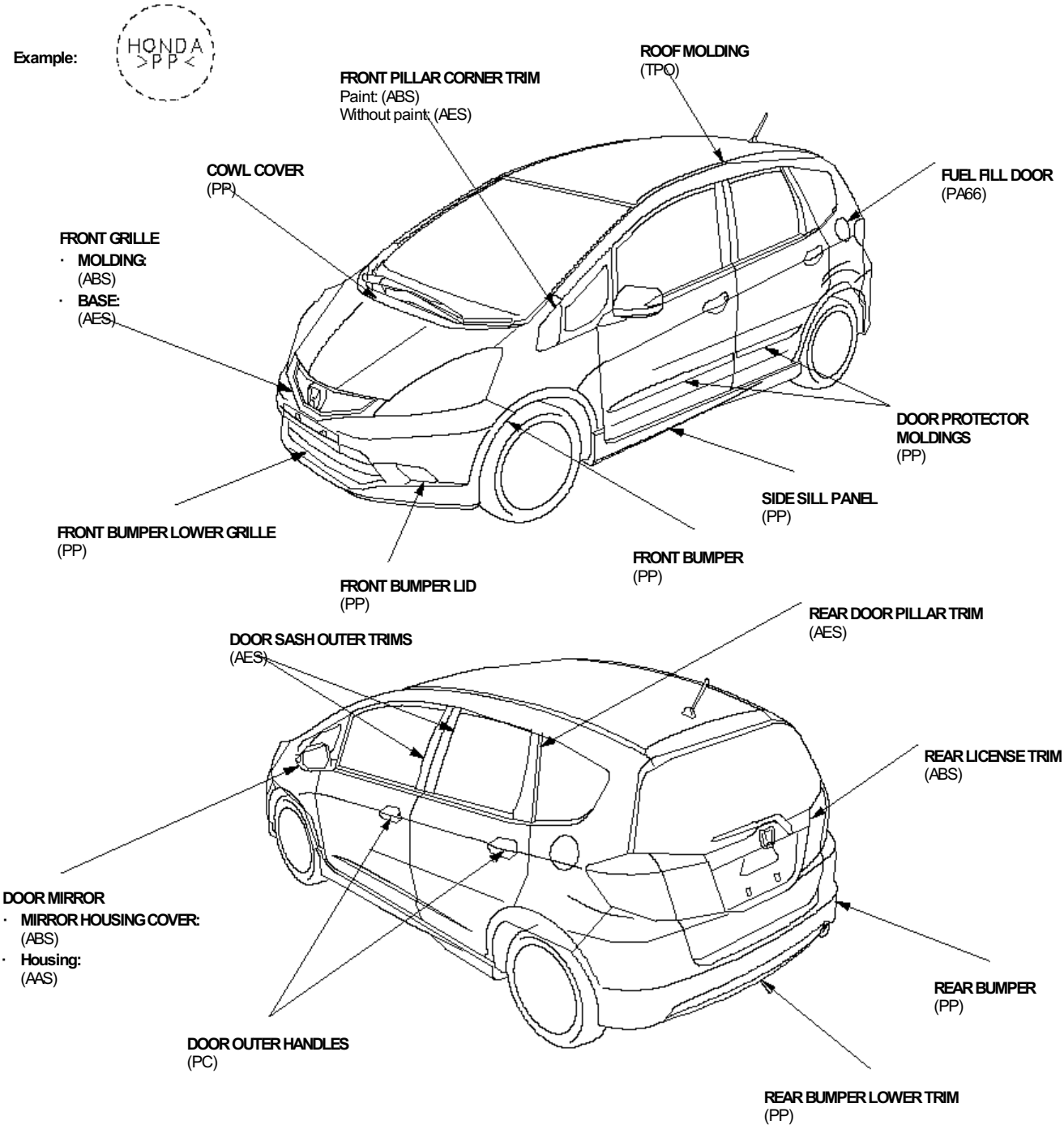
Standard Symbol	Name	Heat Resistance Temperature °F (°C)	Note
AAS	Acrylonitrile acrylic styrene	176 (80)	
ABS	Acrylonitrile butadiene styrene	176 (80)	
AES	Acrylonitrile ethylene styrene	176 (80)	
A/EPDM/S	Acrylonitrile/ethylene propylene diene rubber/styrene	176 (80)	
ASA	Acrylonitrile styrene acrylate	176 (80)	
CAB	Cellulose acetate butylate	176 (80)	
E/VAC	Ethylene-vinyl acetate	176 (80)	
PA	Polyamide	176 (80)	Battery acid (sulfuric acid) can damage the material.
PBT	Polybutylene terephtalate	320 (160)	Solvent can damage the material.
PC	Polycarbonate plastics	248 (120)	Brake fluid, wax, and grease remover can damage the material.
PE	Polyethylene	176 (80)	Solvent can damage the material.
PF	Phenol form aldehyde	176 (80)	
PMMA	Polymethyl methacrylate	176 (80)	Wash remover off with water thoroughly.
POM	Polyoxymethylene polyacetal	212 (100)	Solvent can damage the material.
PP	Polypropylene	176 (80)	Solvent can damage the material.
PPO (PPE)	Polyphenylene oxide	212 (100)	
PS	Polystyrene	140 (60)	
PUR	Polyurethane	176 (80)	

Standard Symbol	Name	Heat Resistance Temperature °F (°C)	Note
PVC	Polyvinyl chloride	176 (80)	
SAN	Styrene acrylonitrile	176 (80)	
SMC	Sheet molding compound	356 (180)	Solvent can damage the material.
TPE	Thermoplastic polyester elastomer	176 (80)	Wash remover off with water thoroughly.
TPS	Thermoplastic styrene elastomer	176 (80)	Wash remover off with water thoroughly.
TPO	Thermoplastic olefin/elastomer	176 (80)	Wash remover off with water thoroughly.
TPU	Thermoplastic/urethane/elastomer	176 (80)	Wash remover off with water thoroughly.
UP	Polyester	230 (110)	Alkali can damage the material.

Types and Materials of Exterior Plastic Parts

NOTE:

- For the full plastic name, refer to the features of plastic materials.
- A standard symbol is stamped on the underside of each resin part to show the type of material used.



Soft Chipping Guard Primer Coat - General Safety Precautions

The removal of paint and undercoating by stone chips immediately exposes metal to the atmosphere, causing it to oxidize. The thickness of this oxidation increases if the process continues unchecked. The soft chipping guard primer protects against damage due to the impact of such objects.

- The soft chipping guard primer coat is applied over the E. D. (electorostatically deposited) primer. It is followed by guide coating and top coating.
- The soft chipping guard primer produces a smooth surface when dry. It should be sprayed so the thickness of the protective film is 20 microns.

Sectional view of paint coats:

Top coat
Intermediate coat + Chipping guard primer
Electrodeposition
Base metal

- A soft chipping guard primer coat is then applied to the most susceptible area.
- Spray the primer surface (2-part urethane primer surfacer) on the soft chipping guard primer coating areas when you replace parts using soft chipping guard primer coat.

Coating Procedures

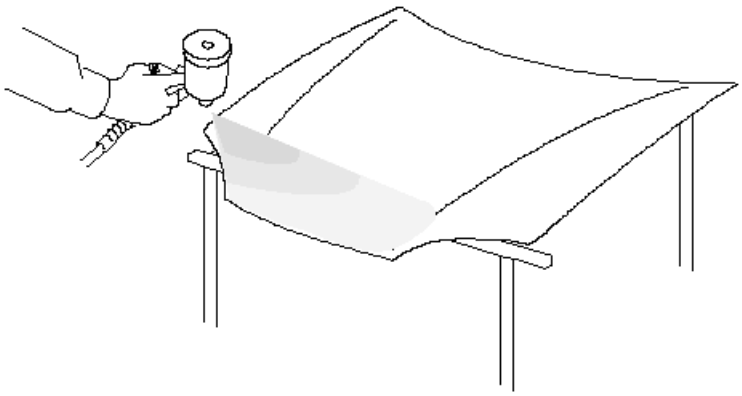
⚠WARNING

- Wear goggles or safety glasses to prevent eye injury.
- Ventilate when spraying undercoat.

1. Sanding the replacement part.
   Use a double action sander and 400 grit sandpaper.
   NOTE:
   - Do not oversand the edges or corners of the part.
   - Do not expose base metal.

at deposits about 5 to 7 microns.
thin coats is recommended.

ce dry it with infrared lamps or an industrial dryer.



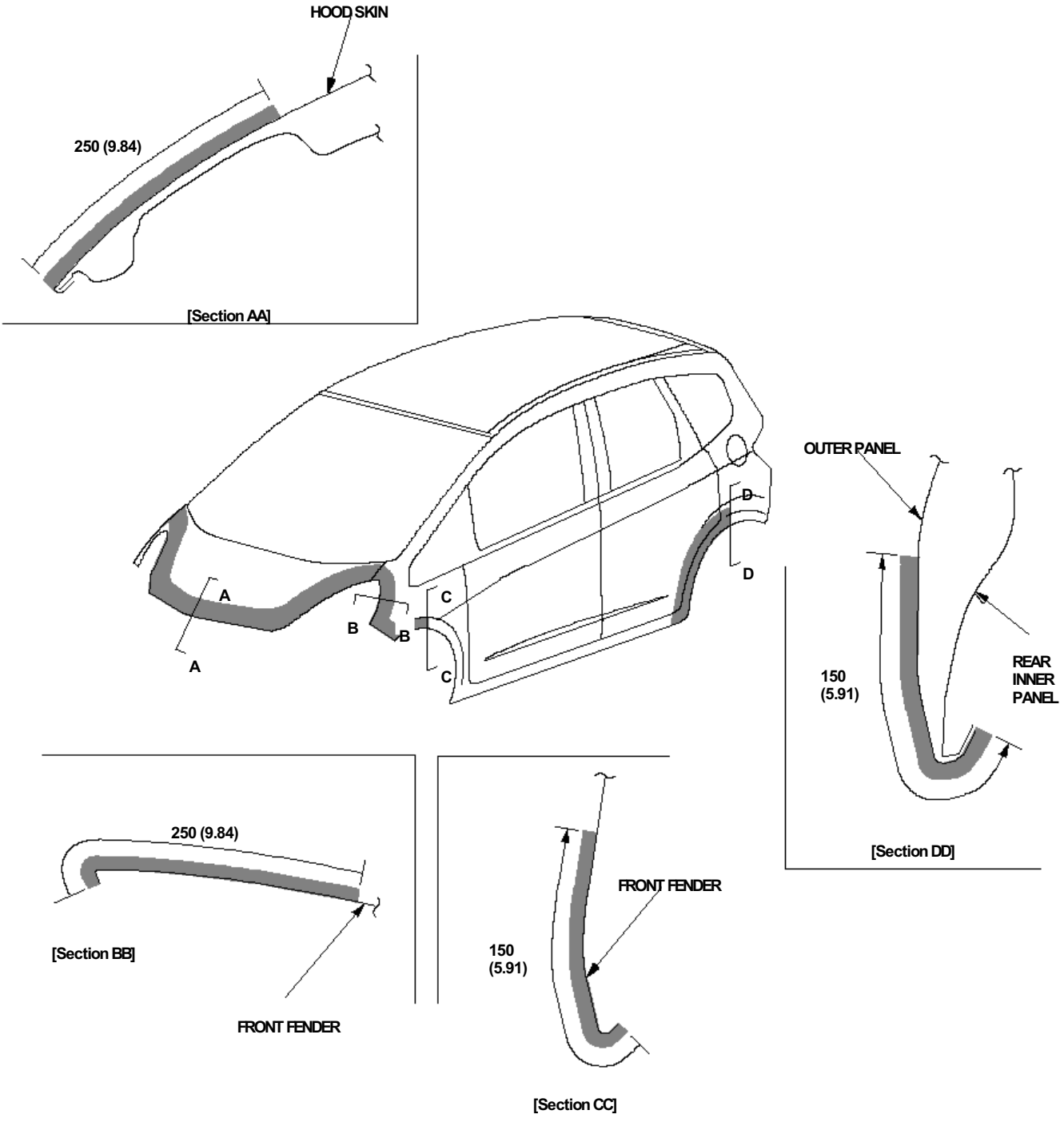
imer surfacer.

Soft Chipping Guard Primer Coat - Coating Area

indicates chipping guard primer coating area.

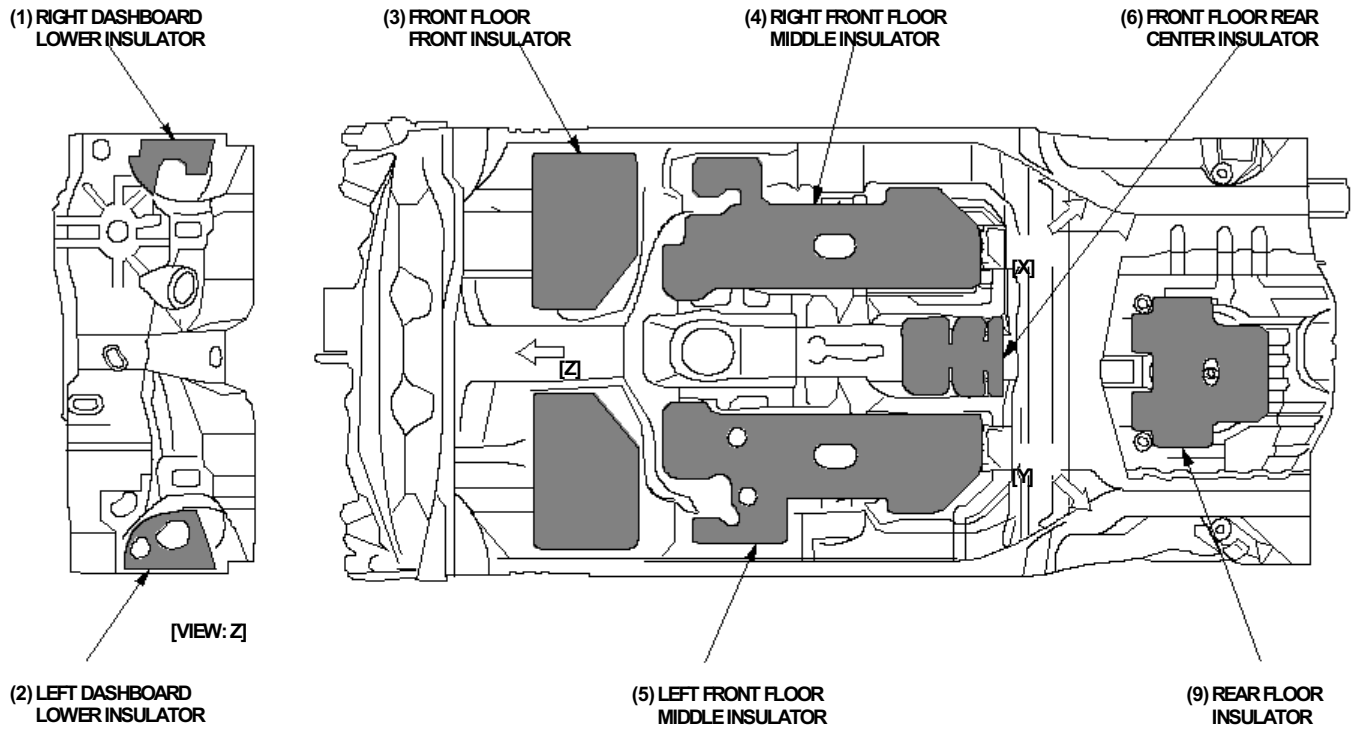
NOTE: Make sure to coat the flange on front and rear wheel arch.

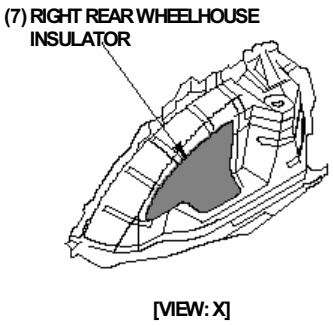
Unit: mm (in.)



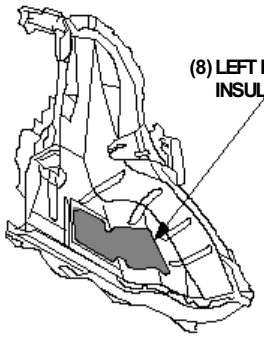
Floor Insulator Locations

Cut new insulators, and apply as indicated.
NOTE: Before applying, clean and degrease the floor.





[VIEW: X]

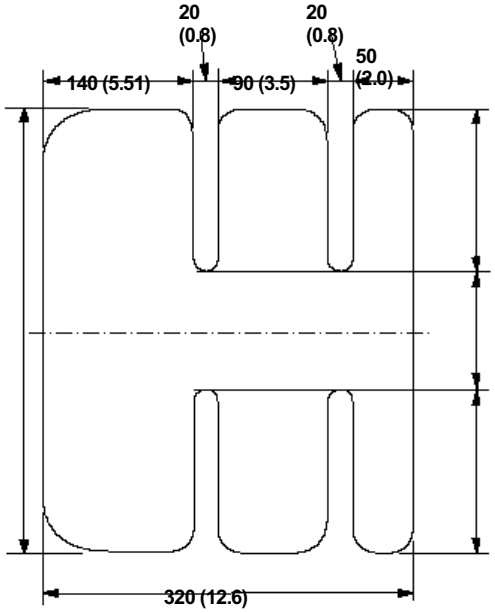


[VIEW: Y]

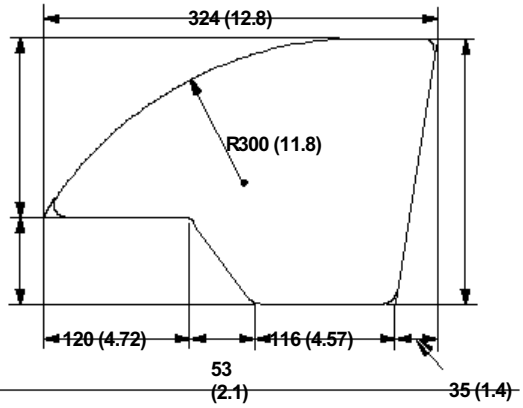
Floor Insulator Sizes

Unit: mm (in.)
R: Round

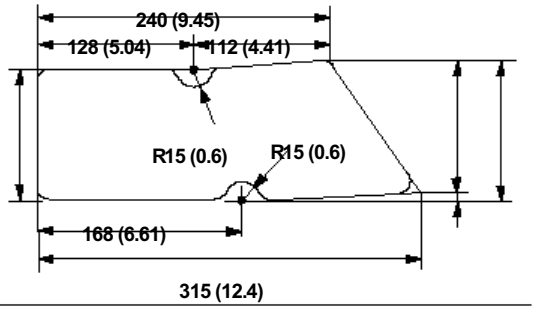
(6) FRONT FLOOR REAR CENTER INSULATOR



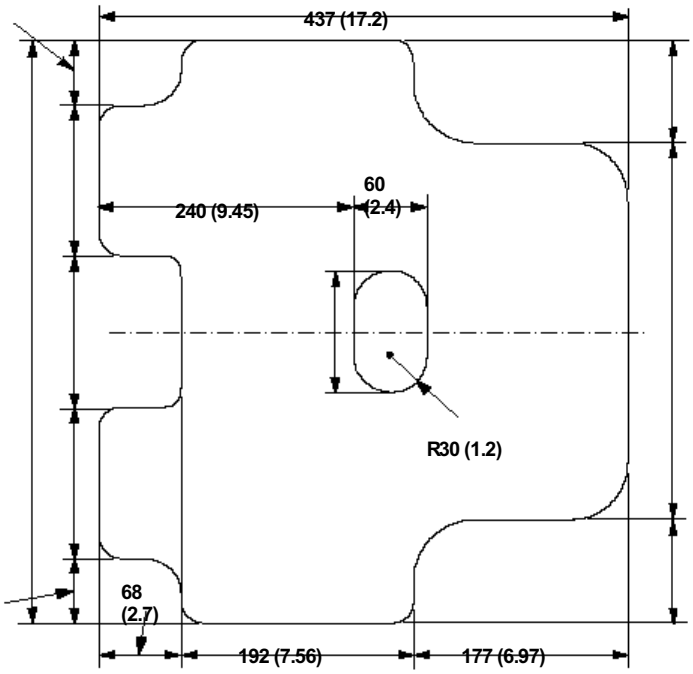
(7) RIGHT REAR WHEELHOUSE INSULATOR



(8) LEFT REAR WHEELHOUSE INSULATOR



(9) REAR FLOOR INSULATOR



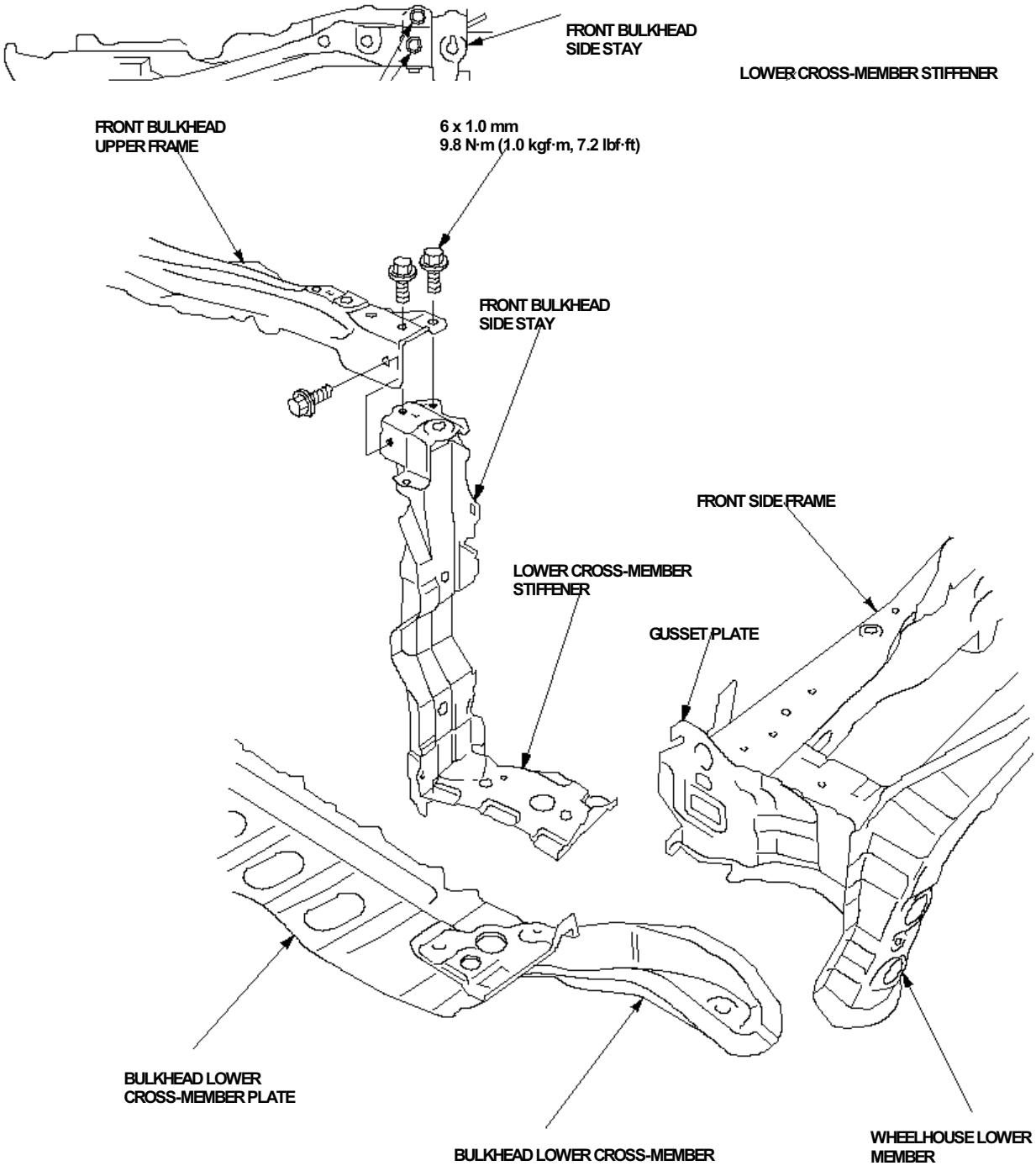
Front Bulkhead Removal

NOTE: This section explains the procedures after removal of all accessories and related parts.For accessories' and related parts' removal procedure, refer to the appropriate Shop Manual.

Mass production body welding position and number

NOTE:

- Welding symbols
  × : 2-Plate spot welding/ ⊗ : 3-Plate spot welding/ ⊠ : 4-Plate spot welding/ ● : MIG plug welding/ ⬬ : MIG welding L= Welding length Unit: mm (in.)
- ( ): The number of welds



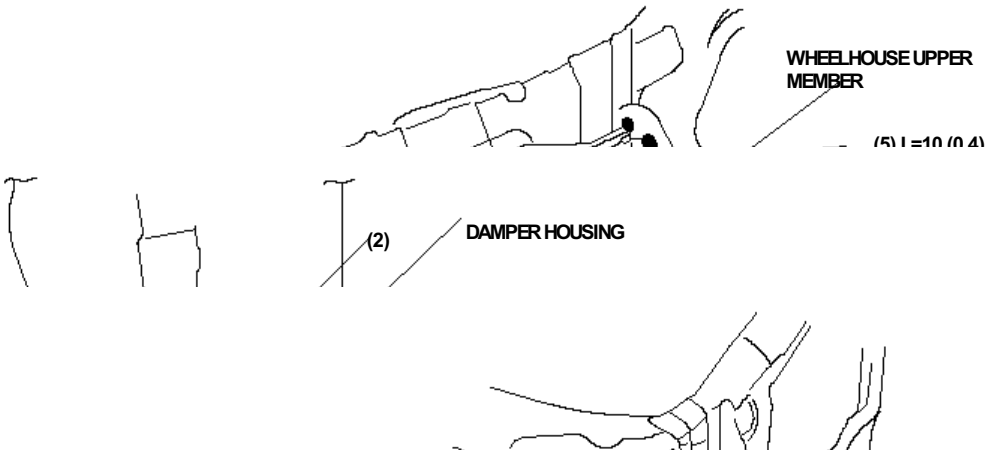
Front Wheelhouse/Damper Housing Removal

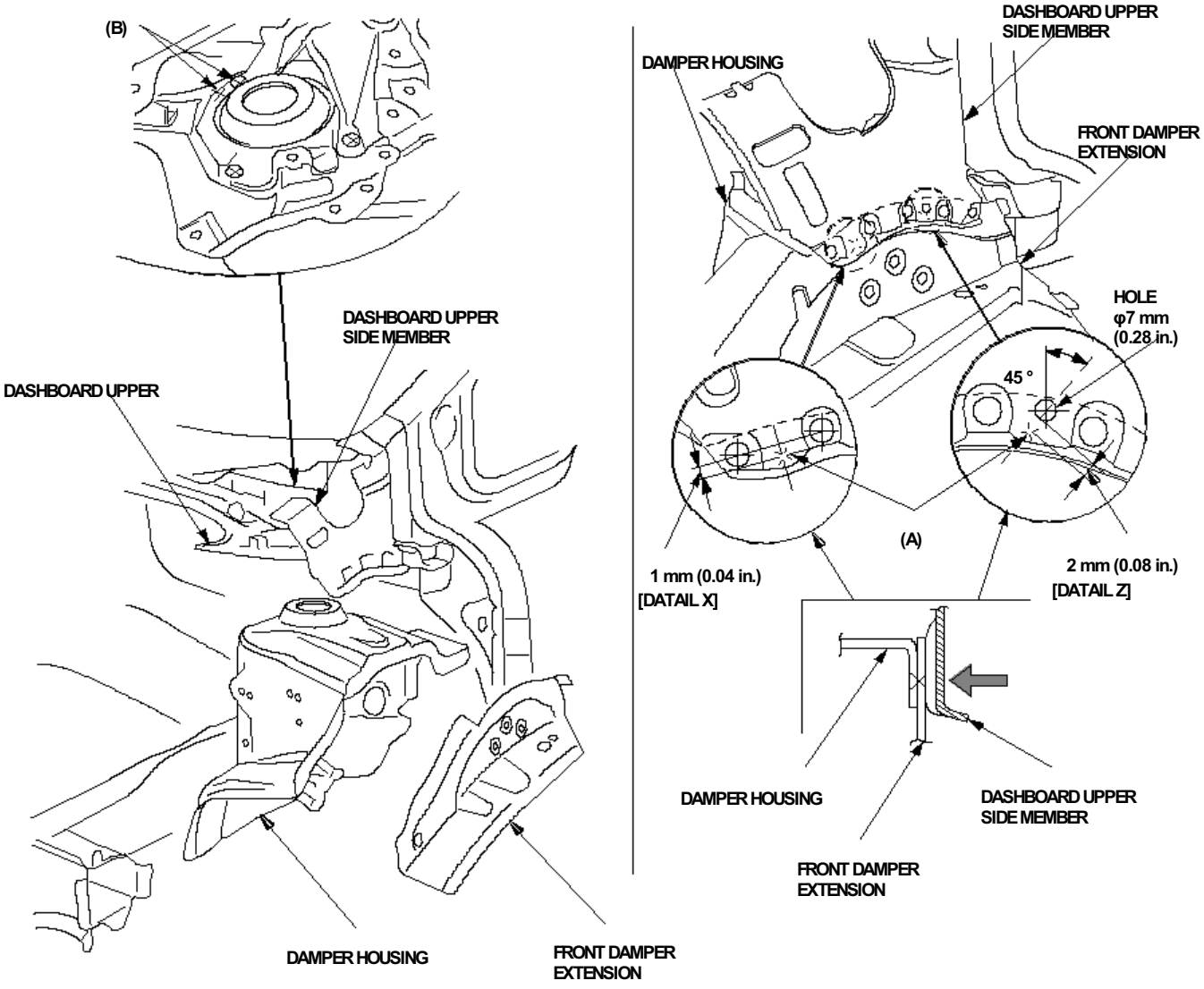
NOTE: This section explains the procedures after removal of all accessories and related parts.For accessories' and related parts' removal procedure, refer to the appropriate Shop Manual.

Mass production body welding position and number [Wheelhouse upper member, lower member, and damper extension]

NOTE:

- Welding symbols
  × : 2-Plate spot welding/ ⊗ : 3-Plate spot welding/ ⊠ : 4-Plate spot welding/ ● : MIG plug welding/ ⬬ : MIG welding L= Welding length Unit: mm (in.)
- ( ): The number of welds





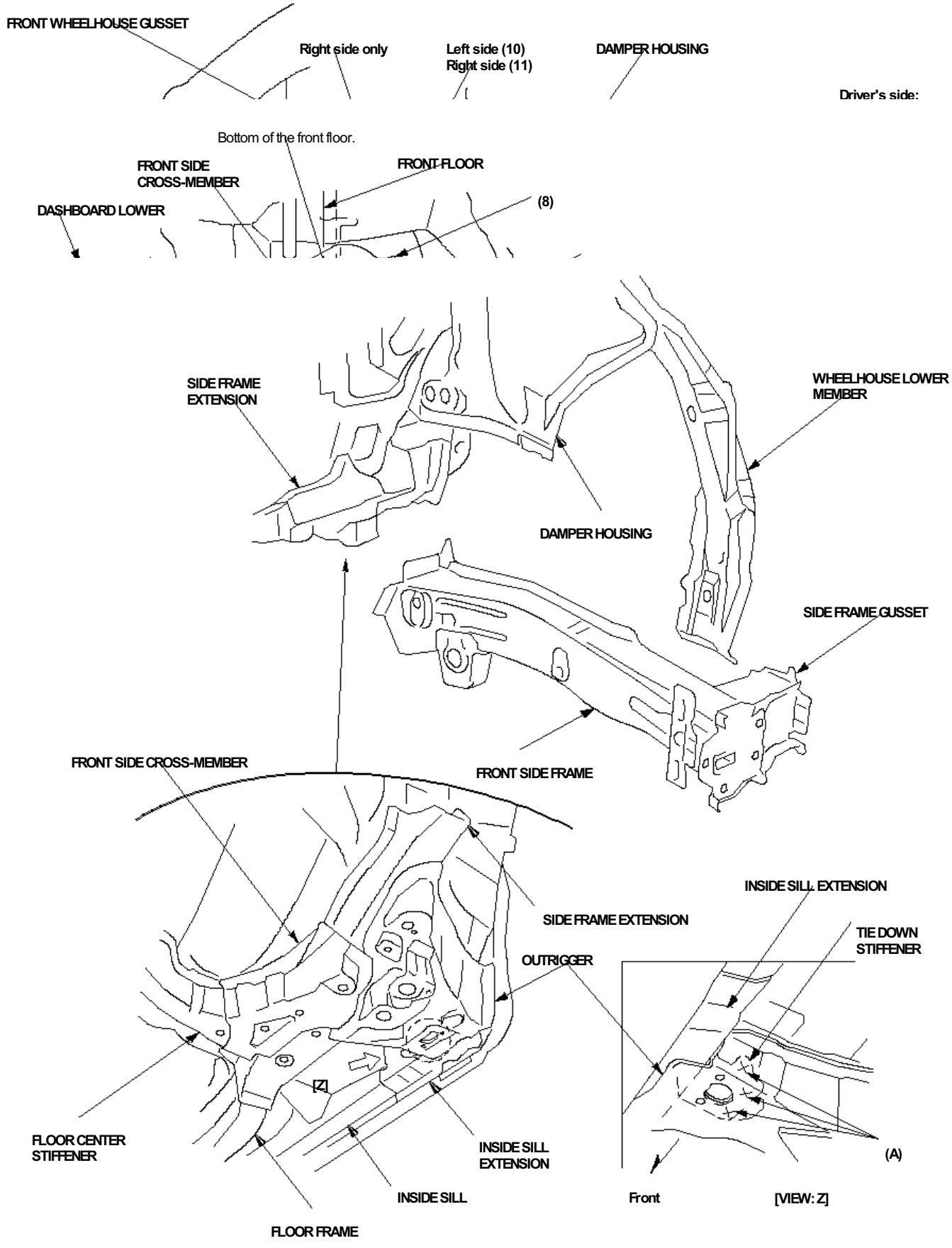
Front Side Frame/Outrigger Removal

NOTE: This section explains the procedures after removal of all accessories and related parts.For accessories' and related parts' removal procedure, refer to the appropriate Shop Manual.

Mass production body welding position and number [Front side frame]

NOTE:

- Welding symbols
  × : 2-Plate spot welding/ ⊗ : 3-Plate spot welding/ ⊠ : 4-Plate spot welding/ ● : MIG plug welding/ ⬬ : MIG welding L= Welding length Unit: mm (in.)
- ( ): The number of welds



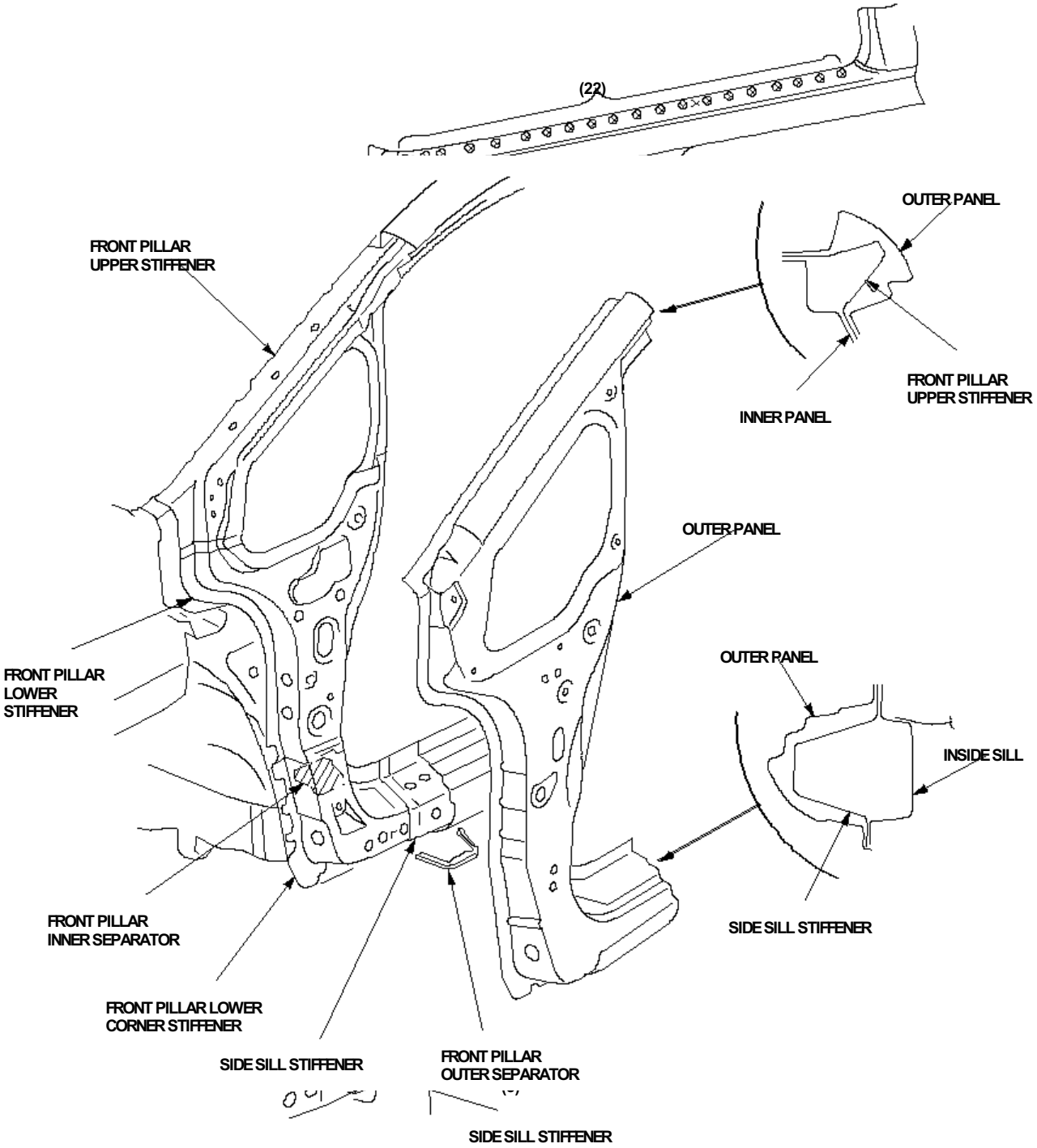
Front Pillar Outer Panel Removal

NOTE: This section explains the procedures after removal of all accessories and related parts.For accessories' and related parts' removal procedure, refer to the appropriate Shop Manual.

Mass production body welding position and number [Outer panel and front pillar lower stiffener]

NOTE:

- Welding symbols
  × : 2-Plate spot welding/ ⊗ : 3-Plate spot welding/ ⊠ : 4-Plate spot welding/ ● : MIG plug welding/ ⬬ : MIG welding L= Welding length Unit: mm (in.)
- ( ): The number of welds



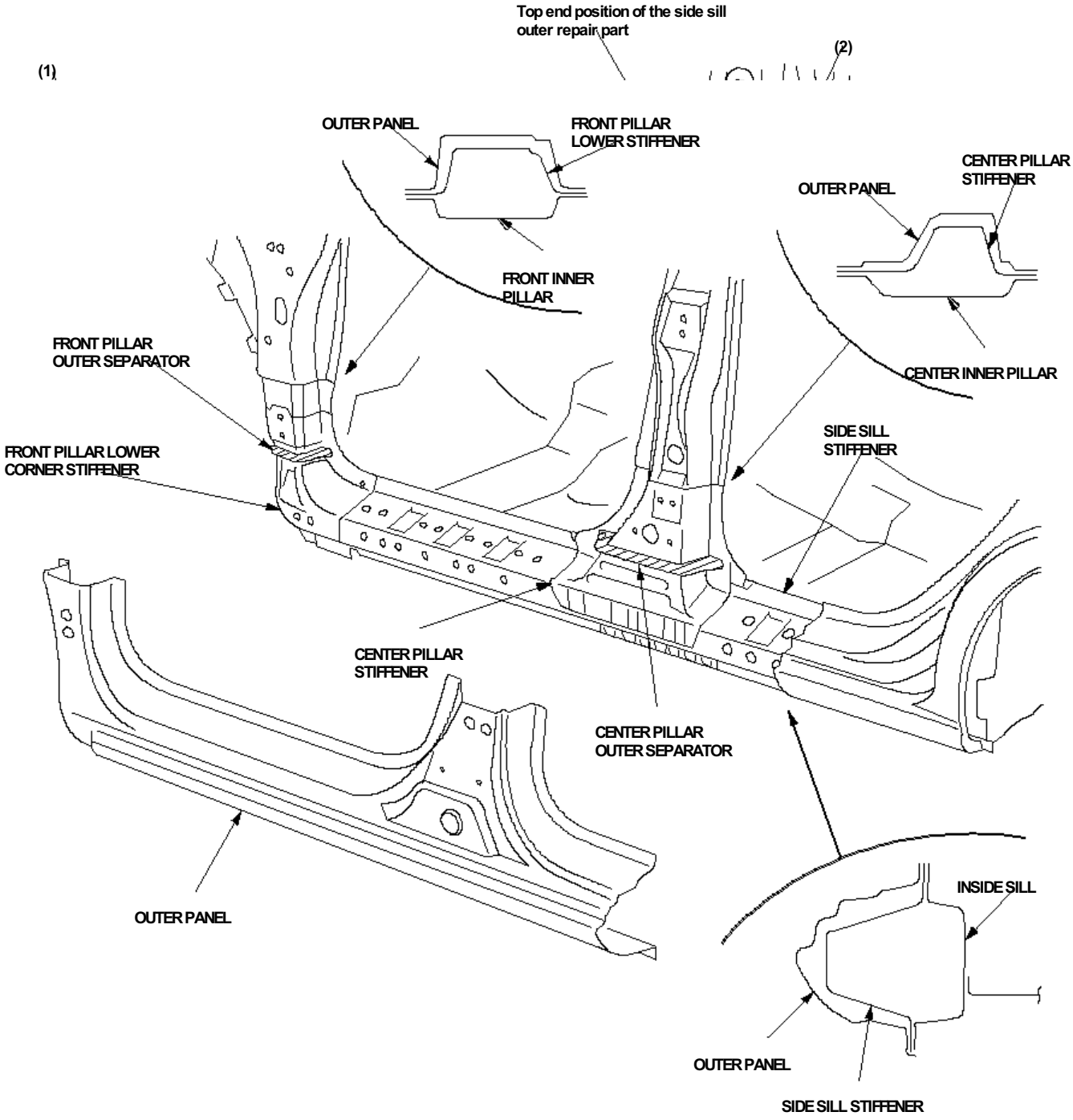
Side Sill Outer Panel Removal

NOTE: This section explains the procedures after removal of all accessories and related parts.For accessories' and related parts' removal procedure, refer to the appropriate Shop Manual.

Mass production body welding position and number

NOTE:

- Welding symbols
  × : 2-Plate spot welding/ ⊗ : 3-Plate spot welding/ ⊠ : 4-Plate spot welding/ ● : MIG plug welding/ ⬬ : MIG welding L= Welding length Unit: mm (in.)
- ( ): The number of welds



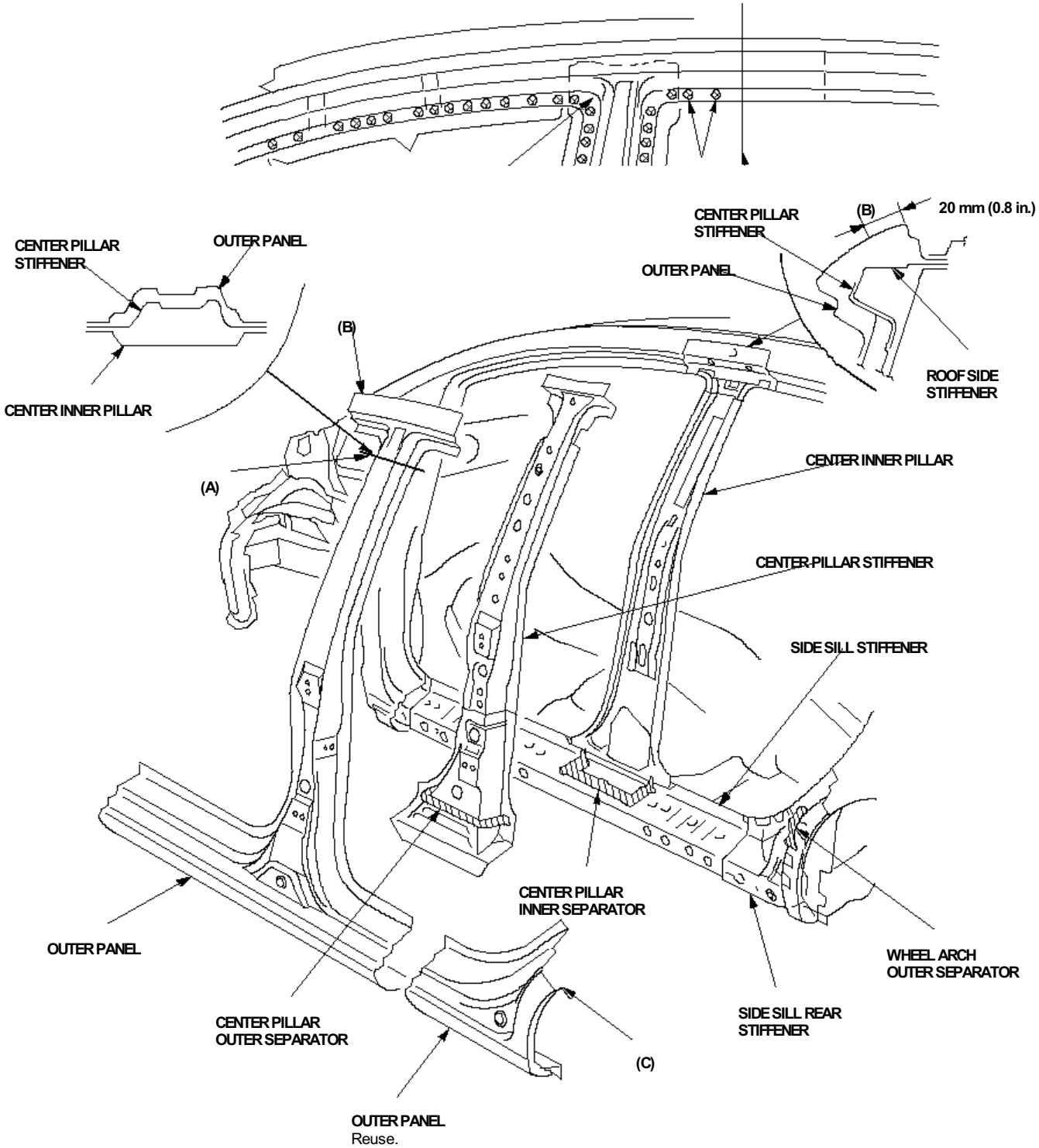
Center Pillar Outer Panel Removal

NOTE: This section explains the procedures after removal of all accessories and related parts.For accessories' and related parts' removal procedure, refer to the appropriate Shop Manual.

Mass production body welding position and number [Outer panel, center pillar stiffener and side sill stiffener]

NOTE:

- Welding symbols
  × : 2-Plate spot welding/ ⊗ : 3-Plate spot welding/ ⊠ : 4-Plate spot welding/ ● : MIG plug welding/ ⬬ : MIG welding L= Welding length Unit: mm (in.)
- ( ): The number of welds



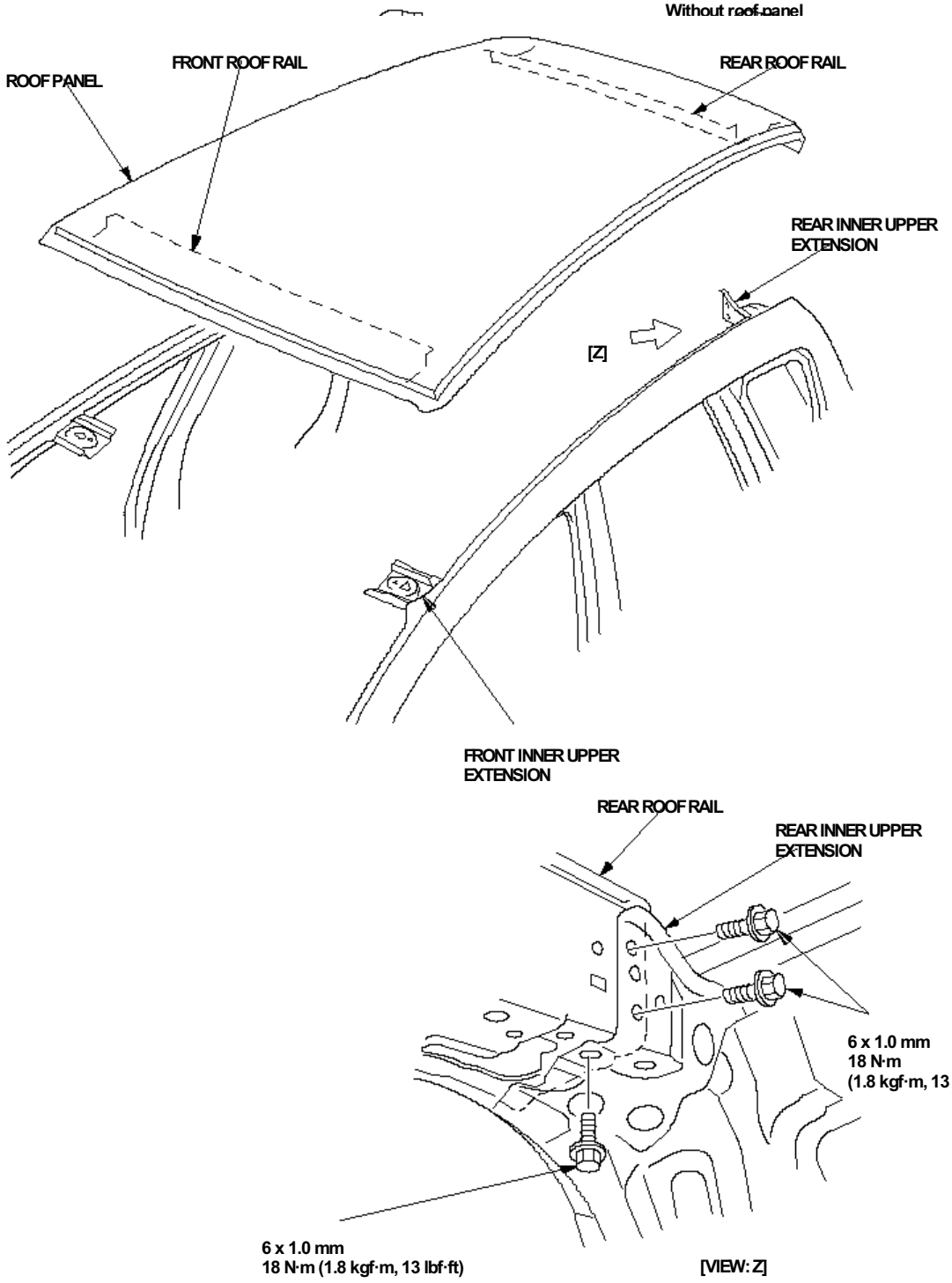
Roof Panel Removal

NOTE: This section explains the procedures after removal of all accessories and related parts.For accessories' and related parts' removal procedure, refer to the appropriate Shop Manual.

Mass production body welding position and number

NOTE:

- Welding symbols
  × : 2-Plate spot welding/ ⊗ : 3-Plate spot welding/ ⊠ : 4-Plate spot welding/ ● : MIG plug welding/ ⬬ : MIG welding L= Welding length Unit: mm (in.)
- ( ): The number of welds



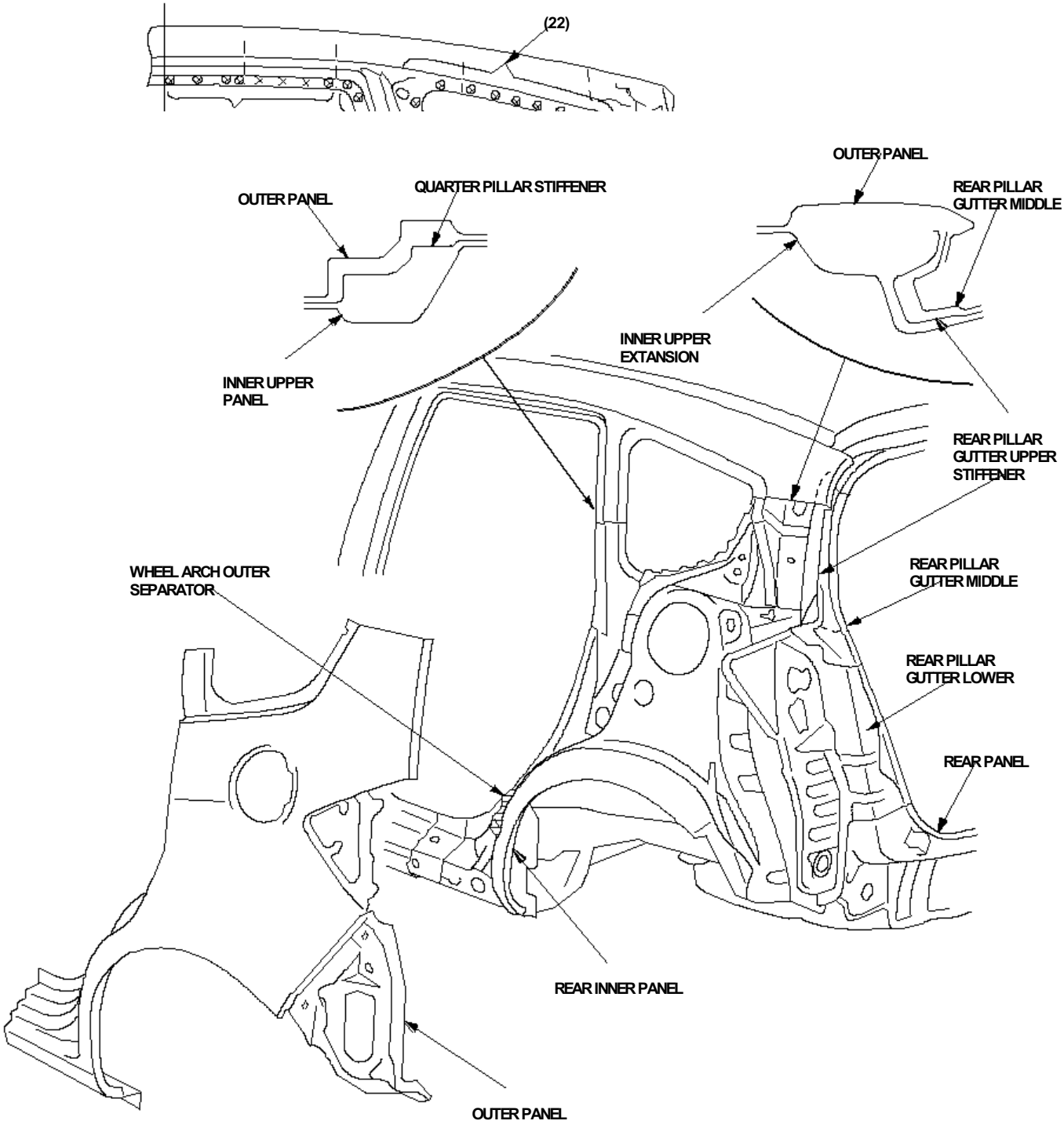
Rear Side Outer Panel Removal

NOTE: This section explains the procedures after removal of all accessories and related parts.For accessories' and related parts' removal procedure, refer to the appropriate Shop Manual.

Mass production body welding position and number [Outer panel and rear gutter]

NOTE:

- Welding symbols
  × : 2-Plate spot welding/ ⊗ : 3-Plate spot welding/ ⊠ : 4-Plate spot welding/ ● : MIG plug welding/ ⬬ : MIG welding L= Welding length Unit: mm (in.)
- ( ): The number of welds



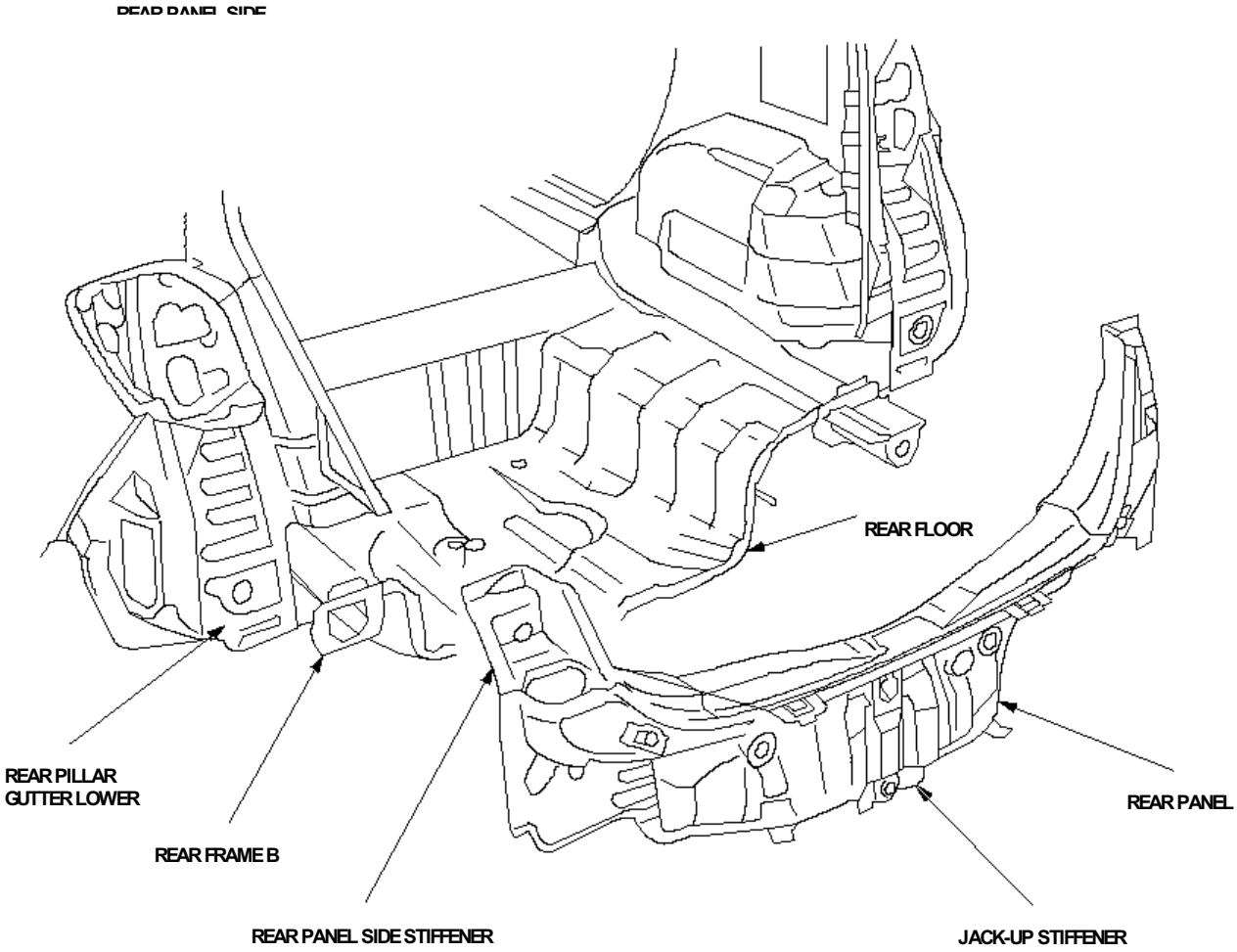
Rear Panel Removal

NOTE: This section explains the procedures after removal of all accessories and related parts.For accessories' and related parts' removal procedure, refer to the appropriate Shop Manual.

Mass production body welding position and number

NOTE:

- Welding symbols
  × : 2-Plate spot welding/ ⊗ : 3-Plate spot welding/ ⊠ : 4-Plate spot welding/ ● : MIG plug welding/ ⬬ : MIG welding L= Welding length Unit: mm (in.)
- ( ): The number of welds



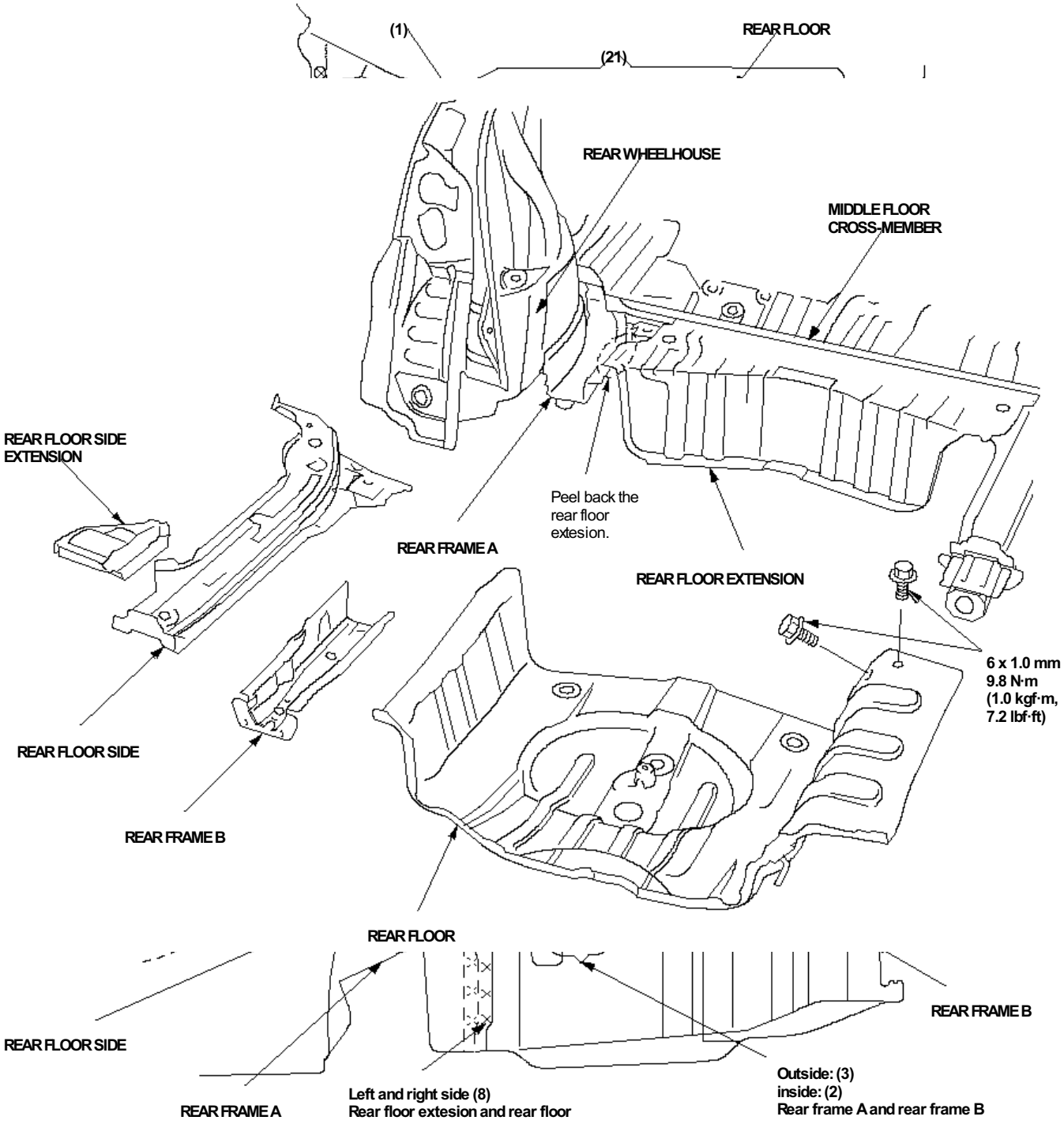
Rear Floor/Rear Frame Removal

NOTE: This section explains the procedures after removal of all accessories and related parts.For accessories' and related parts' removal procedure, refer to the appropriate Shop Manual.

Mass production body welding position and number [Rear floor, rear floor side, and rear frame B]

NOTE:

- Welding symbols
  × : 2-Plate spot welding/ ⊗ : 3-Plate spot welding/ ⊠ : 4-Plate spot welding/ ● : MIG plug welding/ ⬬ : MIG welding L= Welding length Unit: mm (in.)
- ( ): The number of welds

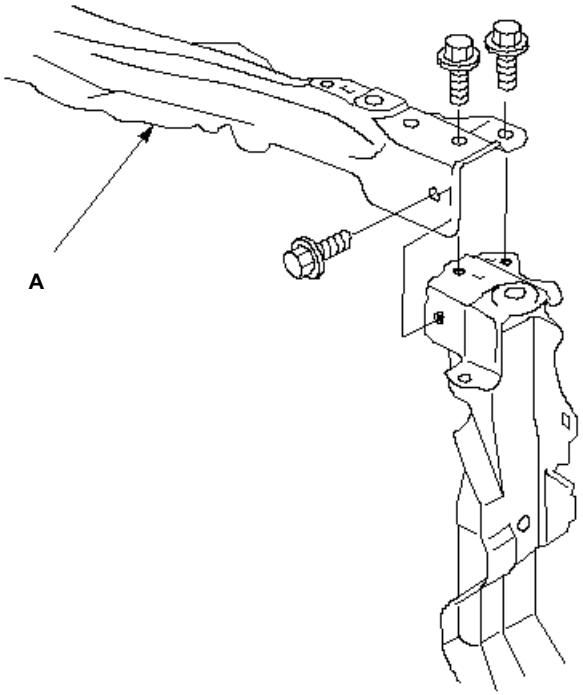


Front Bulkhead Installation

NOTE:

- Welding symbols
  ⨯ : 2-Plate spot welding
  ⊗ : 3-Plate spot welding
  ⊠ : 4-Plate spot welding
  ● : MIG plug welding
  ⬬ : MIG welding
  L= Welding length Unit: mm (in.)
- ( ): The number of welds

1. Set the new bulkhead parts, and measure the front compartment diagonally.
2. Check the body dimensions.
   - Engine compartment
   - Front wheelhouse lower member position
   - Engine compartment and front floor under view
   - Repair chart, top view
   - Repair chart, side view
3. Tack weld the new parts into position.
4. Temporarily install the front fender, the hood, and the door, then check for differences in level and clearance. Check the external parts fitting position. If necessary, check the headlight and the front bumper positions. Make sure the body lines flow smoothly.
5. Do the main welding.
   - Weld the front side frame (A) and the bulkhead side stay (B).
   - Weld the bulkhead lower cross-member (C) to the wheelhouse lower member (D), the bulkhead side stay, and the lower cross-member stiffener (E).

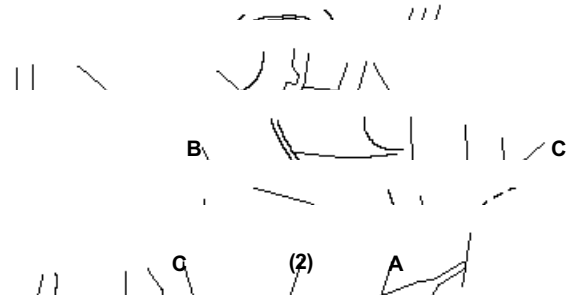


Front Wheelhouse/Damper Housing Installation

NOTE:

- Welding symbols
  ⨯ : 2-Plate spot welding
  ⊗ : 3-Plate spot welding
  ⊠ : 4-Plate spot welding
  ● : MIG plug welding
  ⬬ : MIG welding
  L= Welding length Unit: mm (in.)
- ( ): The number of welds

1. Clamp the new damper housing, the front damper extension, the side frame gusset, the gusset plate, the wheelhouse lower extension, and the bulkhead, and measure the front compartment diagonally.
2. Check the body dimensions.
   - Engine compartment
   - Engine/transmission mount position
   - Front wheelhouse lower member position
   - Engine compartment and front floor under view
   - Repair chart, top view
   - Repair chart, side view
3. Tack weld the new parts and the front bulkhead into position.
4. Temporarily install the front subframe, and check the front side frame position.
5. Temporarily install the front fender, the hood, and the door, then check for differences in level and clearance. Check the external parts fitting position. If necessary, check the headlight and the front bumper positions. Make sure the body lines flow smoothly.
6. Do the main welding.
   Weld the damper housing (A), to the front side frame (B), and the dashboard upper (C).



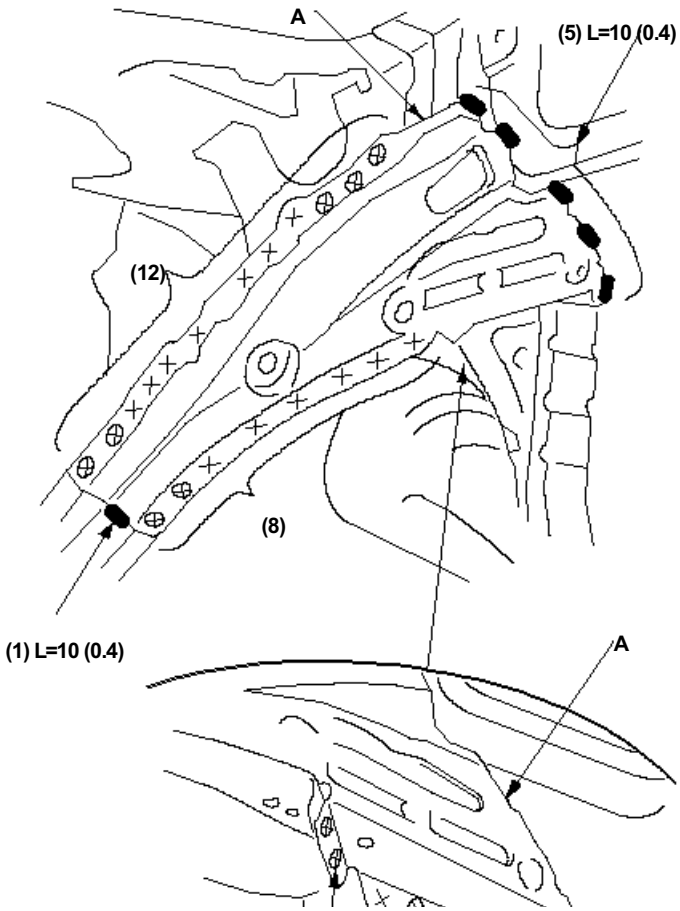
ınd the damper housing (B).

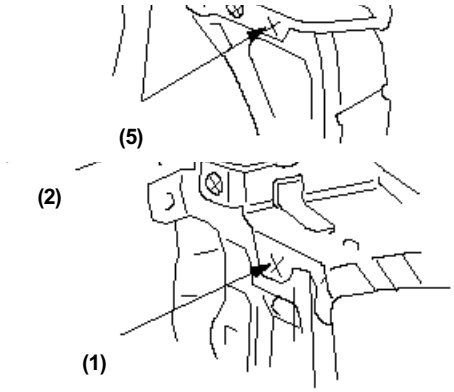
ıper housing (B), the front damper extension, and the dashboard upper

ır extension (C). Weld the front damper extension and the wheelhouse

ne (C), and the wheelhouse lower extension (D).

ıer member, weld it with a MIG plug welding.




(5)
(2)
(1)

Front Side Frame/Outrigger Installation

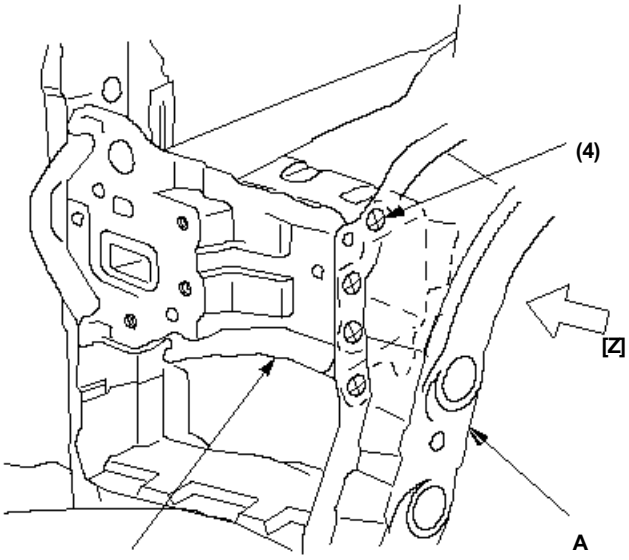
NOTE:

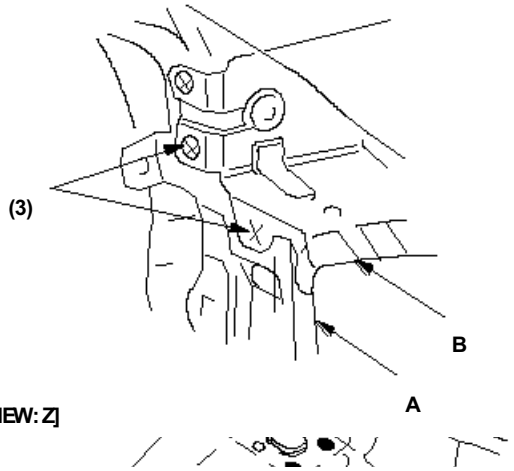
- Welding symbols
  ⨯ : 2-Plate spot welding
  ⊗ : 3-Plate spot welding
  ⊠ : 4-Plate spot welding
  ● : MIG plug welding
  ⬬ : MIG welding
  L= Welding length Unit: mm (in.)
- ( ): The number of welds

1. Clamp the new side frame, and the front bulkhead, and measure the front compartment diagonally.
2. Check the body dimensions.
   - Engine compartment
   - Engine/transmission mount position
   - Front wheelhouse lower member position
   - Engine compartment and front floor under view
   - Repair chart, top view
   - Repair chart, side view
3. Tack weld the new parts and front bulkhead into position.
4. Temporarily install the front subframe, and check the front side frame position.
5. Temporarily install the front fender, the hood, and the door, then check for differences in level and clearance. Check the external parts fitting position. If necessary, check the headlight and the front bumper positions. Make sure the body lines flow smoothly.
6. Do the main welding.
   - Weld the side frame extension (A), the front side cross-member (B), and the outrigger (C).
   - Weld the front side frame (D) and the side frame extension.

and the front floor (B).

house gusset (C).





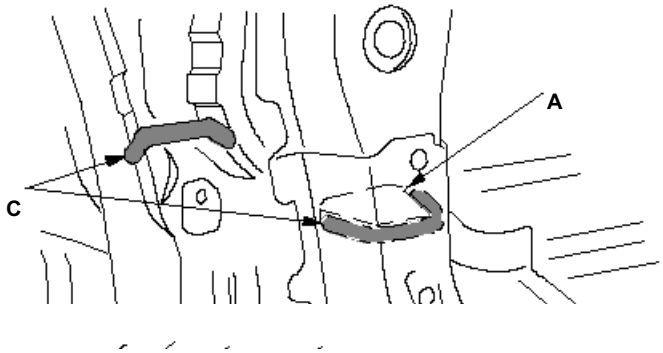
C

Front Pillar Outer Panel Installation

NOTE:

- Welding symbols
  × : 2-Plate spot welding
  ⊗ : 3-Plate spot welding
  ⊠ : 4-Plate spot welding
  ● : MIG plug welding
  ⬬ : MIG welding
  L= Welding length Unit: mm (in.)
- ( ): The number of welds

1. Install the new front pillar inner separator (A) on the front pillar lower corner stiffener (B).
   NOTE: Apply the sealer (C) all the way around the separator and inside the front pillar inner lower (D) without gaps.



eck the dimensions.

nen check for differences in level and clearance.
othly.

epare the butt-welding connections.

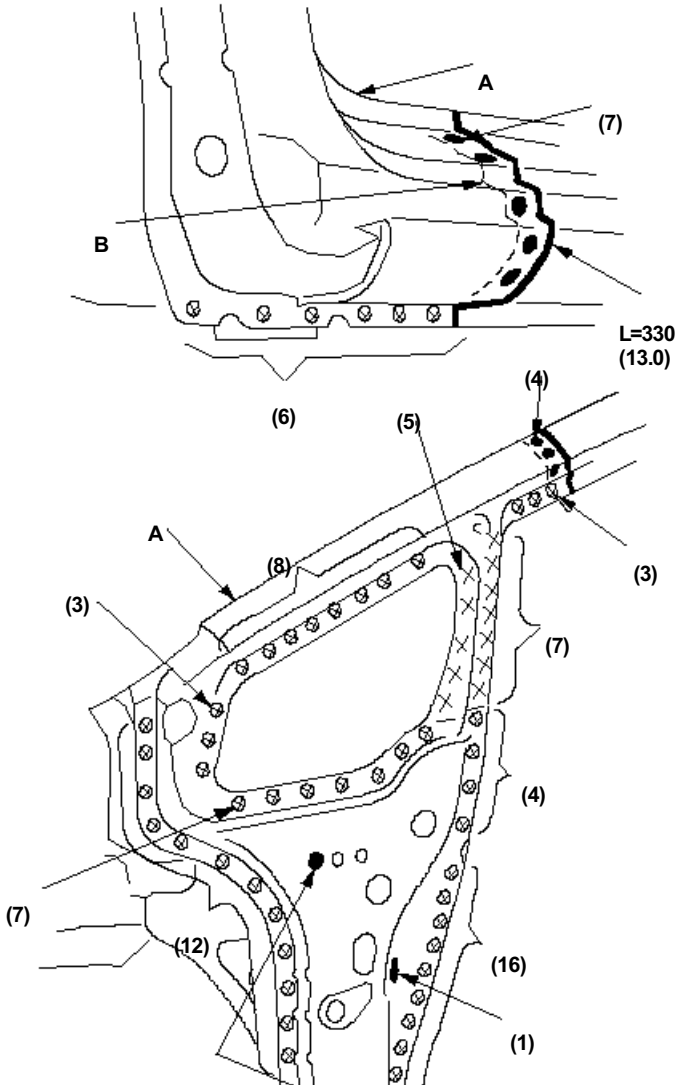
) to the upper stiffener (B) and the side sill stiffener (C).

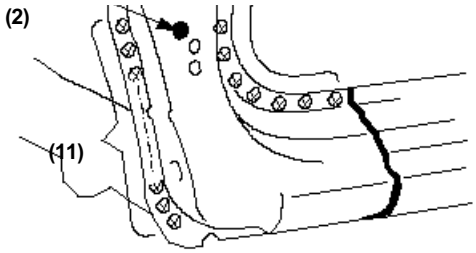
stiffener (B).
outer panel repair part (D) without gaps.

of the door, the front fender, and the windshield.

[Front pillar section] **[Side sill section]**

[Side sill portion]




(2)
(11)

Side Sill Outer Panel Installation

NOTE:

- Welding symbols
  ⨯ : 2-Plate spot welding
  ⊗ : 3-Plate spot welding
  ⊠ : 4-Plate spot welding
  ● : MIG plug welding
  ⬬ : MIG welding
  L= Welding length Unit: mm (in.)
- ( ): The number of welds

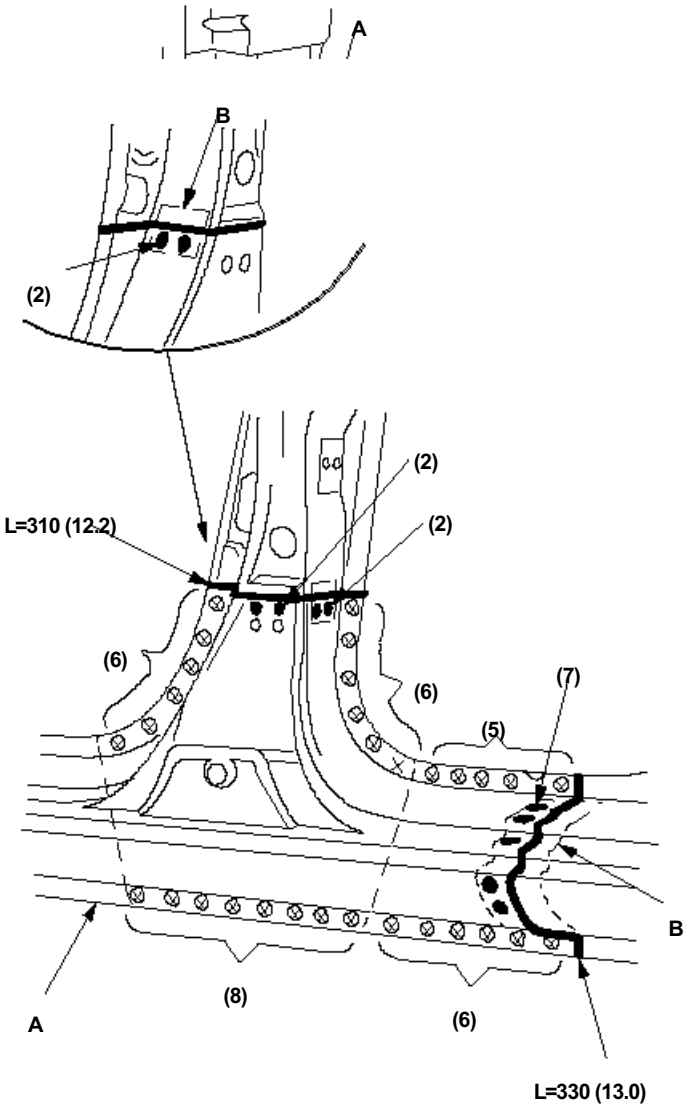
1. Rough-cut the side sill outer panel repair part, and clamp it to the body.
2. Check the dimensions.
   - Front wheelhouse lower member position
   - Door hinge position
   - Windshield and door opening
3. Temporarily install the door, the hood, and the front fender, then check for differences in level and clearance. Check the external parts fitting position. Make sure the body lines flow smoothly.
4. Trim the cut and joint areas of the outer panel repair part as needed, and prepare the butt-welding connections.
5. Weld the patch (A) at the cut section of the body side outer panel (B).

ır (B) on the front pillar lower stiffener (C), and the center pillar stiffener

outer panel repair part (F) without gaps.

of the door and the front fender.

[Side sill section]

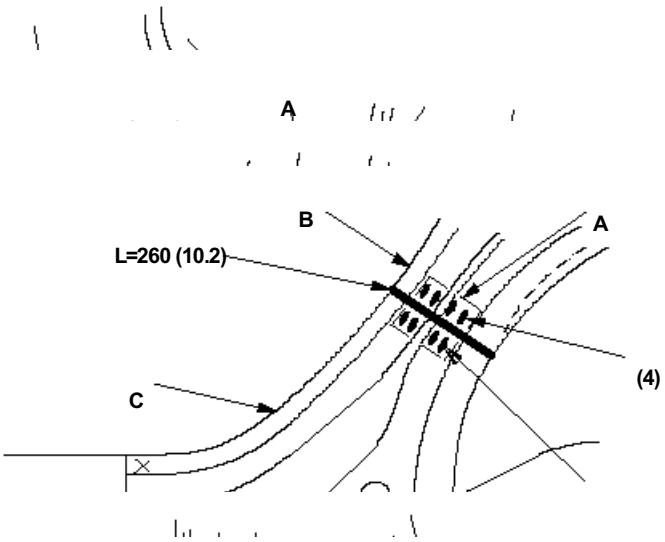


Center Pillar Outer Panel Installation

NOTE:

- Welding symbols
  ⨯ : 2-Plate spot welding
  ⊗ : 3-Plate spot welding
  ⊠ : 4-Plate spot welding
  ● : MIG plug welding
  ▬ : MIG welding
  L= Welding length Unit: mm (in.)
- ( ): The number of welds

1. Clamp the side sill stiffener, and check the body dimensions.
   - Passenger compartment
   - Engine compartment and front floor under view
   - Front floor and rear floor, under view
   - Repair chart, top view
   - Repair chart, side view
2. Tack weld the side sill stiffener (A) and the side sill rear stiffener (B).



center pillar stiffener (D) without gaps.

outer panel reuse part (D) without gaps.

eld the outer panel reuse part (C).

fferences in level and clearance.
othly.

epare the butt-welding connections.

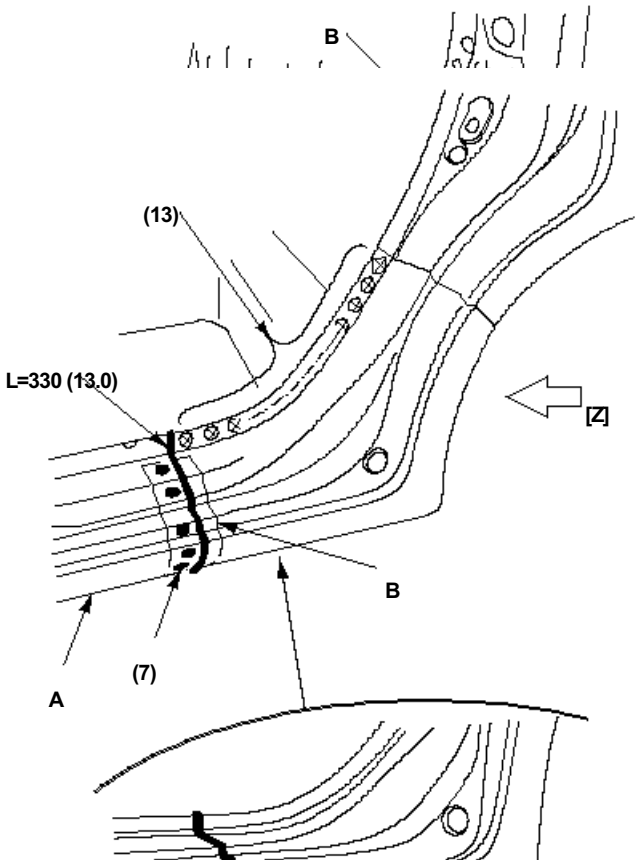
the center pillar inner (B) and the inside sill (C).

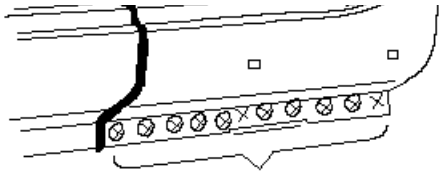
the roof side stiffener (B) and the side sill stiffener (C).

3).
outer panel repair part (D) without gaps.

t of the door, and the front fender.

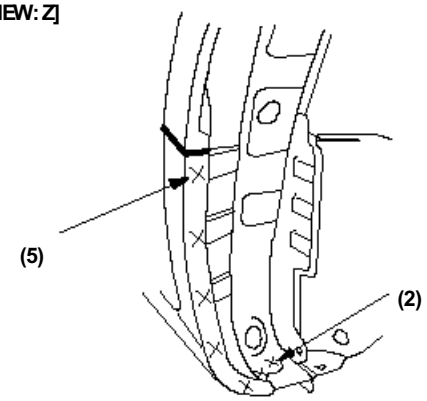
[Side sill rear section]





(11)

[VIEW: Z]

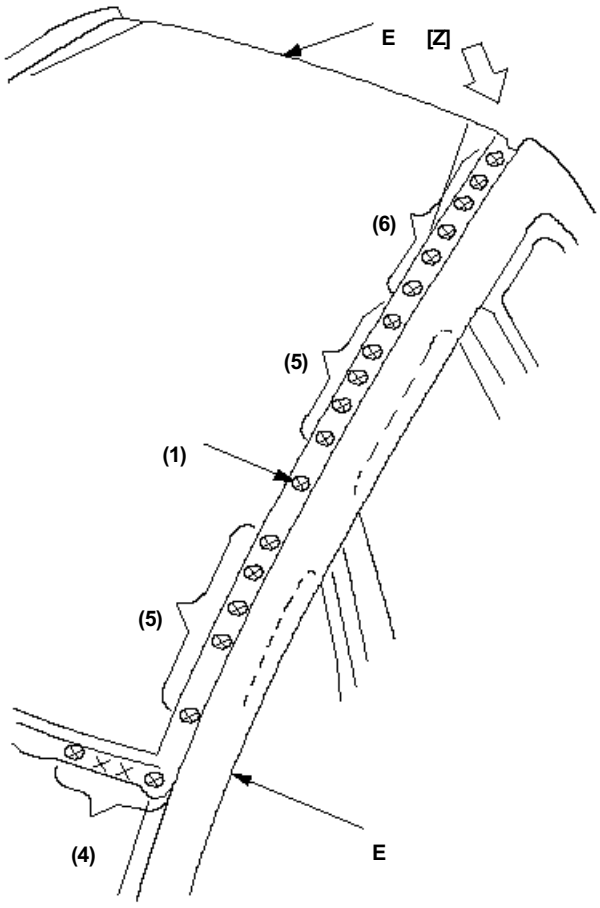


Roof Panel Installation

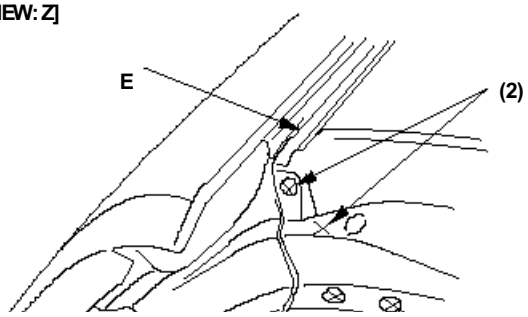
NOTE:

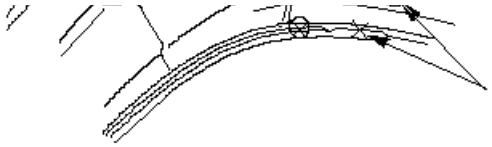
- Welding symbols
  ⨯ : 2-Plate spot welding
  ⊗ : 3-Plate spot welding
  ⊠ : 4-Plate spot welding
  ● : MIG plug welding
  ⬬ : MIG welding
  L= Welding length Unit: mm (in.)
- ( ): The number of welds

1. Clamp the new roof panel.
2. Check the body dimensions.
   - Windshield and door opening
   - Tailgate opening
   - Rear pillar gutter position
   - Passenger's compartment
   - Door hinge position
3. Tack weld the front and rear corner edge of the roof panel.
4. Temporarily install the roof molding, the windshield, the tailgate and the door, then check for differences in level and clearance. Check the external parts fitting position. Make sure the body lines flow smoothly.
5. Do the main welding.
   - From inside the vehicle, weld the front roof rail (A) and the inner upper extension (B).
   - Fix the rear roof rail (C) with the mounting bolts (D).
   - Weld the front, rear, and side flange of the roof panel (E).
   - The roof area must be free of burrs and/or sharp edges to prevent damage to the side curtain airbag during deployment.



[VIEW: Z]





(4)

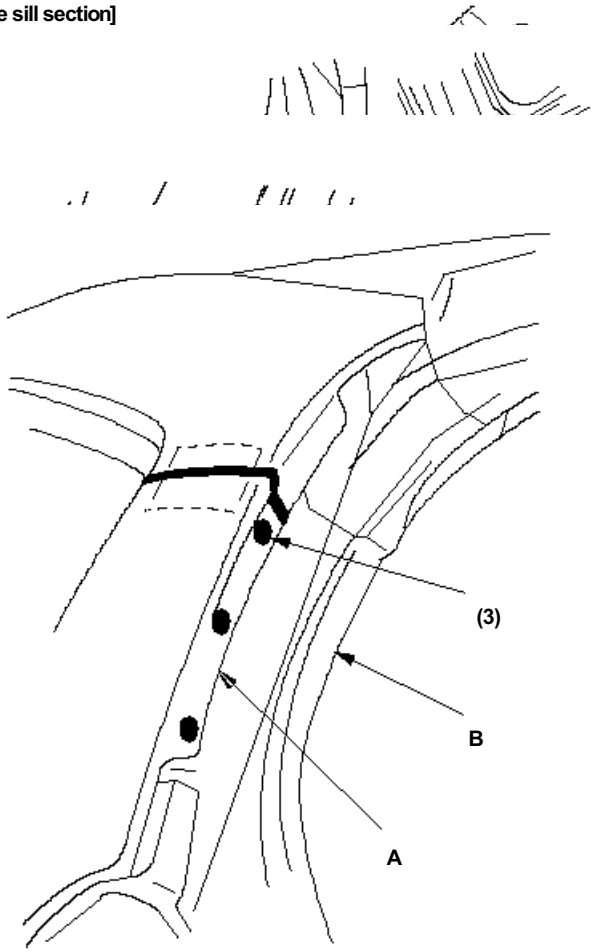
Rear Side Outer Panel Installation

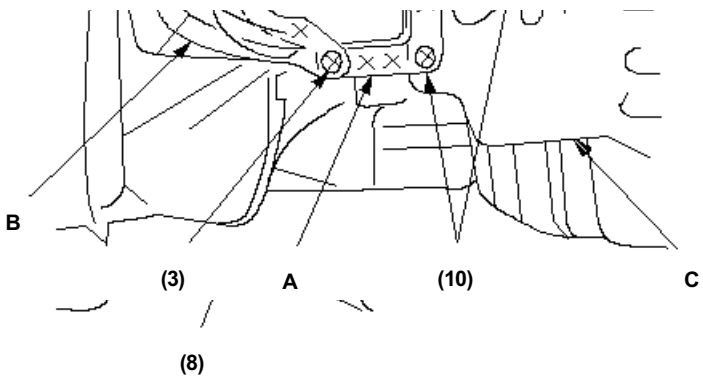
NOTE:

- Welding symbols
  ⨯ : 2-Plate spot welding
  ⊗ : 3-Plate spot welding
  ⊠ : 4-Plate spot welding
  ● : MIG plug welding
  ▬ : MIG welding
  L= Welding length Unit: mm (in.)
- ( ): The number of welds

1. Clamp the new rear pillar gutter, rough-cut the rear side outer panel repair part, clamp it to the body.
2. Check the body dimensions.
   - Front wheelhouse lower member position
   - Door hinge position
   - Rear pillar gutter position
   - Windshield and door opening
   - Tailgate opening
3. Temporarily install the door, the tailgate, and the quarter glass, then check for differences in level and clearance.
   Check the external parts fitting position. Make sure the body lines flow smoothly.
4. Trim the cut and joint areas of the outer panel repair part as needed, and prepare the butt-welding connections. Remove the outer panel repair part.
5. Weld the patch (A) at the cut section of the body side outer panel (B).

[Side sill section]



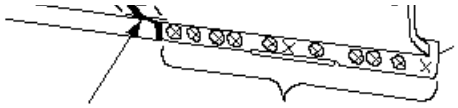


outer panel repair part (D) without gaps.

of the door, the quarter glass, and the tailgate.

.

C).



L=330 (13.0) **(11)**

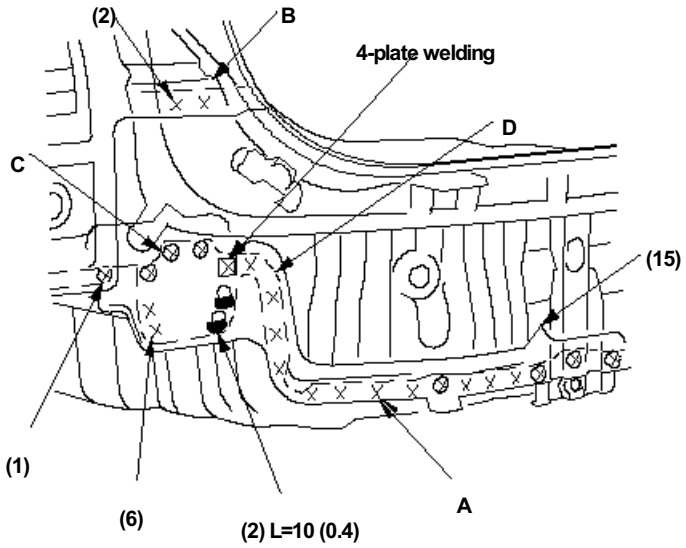
Rear Panel Installation

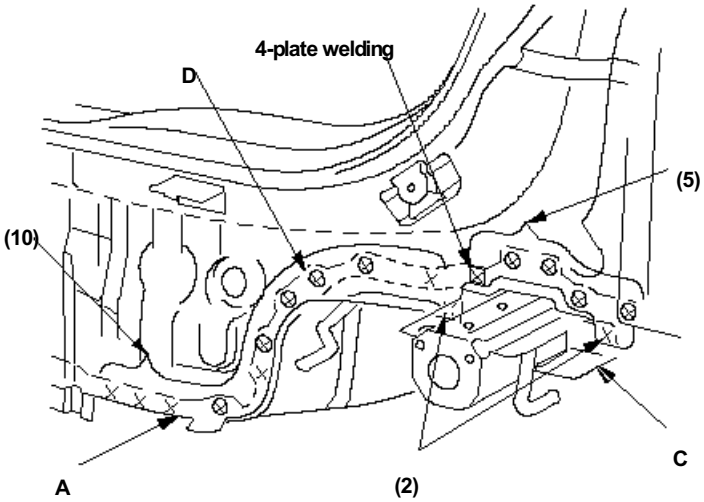
NOTE:

- Welding symbols
  × : 2-Plate spot welding
  ⊗ : 3-Plate spot welding
  ⊠ : 4-Plate spot welding
  ● : MIG plug welding
  ▬ : MIG welding
  L= Welding length Unit: mm (in.)
- ( ): The number of welds

1. Clamp the new rear panel.
2. Check the body dimensions.
   - Front floor and rear floor, under view
   - Rear panel position
   - Rear pillar gutter position
   - Tailgate opening
   - Repair chart, top view
   - Repair chart, side view
3. Tack weld the rear panel into position.
4. Temporarily install the tailgate, then check for differences in level and clearance.
   Check the external parts fitting position. If necessary, check the taillight and the rear bumper positions. Make sure the body lines flow smoothly.
5. Do the main welding.
   Weld the rear panel side stiffener (A) to the rear pillar gutter lower (B), and the rear pillar gutter upper stiffener (C).

   and the rear floor (D).



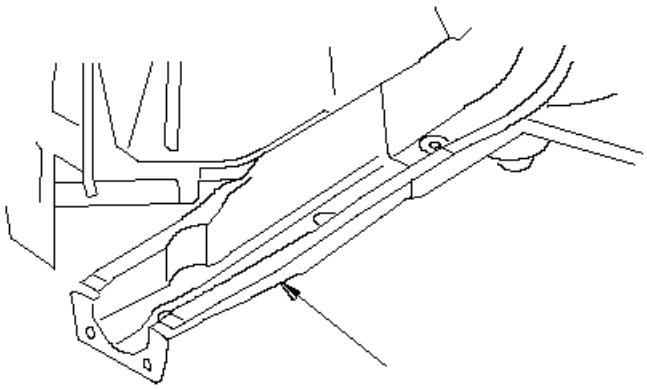


Rear Floor/Rear Frame Installation

NOTE:

- Welding symbols
  ⊗ : 2-Plate spot welding
  ⊗ : 3-Plate spot welding
  ⊠ : 4-Plate spot welding
  ● : MIG plug welding
  ⬬ : MIG welding
  L= Welding length Unit: mm (in.)
- ( ): The number of welds

1. Set the new rear frame B, and measure the rear frame diagonally.

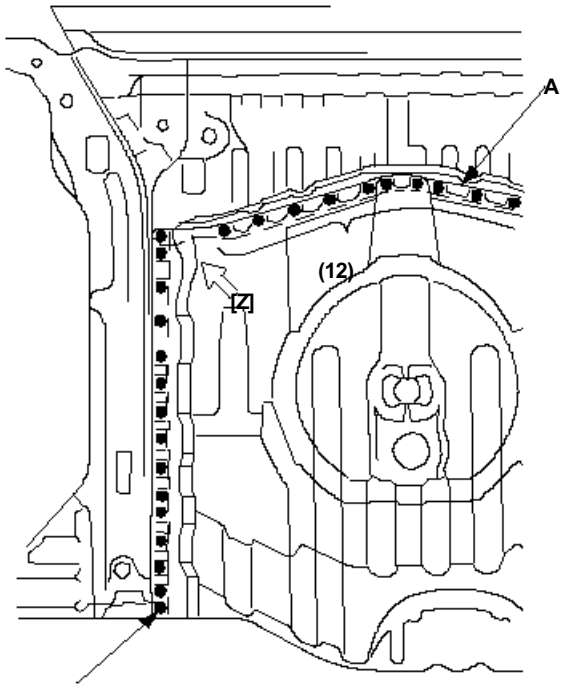


ear frame B, and the rear frame A.

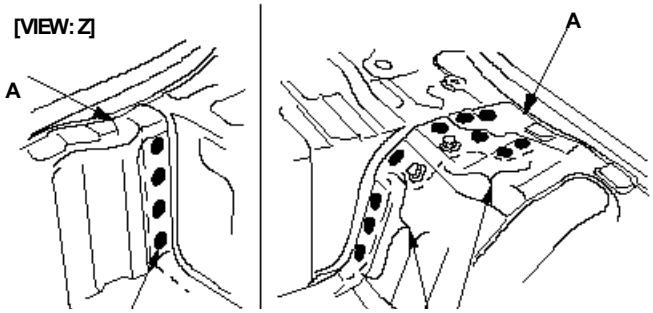
anel.

n (B).

., the rear floor side (C), and the floor side extension (D).



Left side: (15)
Right side: (15)



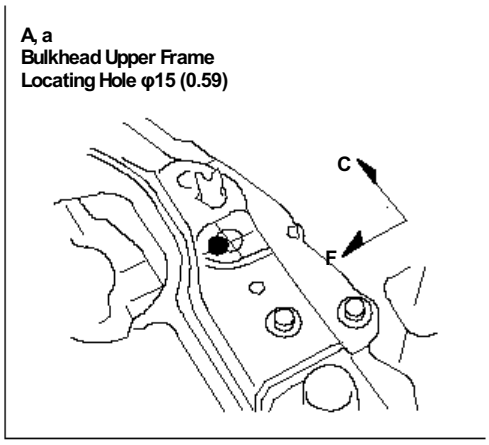
Left side: (4)

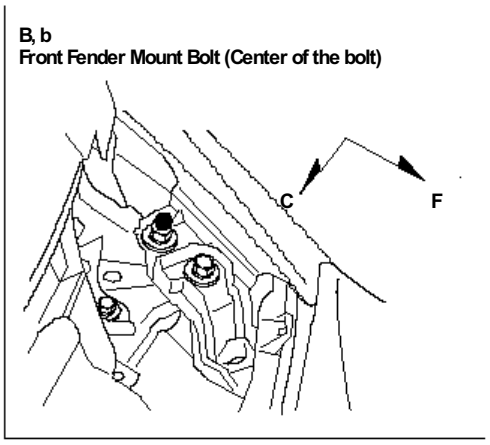
Right side: (10)

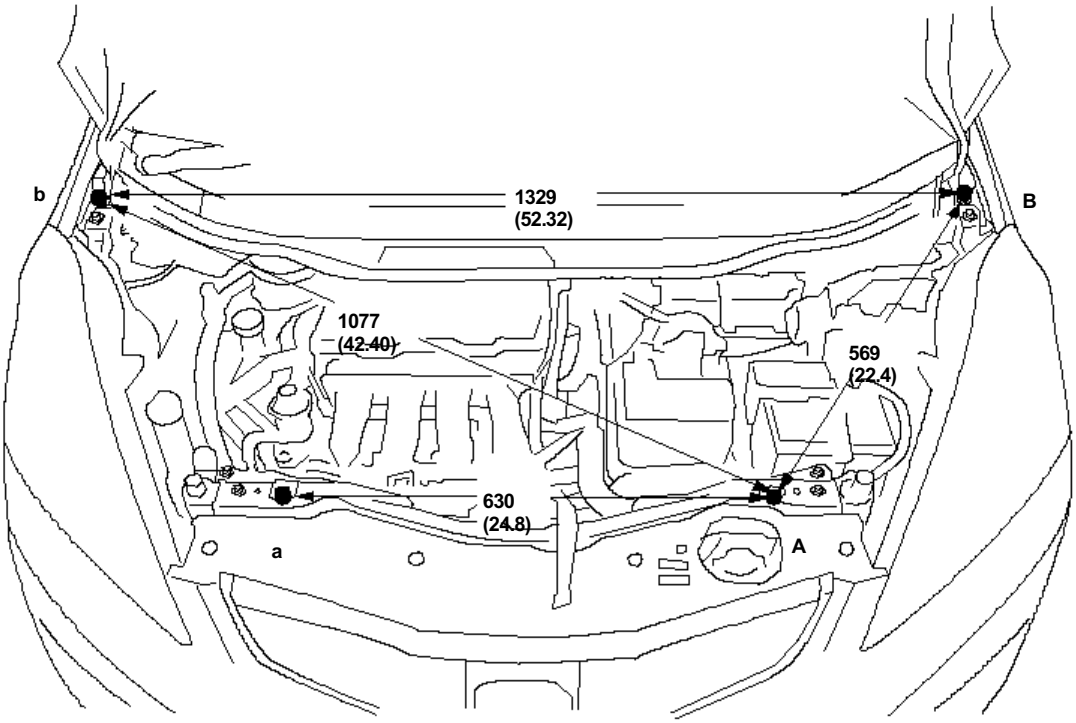
(7)

Upper Body Measuring Dimensions - Front Fender Position

Unit: mm (in.)

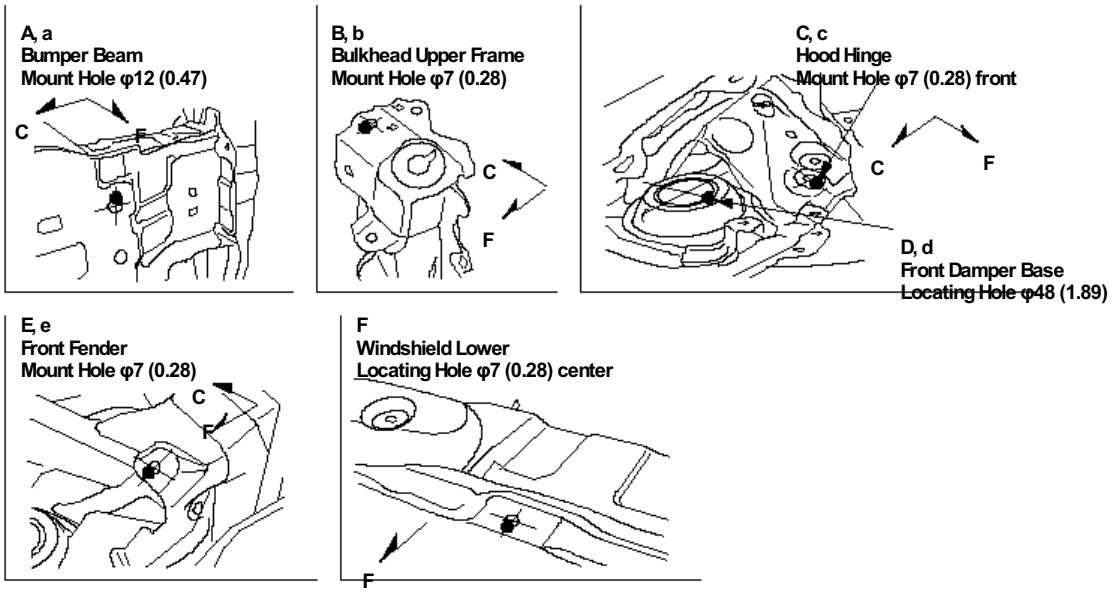


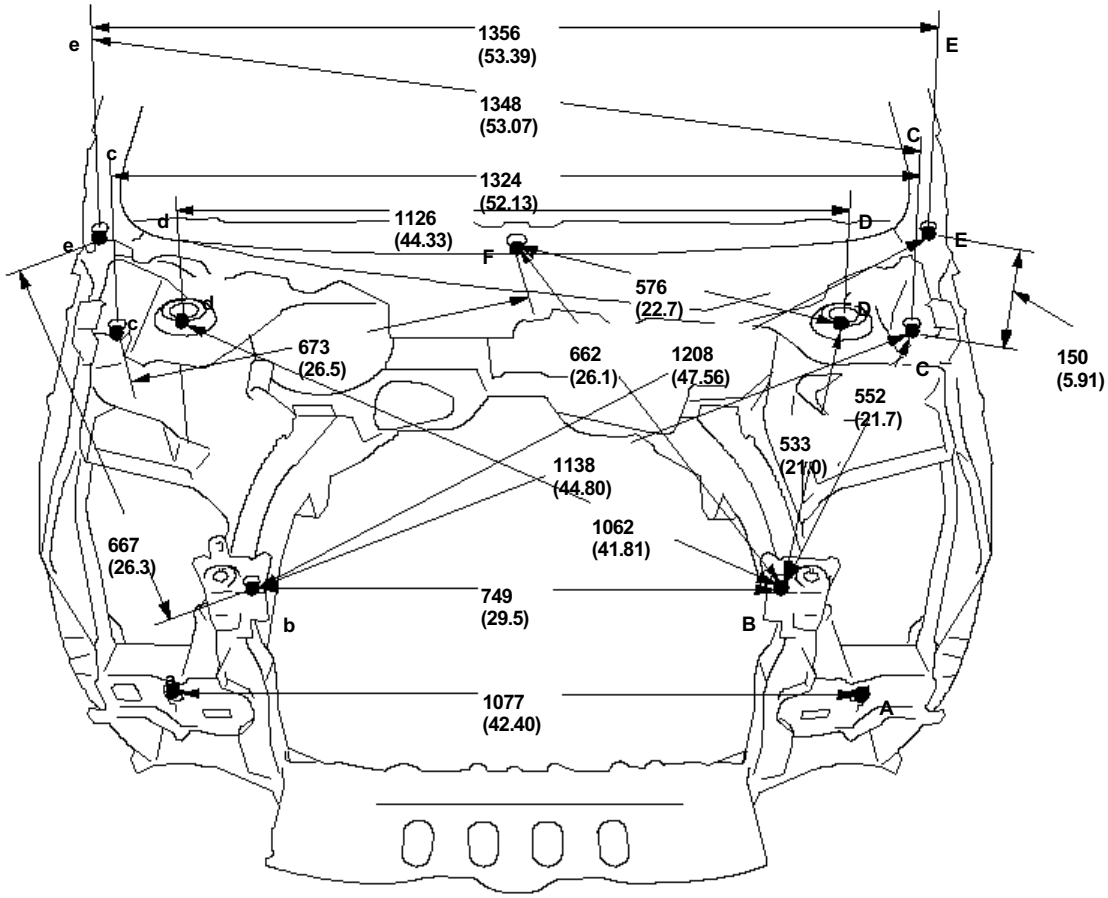




Upper Body Measuring Dimensions - Engine Compartment

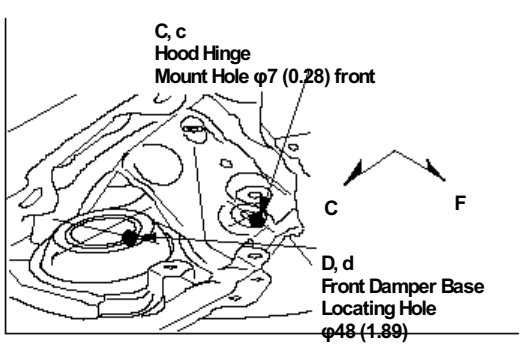
Unit: mm (in.)

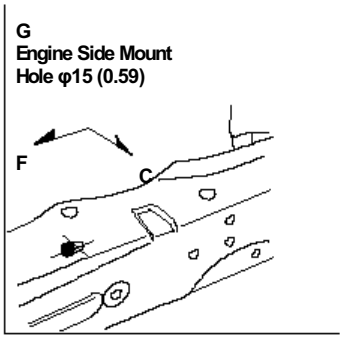


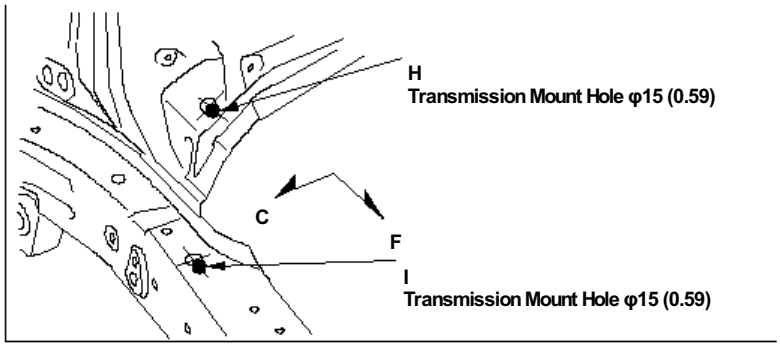


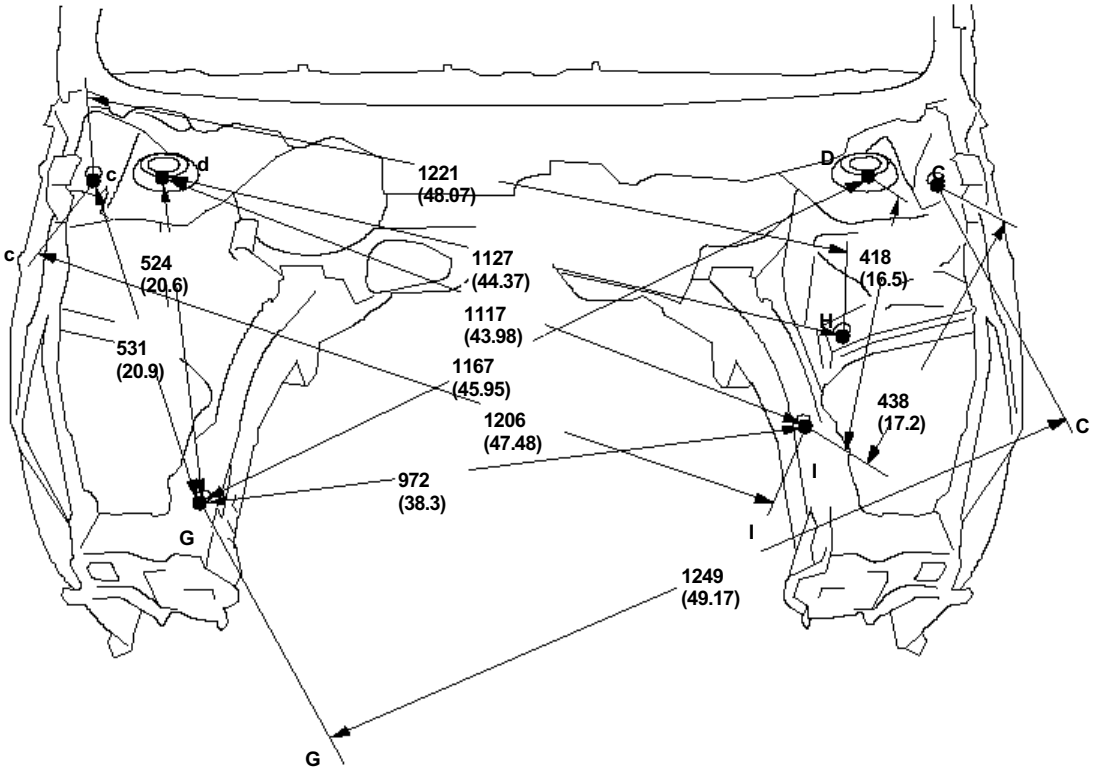
Upper Body Measuring Dimensions - Engine/Transmission Mount Position

Unit: mm (in.)



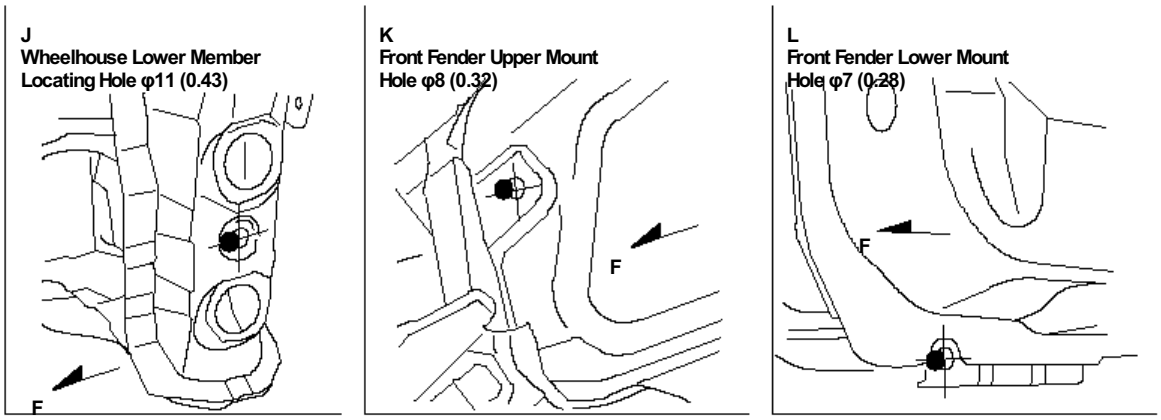


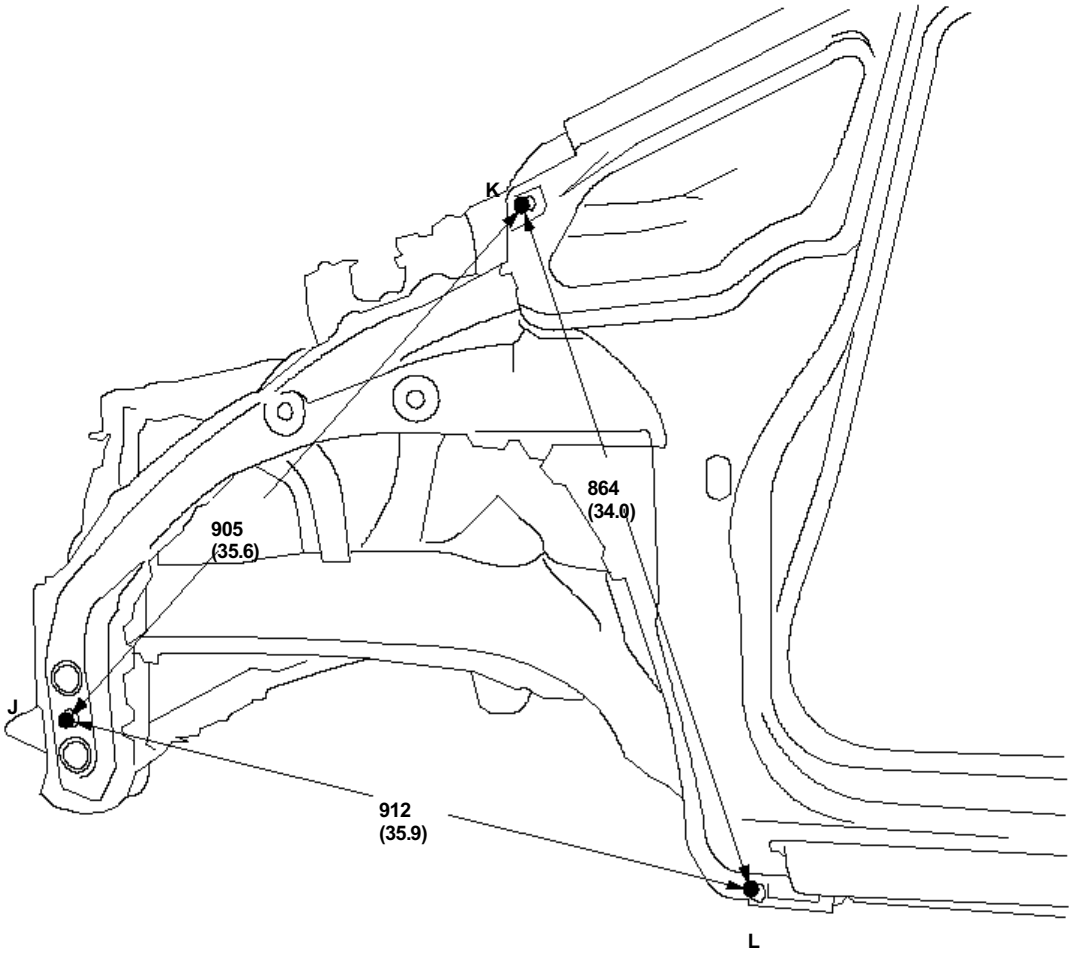




Upper Body Measuring Dimensions - Front Wheelhouse Lower Member Position

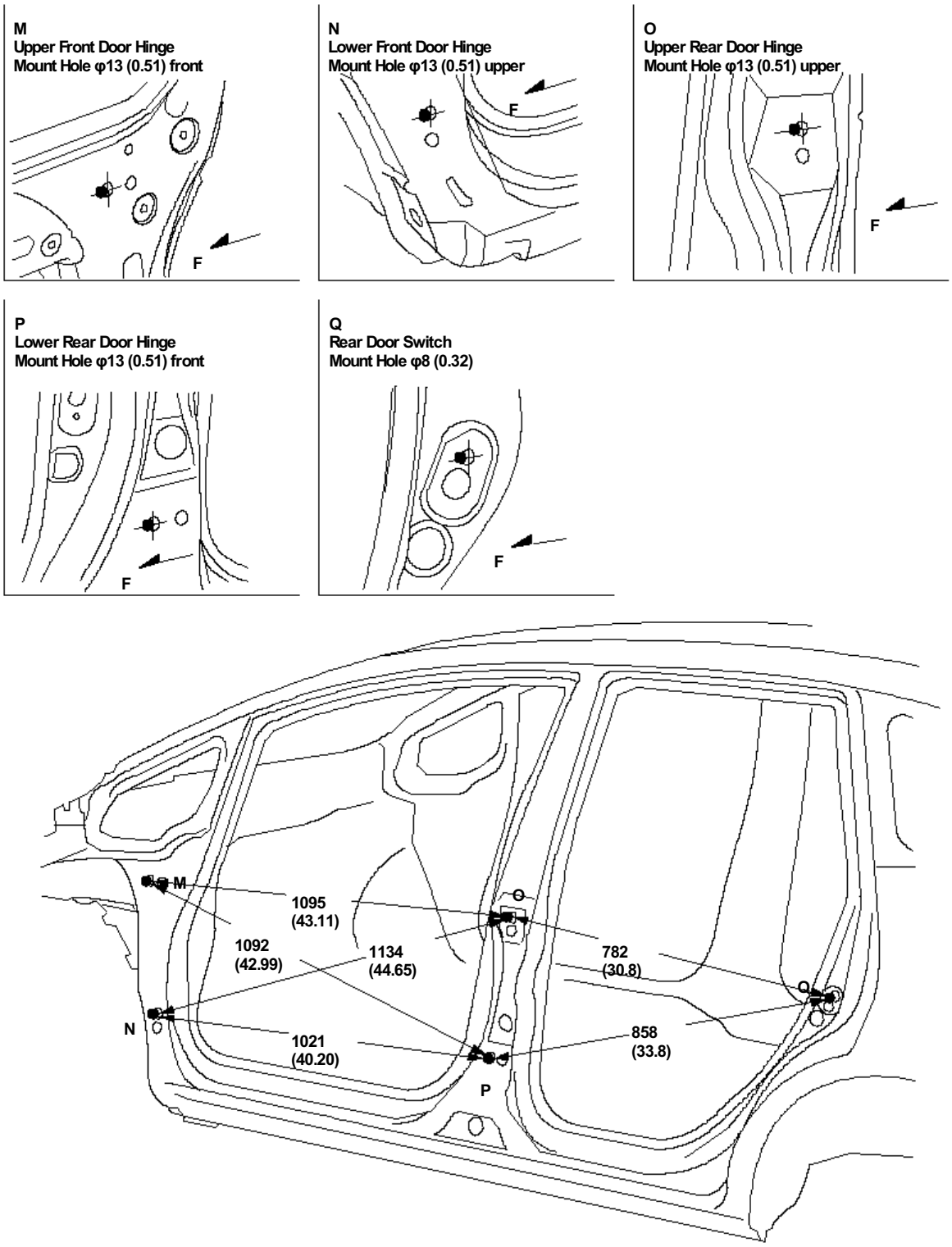
Unit: mm (in.)





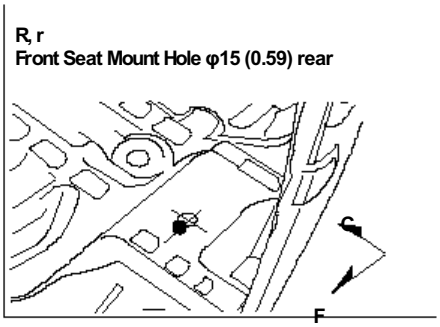
Upper Body Measuring Dimensions - Door Hinge Positon

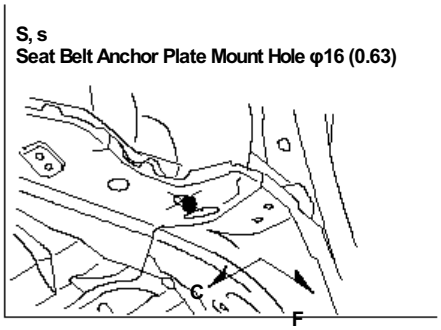
Unit: mm (in.)

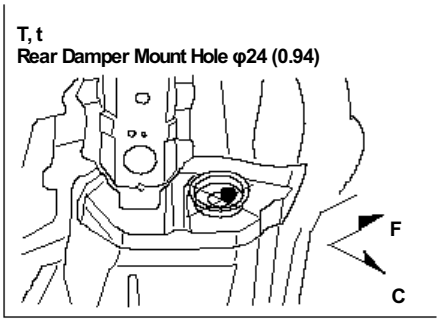


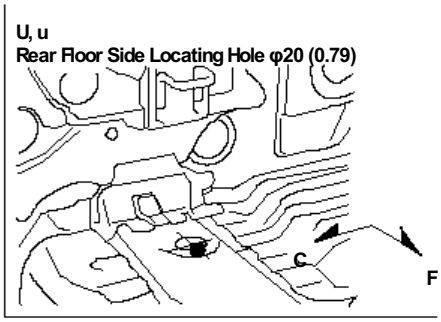
Upper Body Measuring Dimensions - Passenger's Compartment

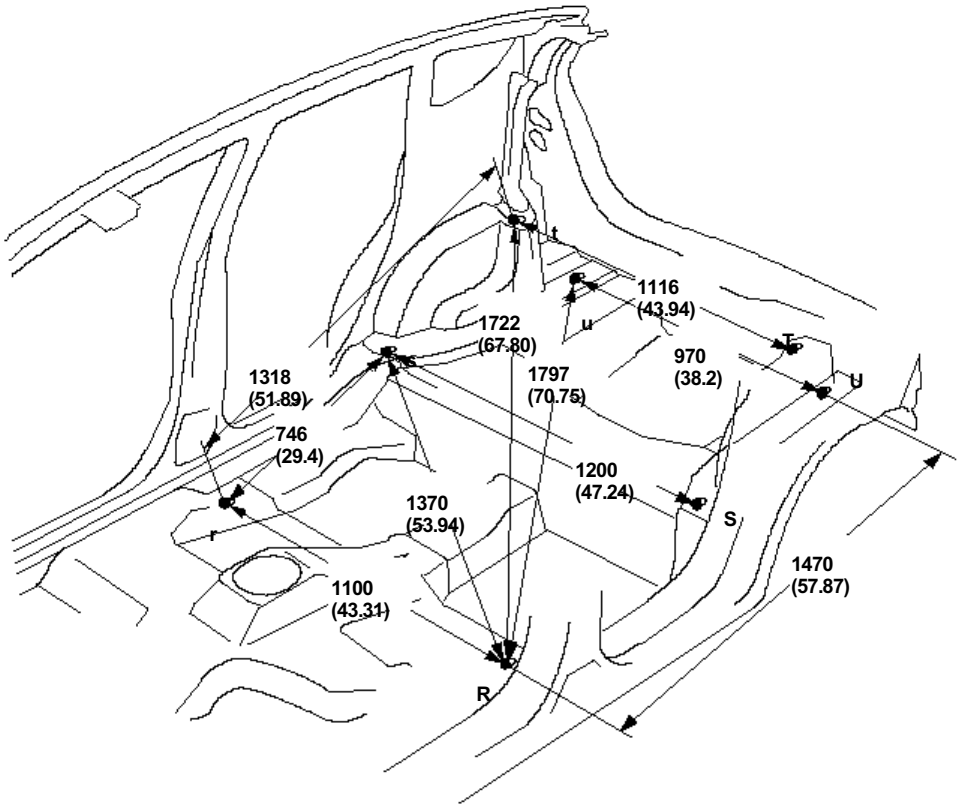
Unit: mm (in.)







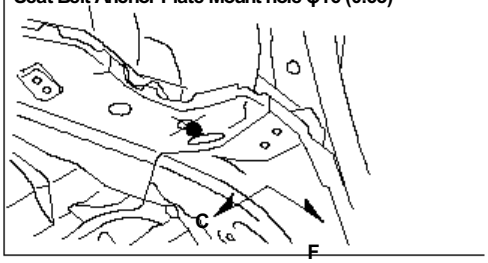




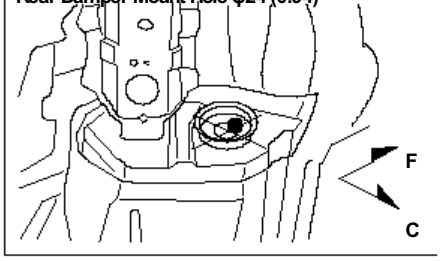
Upper Body Measuring Dimensions - Rear Panel Position

Unit: mm (in.)

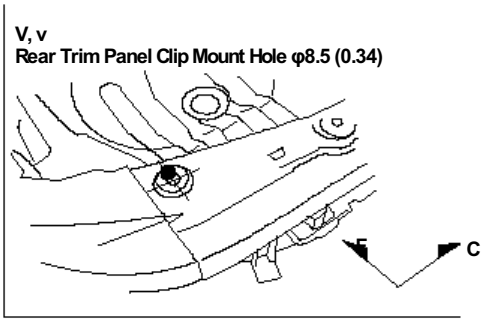
S, s
Seat Belt Anchor Plate Mount hole φ16 (0.63)

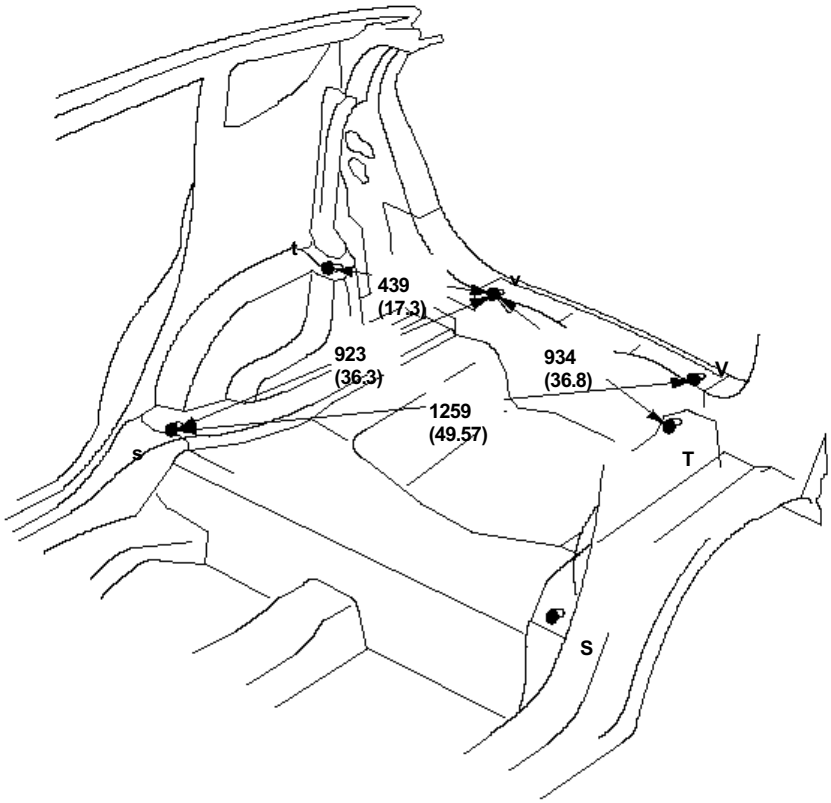


T, t
Rear Damper Mount Hole φ24 (0.94)



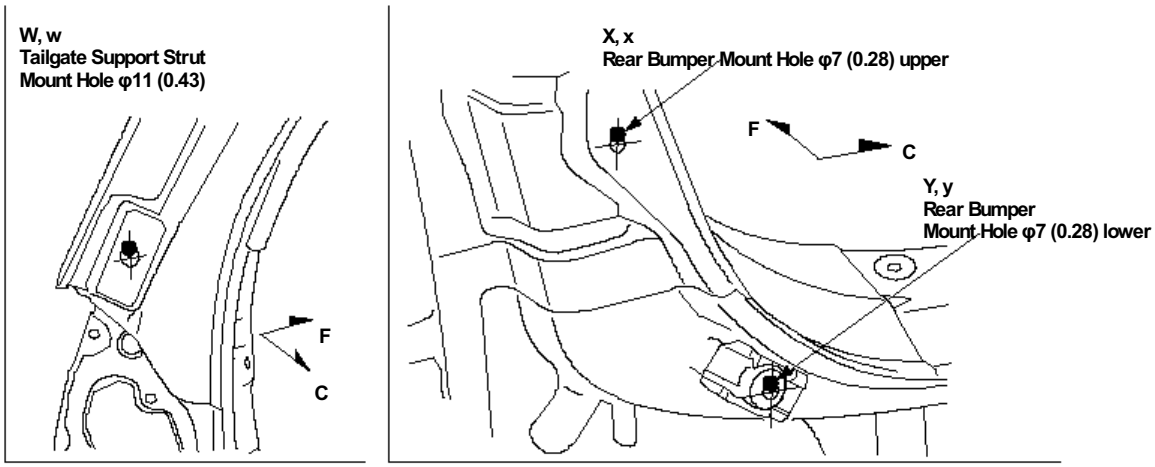
V, v
Rear Trim Panel Clip Mount Hole φ8.5 (0.34)

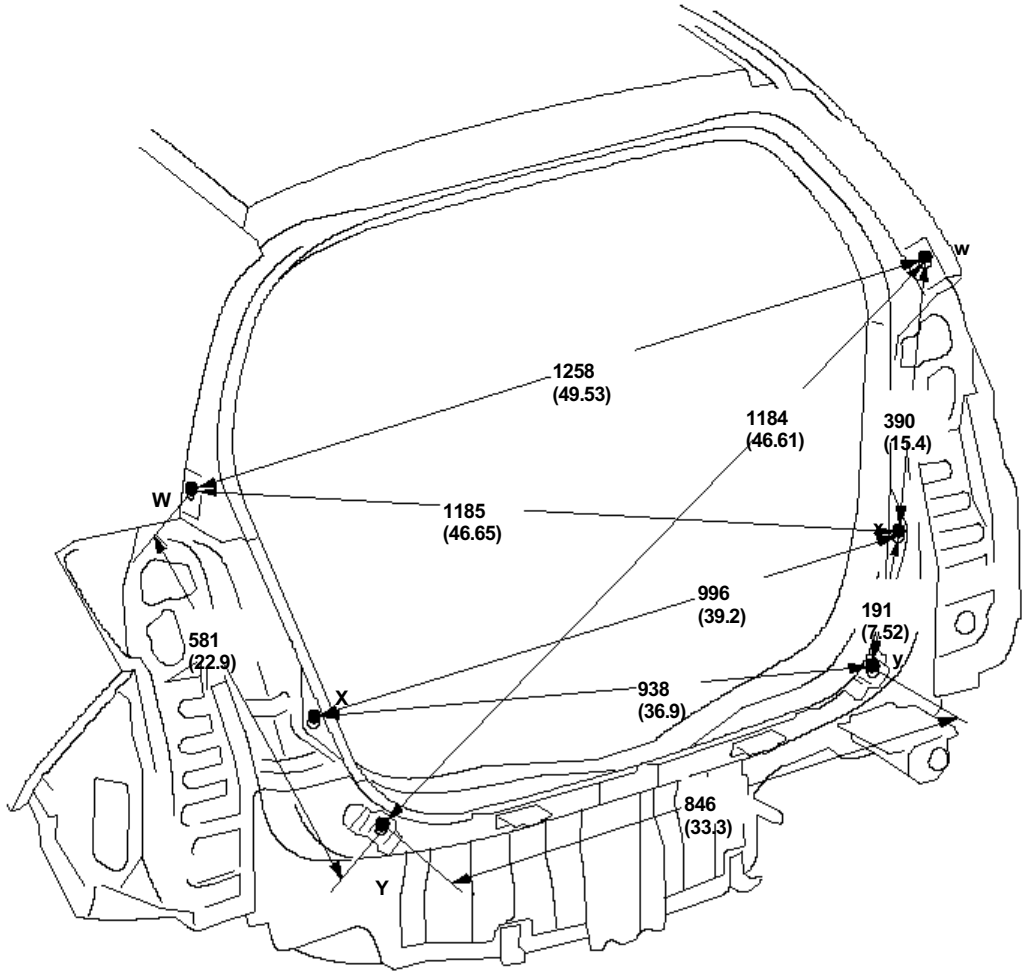




Upper Body Measuring Dimensions - Rear Pillar Gutter Position

Unit: mm (in.)

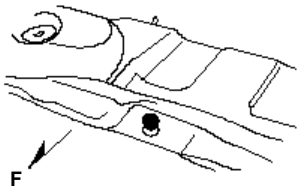




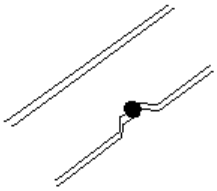
Opening Repair Chart - Windshield and Door Opening

Unit: mm (in.)

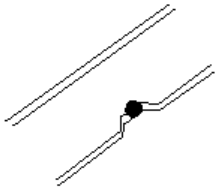
A
Windshield
Lower Locating Hole
center

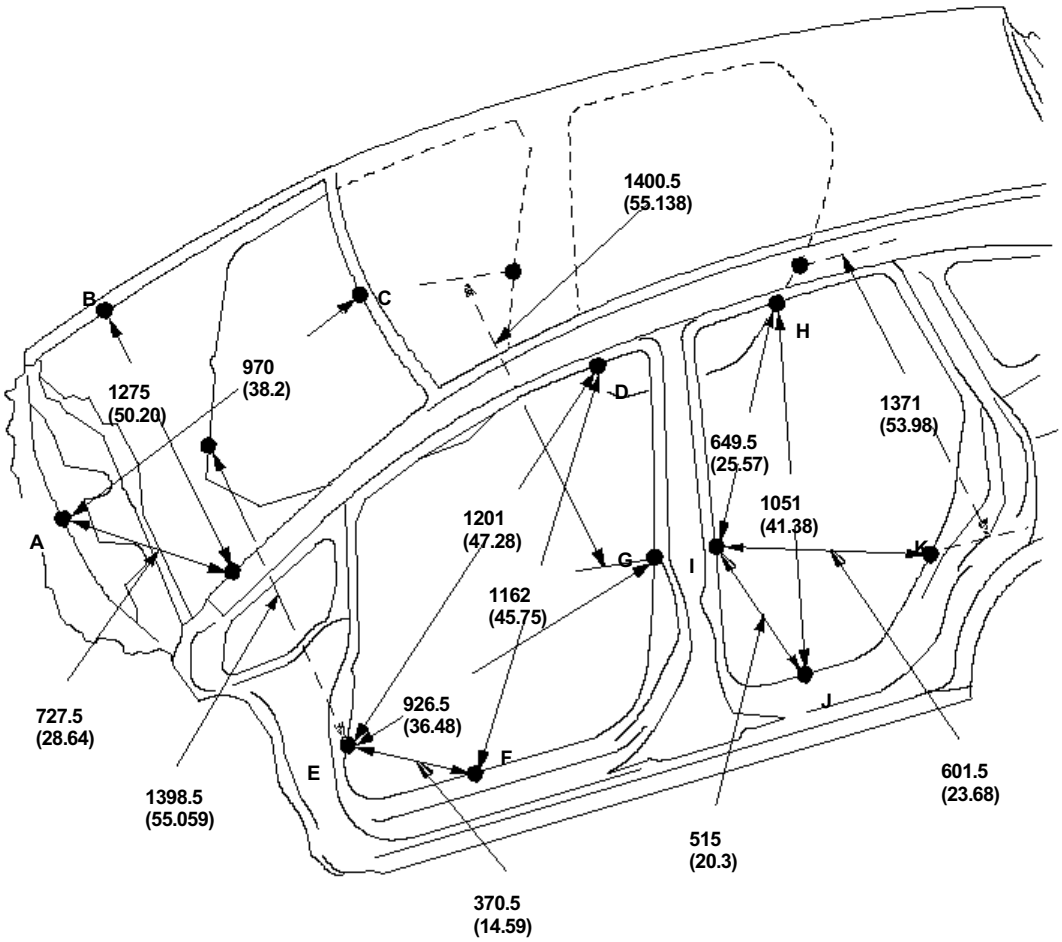


B, C
Outer Panel and Roof
Panel Windshield
Opening Flange Notch
(3 places)



D, E, F, G, H, I, J, K
Outer Panel Door
Opening Flange Notch
(16 places)

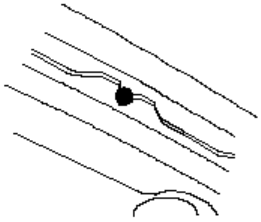




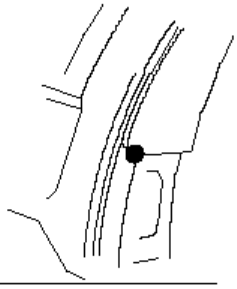
Opening Repair Chart - Tailgate Opening

Unit: mm (in.)

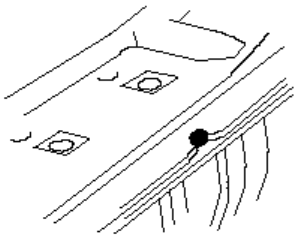
L
Rear Roof Rail
Flange Notch

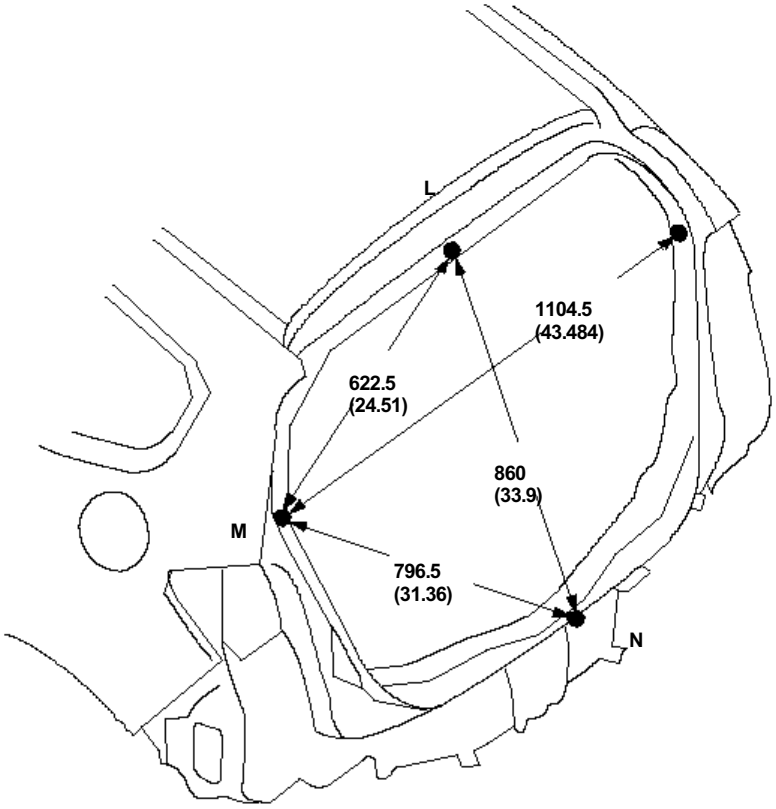


M
Rear Inside Upper
Extension Flange End
(2 places)

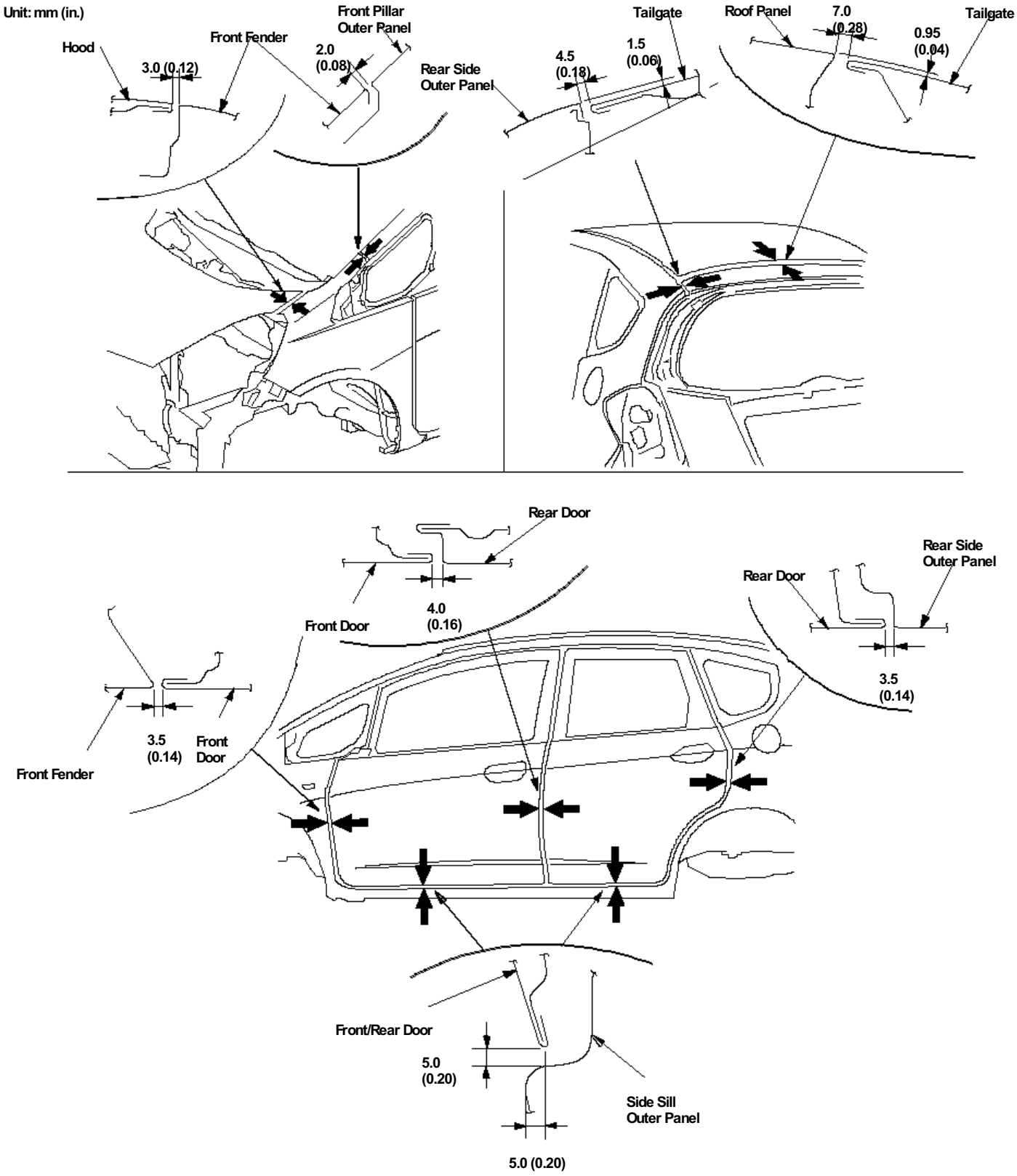


N
Rear Panel Upper
Stiffener Flange
Notch



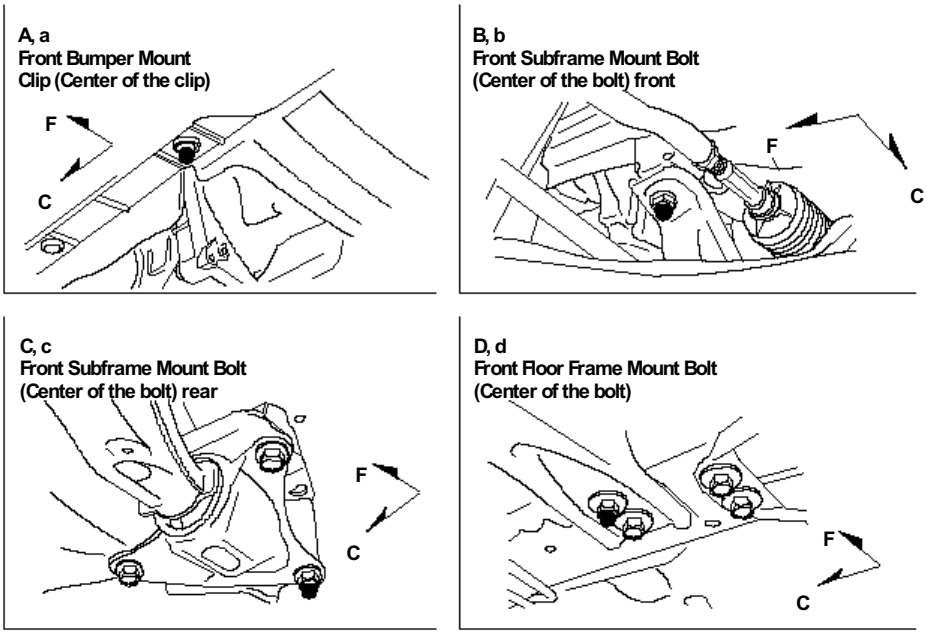


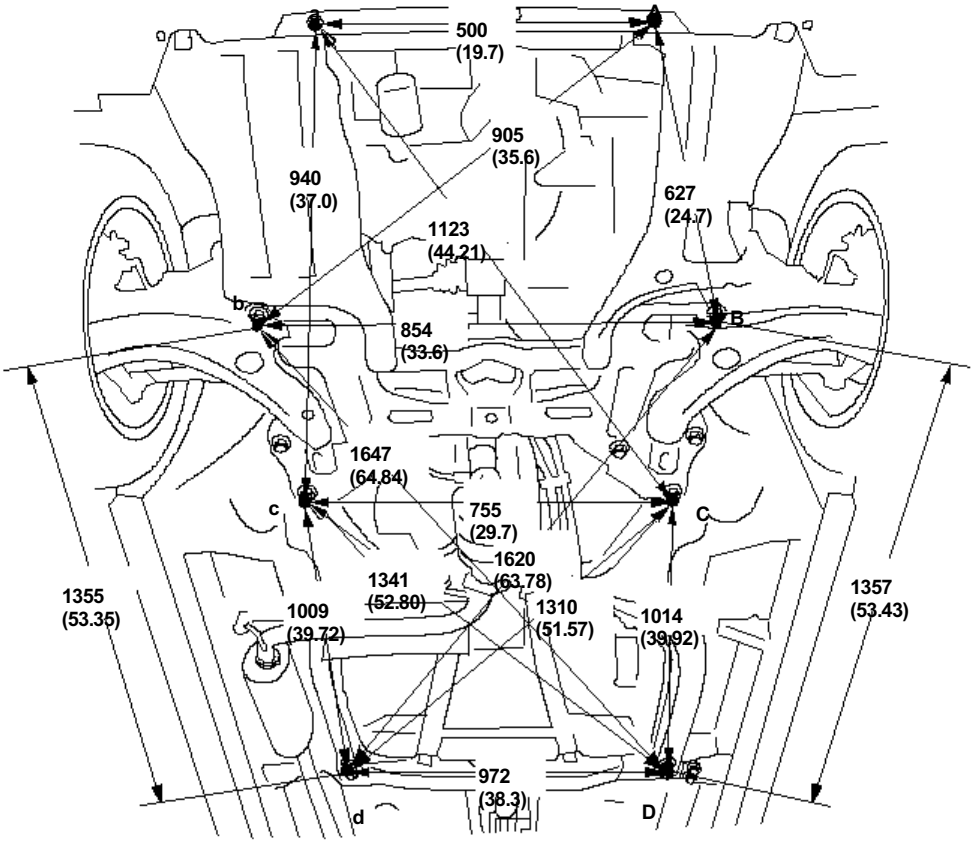
Upper Body Measuring Dimensions - External Parts Fitting Positon



Under Body Measuring Dimensions - Front Subframe Positon

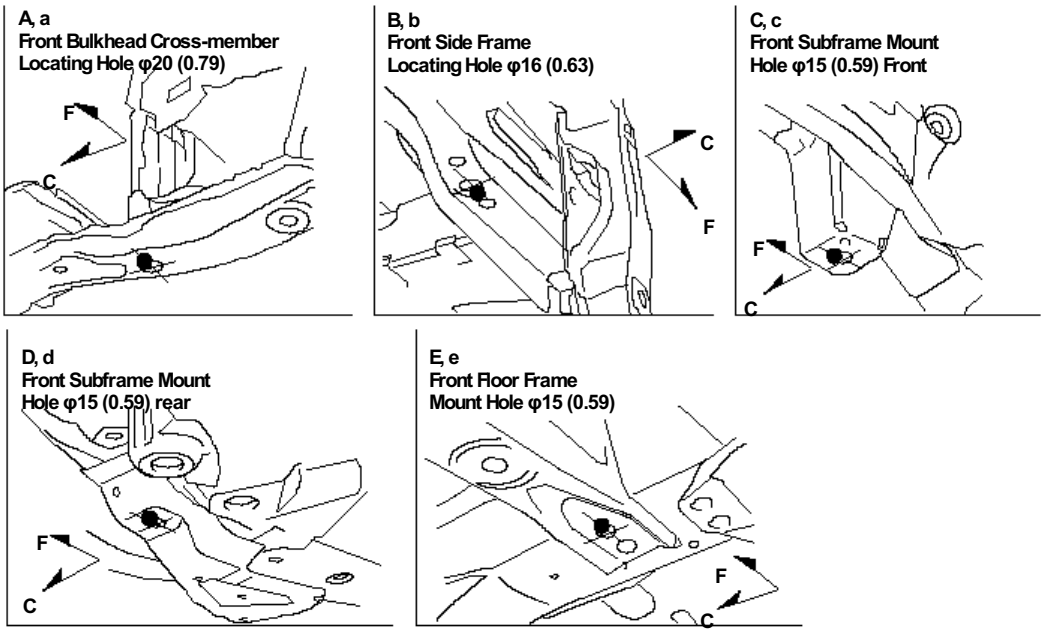
Unit: mm (in.)

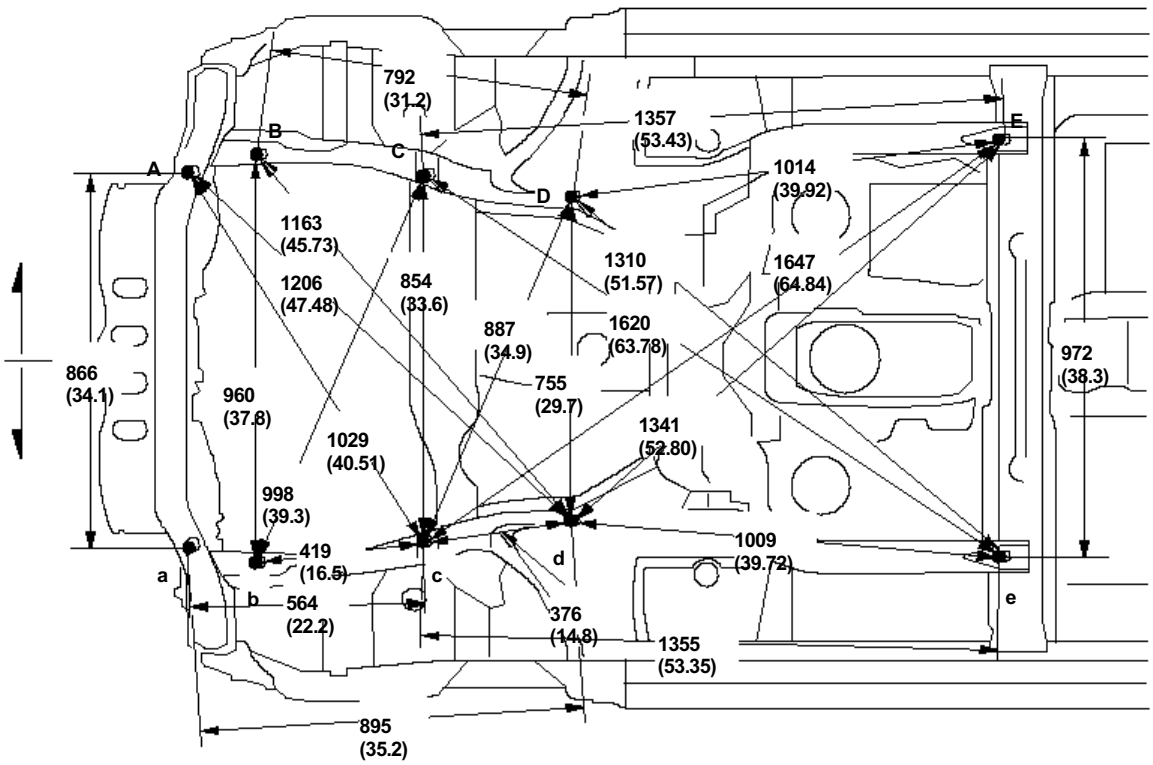




Under Body Measuring Dimensions - Engine Compartment and Front Floor Under View

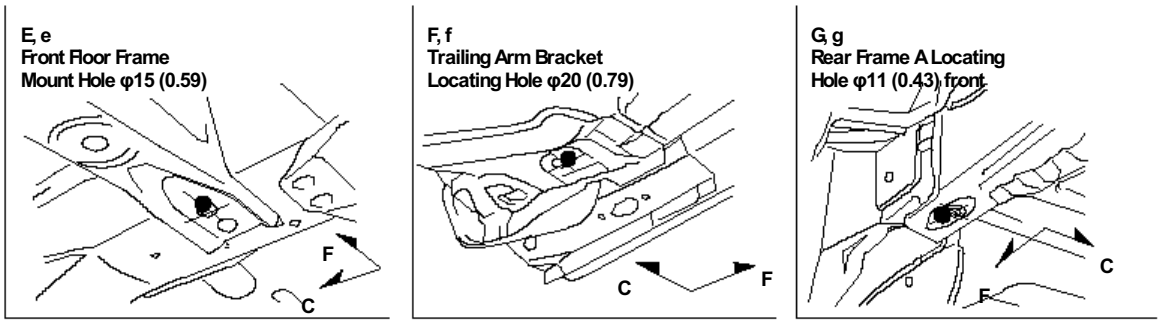
Unit: mm (in.)

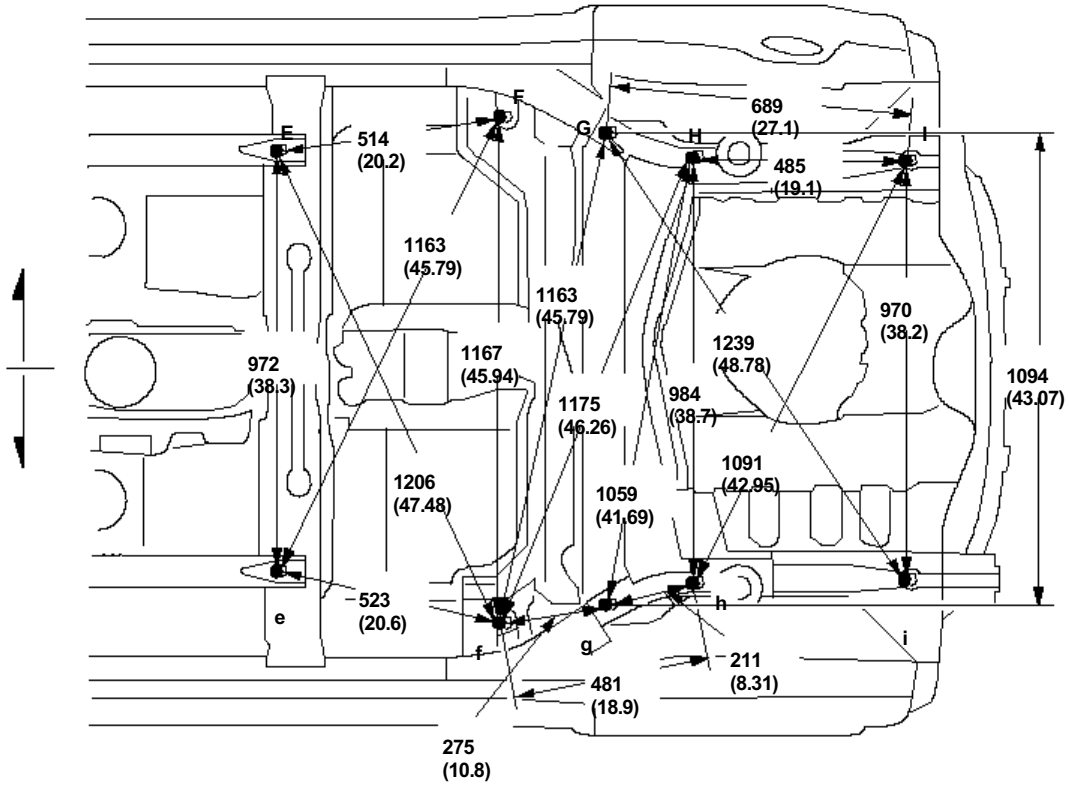




Under Body Measuring Dimensions - Front Floor and Rear Floor, Under View

Unit: mm (in.)



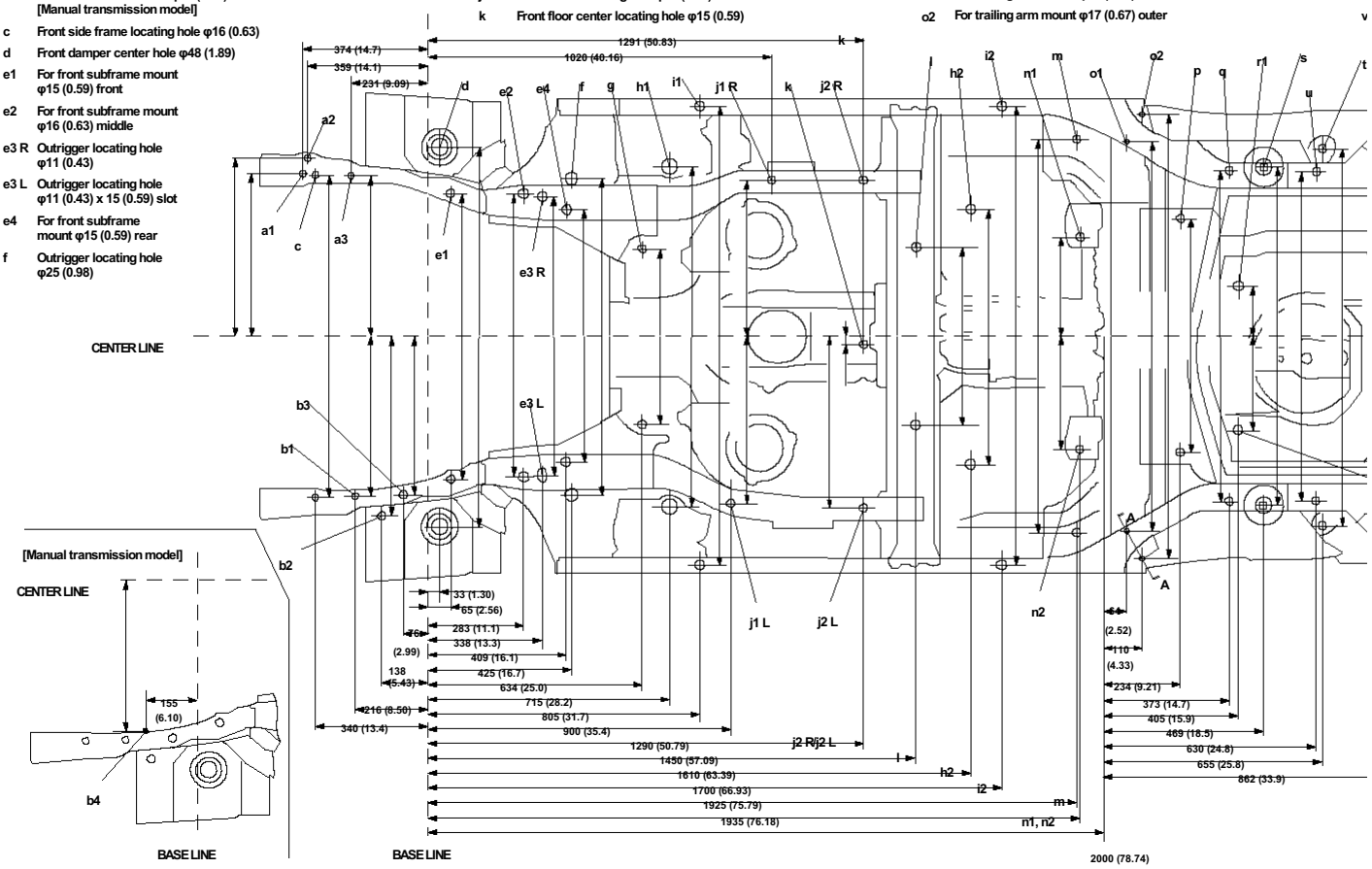


Frame Repair Chart - Top View

Unit: mm (in.)

φ: Inner diameter

a1	For engine side mount φ15 (0.59) front
a2	For engine side mount φ13 (0.51) outer
a3	For engine side mount φ15 (0.59) rear
b1	For transmission mount φ15 (0.59) front
b2	For transmission mount φ15 (0.59) wheelhouse side
b3	For transmission mount φ15 (0.59) rear
b4	For transmission mount φ13 (0.51) [Manual transmission model]
c	Front side frame locating hole φ16 (0.63)
d	Front damper center hole φ48 (1.89)
e1	For front subframe mount φ15 (0.59) front
e2	For front subframe mount φ16 (0.63) middle
e3 R	Outrigger locating hole φ11 (0.43)
e3 L	Outrigger locating hole φ11 (0.43) x 15 (0.59) slot
e4	For front subframe mount φ15 (0.59) rear
f	Outrigger locating hole φ25 (0.98)
g	Floor center stiffener locating hole φ15 (0.59)
h1	Front floor locating hole φ50 (1.97) front
i1	Inside sill locating hole φ25 (0.98) front
j1 R	Floor frame locating hole φ15 (0.59) front
j1 L	Floor frame locating hole φ15 (0.59) front
j2 R	Floor frame locating hole φ15 (0.59) rear
j2 L	Floor frame locating hole φ15 (0.59) rear
k	Front floor center locating hole φ15 (0.59)
l	Front floor cross-member locating hole φ25 (0.98)
h2	Front floor locating hole φ25 (0.98) rear
i2	Inside sill locating hole φ25 (0.98) rear
m	Trailing arm gusset locating hole φ20 (0.79)
n1	Rear seat guide bracket locating hole φ9 (0.35) right
n2	Rear seat guide bracket locating hole φ9 (0.35) left
o1	For trailing arm mount φ15 (0.59) inner
o2	For trailing arm mount φ17 (0.67) outer
p	
q	
r	
r1	
s	
t	
u	
v	

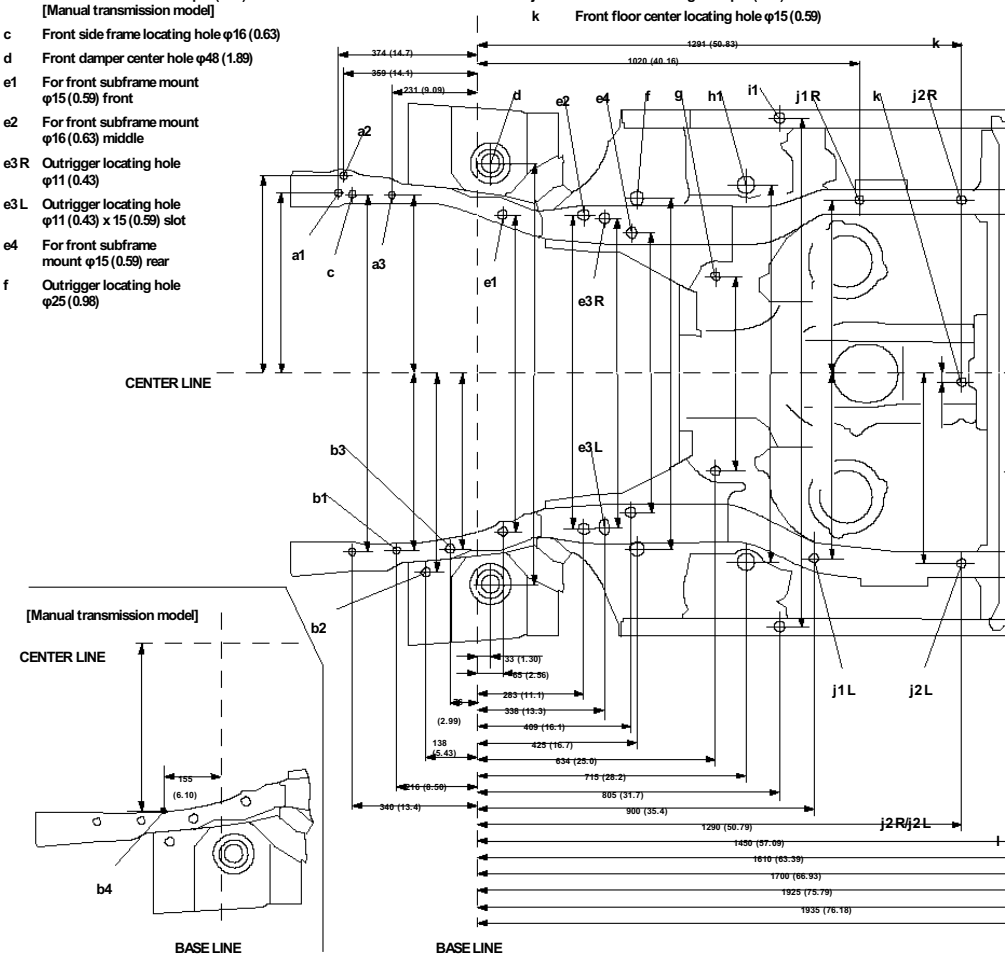


Frame Repair Chart - Top View

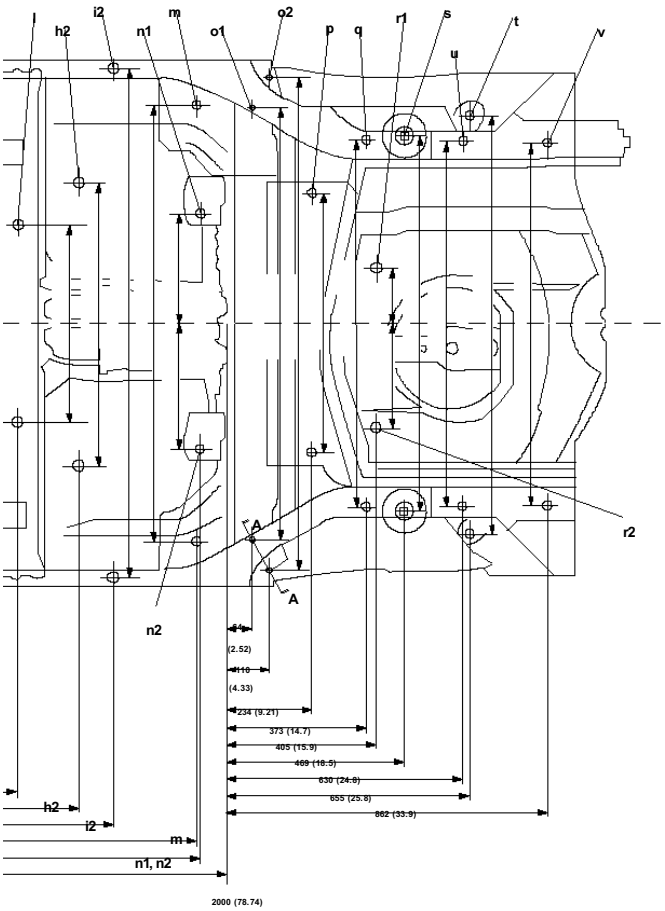
Unit: mm (in.)

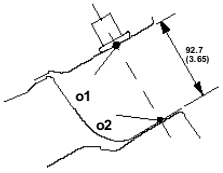
φ: Inner diameter

a1	For engine side mount φ15 (0.59) front
a2	For engine side mount φ13 (0.51) outer
a3	For engine side mount φ15 (0.59) rear
b1	For transmission mount φ15 (0.59) front
b2	For transmission mount φ15 (0.59) wheelhouse side
b3	For transmission mount φ15 (0.59) rear
b4	For transmission mount φ13 (0.51) [Manual transmission model]
c	Front side frame locating hole φ16 (0.63)
d	Front damper center hole φ48 (1.89)
e1	For front subframe mount φ15 (0.59) front
e2	For front subframe mount φ16 (0.63) middle
e3 R	Outrigger locating hole φ11 (0.43)
e3 L	Outrigger locating hole φ11 (0.43) x 15 (0.59) slot
e4	For front subframe mount φ15 (0.59) rear
f	Outrigger locating hole φ25 (0.98)
g	Floor center stiffener locating hole φ15 (0.59)
h1	Front floor locating hole φ50 (1.97) front
i1	Inside sill locating hole φ25 (0.98) front
j1 R	Floor frame locating hole φ15 (0.59) front
j1 L	Floor frame locating hole φ15 (0.59) front
j2 R	Floor frame locating hole φ15 (0.59) rear
j2 L	Floor frame locating hole φ15 (0.59) rear
k	Front floor center locating hole φ15 (0.59)



l	Front floor cross-member locating hole φ25 (0.98)
h2	Front floor locating hole φ25 (0.98) rear
i2	Inside sill locating hole φ25 (0.98) rear
m	Trailing arm gusset locating hole φ20 (0.79)
n1	Rear seat guide bracket locating hole φ9 (0.35) right
n2	Rear seat guide bracket locating hole φ9 (0.35) left
o1	For trailing arm mount φ15 (0.59) inner
o2	For trailing arm mount φ17 (0.67) outer
p	Middle floor cross-member locating hole φ20 (0.79)
q	Rear frame A locating hole φ15 (0.59)
r1	Rear floor locating hole φ25 (0.98) right
r2	Rear floor locating hole φ25 (0.98) left
s	For spring base mount hole 15 (0.59) x 15 (0.59) square
t	Rear damper center hole φ24 (0.94)
u	Rear frame B locating hole φ20 (0.79)
v	Rear floor side panel locating hole φ20 (0.79)



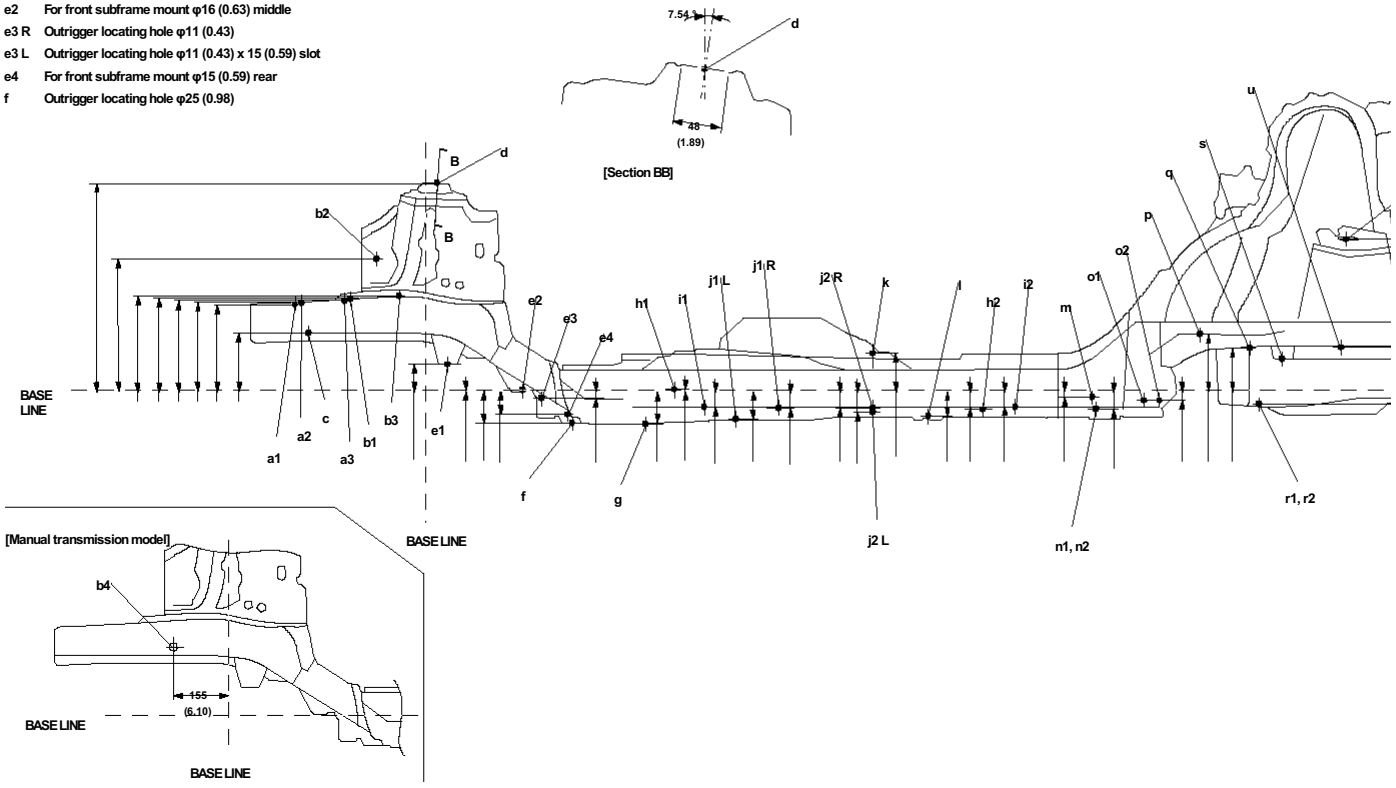


[Section AA]

Frame Repair Chart - Side View

Unit: mm (in.)
φ: Inner diameter

a1	For engine side mount φ15 (0.59) front
a2	For engine side mount φ13 (0.51) outer
a3	For engine side mount φ15 (0.59) rear
b1	For transmission mount φ15 (0.59) front
b2	For transmission mount φ15 (0.59) wheelhouse side
b3	For transmission mount φ15 (0.59) rear
b4	For transmission mount φ13 (0.51) [Manual transmission model]
c	Front side frame locating hole φ16 (0.63)
d	Front damper center hole φ48 (1.89)
e1	For front subframe mount φ15 (0.59) front
e2	For front subframe mount φ16 (0.63) middle
e3 R	Outrigger locating hole φ11 (0.43)
e3 L	Outrigger locating hole φ11 (0.43) x 15 (0.59) slot
e4	For front subframe mount φ15 (0.59) rear
f	Outrigger locating hole φ25 (0.98)
g	Floor center stiffener locating hole φ15 (0.59)
h1	Front floor locating hole φ50 (1.97) front
i1	Inside sill locating hole φ25 (0.98) front
j1 R	Floor frame locating hole φ15 (0.59) front
j1 L	Floor frame locating hole φ15 (0.59) front
j2 R	Floor frame locating hole φ15 (0.59) rear
j2 L	Floor frame locating hole φ15 (0.59) rear
k	Front floor center locating hole φ15 (0.59)
l	Front floor cross-member locating hole φ25 (0.98)
h2	Front floor locating hole φ25 (0.98) rear
i2	Inside sill locating hole φ25 (0.98) rear
m	Trailing arm gusset locating hole φ20 (0.79)
n1	Rear seat guide bracket locating hole φ9 (0.35) right
n2	Rear seat guide bracket locating hole φ9 (0.35) left
o1	For trailing arm mount φ15 (0.59) inner
o2	For trailing arm mount φ17 (0.67) outer

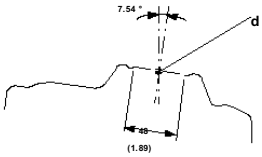


Frame Repair Chart - Side View

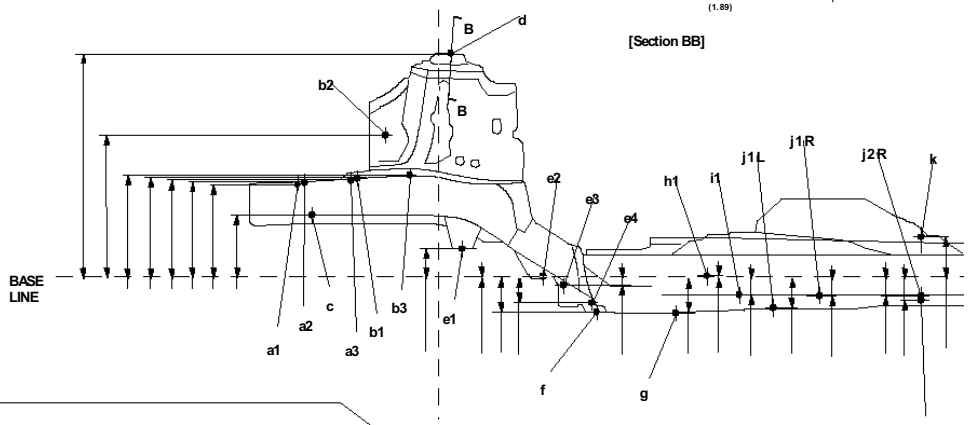
Unit: mm (in.)

φ: Inner diameter

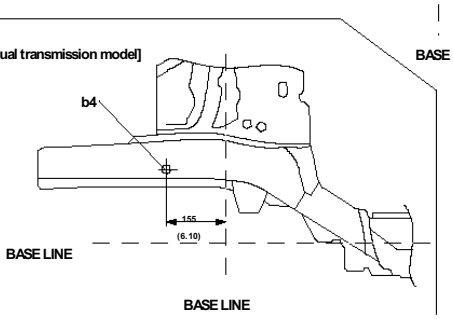
a1	For engine side mount φ15 (0.59) front
a2	For engine side mount φ13 (0.51) outer
a3	For engine side mount φ15 (0.59) rear
b1	For transmission mount φ15 (0.59) front
b2	For transmission mount φ15 (0.59) wheelhouse side
b3	For transmission mount φ15 (0.59) rear
b4	For transmission mount φ13 (0.51) [Manual transmission model]
c	Front side frame locating hole φ16 (0.63)
d	Front damper center hole φ48 (1.89)
e1	For front subframe mount φ15 (0.59) front
e2	For front subframe mount φ16 (0.63) middle
e3 R	Outrigger locating hole φ11 (0.43)
e3 L	Outrigger locating hole φ11 (0.43) x 15 (0.59) slot
e4	For front subframe mount φ15 (0.59) rear
f	Outrigger locating hole φ25 (0.98)
g	Floor center stiffener locating hole φ15 (0.59)
h1	Front floor locating hole φ50 (1.97) front
i1	Inside sill locating hole φ25 (0.98) front
j1 R	Floor frame locating hole φ15 (0.59) front
j1 L	Floor frame locating hole φ15 (0.59) front
j2 R	Floor frame locating hole φ15 (0.59) rear
j2 L	Floor frame locating hole φ15 (0.59) rear
k	Front floor center locating hole φ15 (0.59)



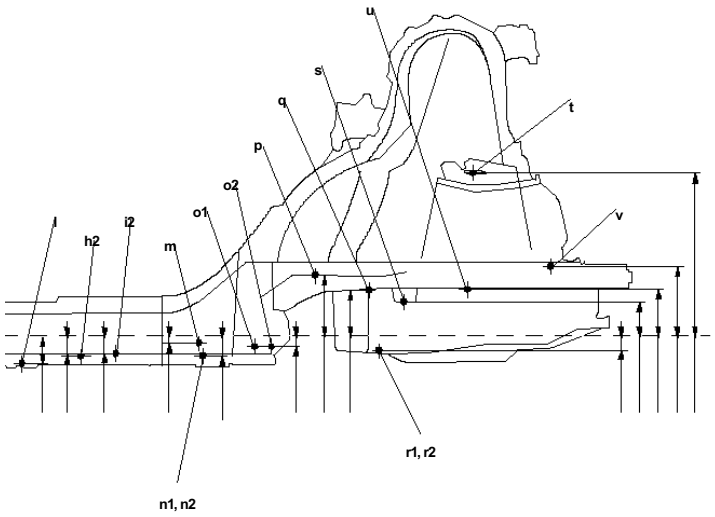
[Section BB]



[Manual transmission model]



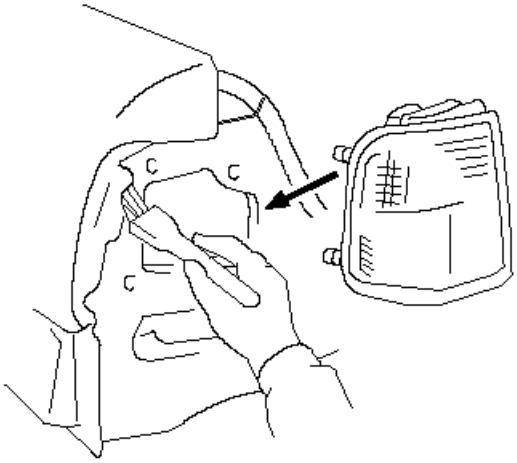
l	Front floor cross-member locating hole φ25 (0.98)
h2	Front floor locating hole φ25 (0.98) rear
i2	Inside sill locating hole φ25 (0.98) rear
m	Trailing arm gusset locating hole φ20 (0.79)
n1	Rear seat guide bracket locating hole φ9 (0.35) right
n2	Rear seat guide bracket locating hole φ9 (0.35) left
o1	For trailing arm mount φ15 (0.59) inner
o2	For trailing arm mount φ17 (0.67) outer
p	Middle floor cross-member locating hole φ20 (0.79)
q	Rear frame A locating hole φ15 (0.59)
r1	Rear floor locating hole φ25 (0.98) right
r2	Rear floor locating hole φ25 (0.98) left
s	For spring base mount hole 15 (0.59) x 15 (0.59) square
t	Rear damper center hole φ24 (0.94)
u	Rear frame B locating hole φ20 (0.79)
v	Rear floor side panel locating hole φ20 (0.79)



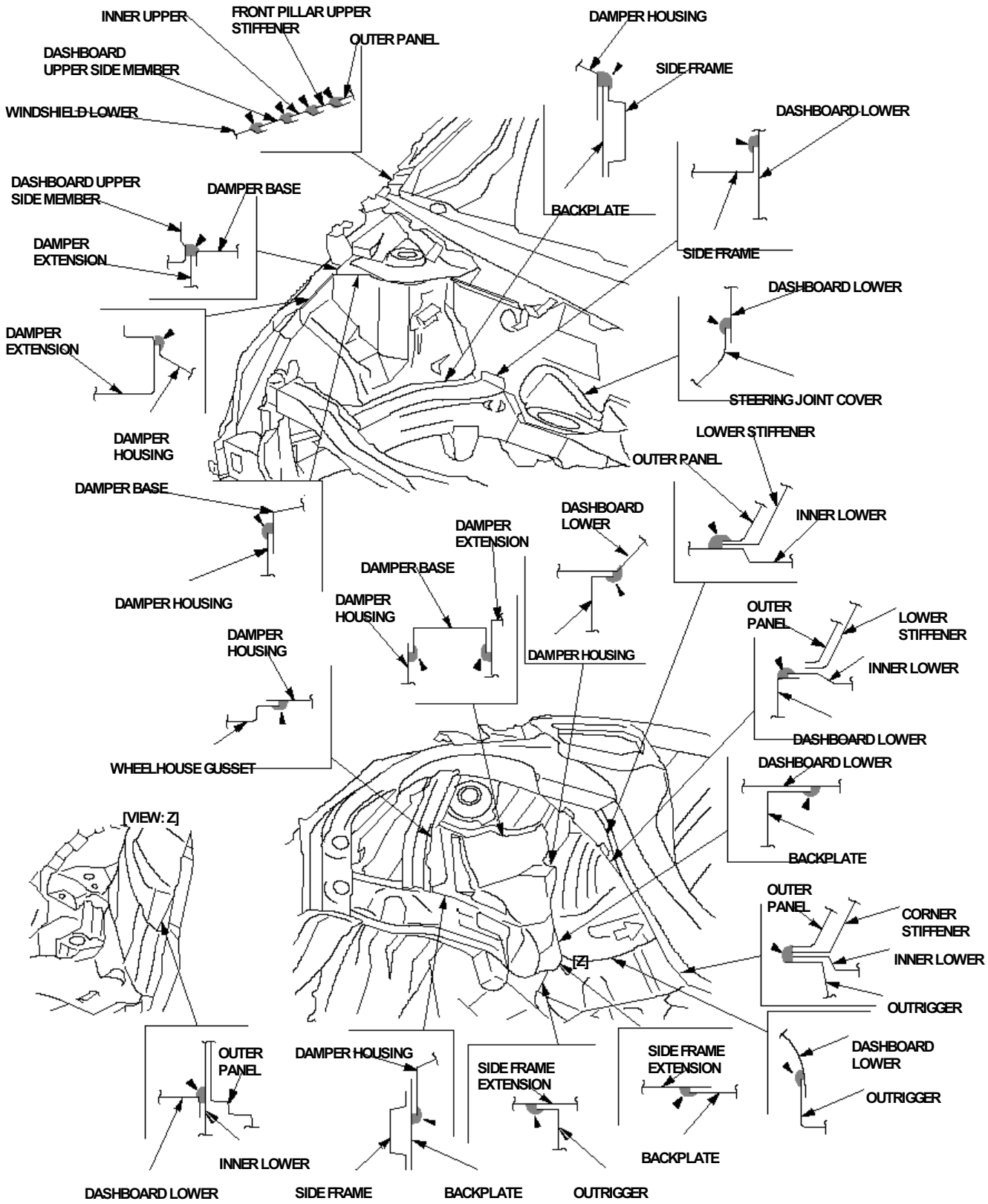
Cross Section of Body and Sealants - General

NOTE: Follow the sealer manufacturer's instructions, and apply the sealer. Note the following items:

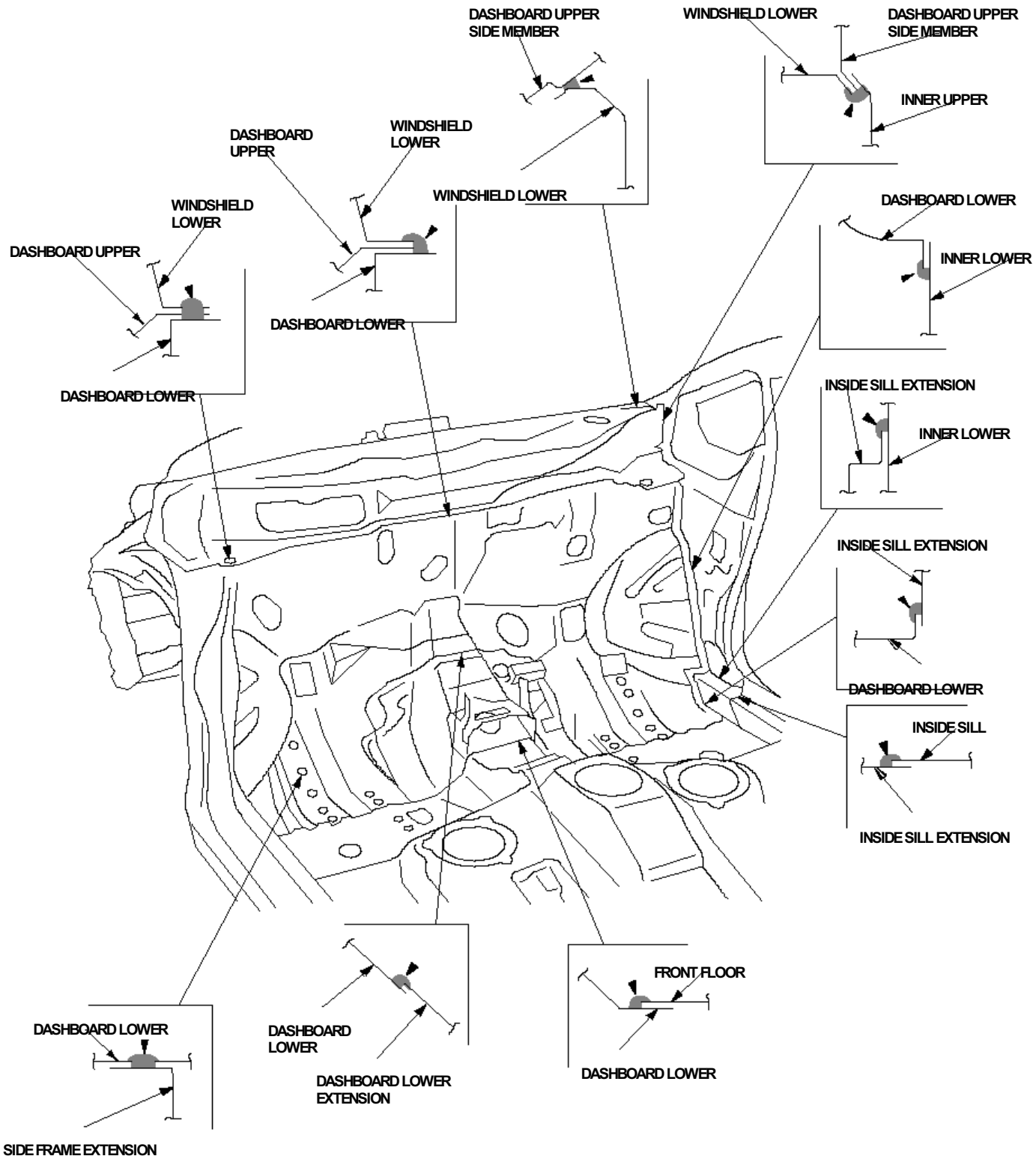
- Clean the areas to be sealed with wax and grease remover.
- Wipe off any excess spot sealer with thinner. After the primer is sprayed, sealer will fill the area where the spot sealer was wiped.
- Make sure you can see the sealant when the sealed part is in its proper location. For the details, refer to engine compartment and damper housing, dashboard upper and dashboard lower, front floor, rear floor, roof panel/rear pillar gutter and rear panel, and rear wheelhouse.
- When applying sealant to the engine compartment, the door opening, and the trunk lid gutter, try to match the appearance of the factory sealer. Wipe off any excess sealer.
- Apply sealer to any area that a replacement part will cover. Smooth the sealer with a brush if necessary.



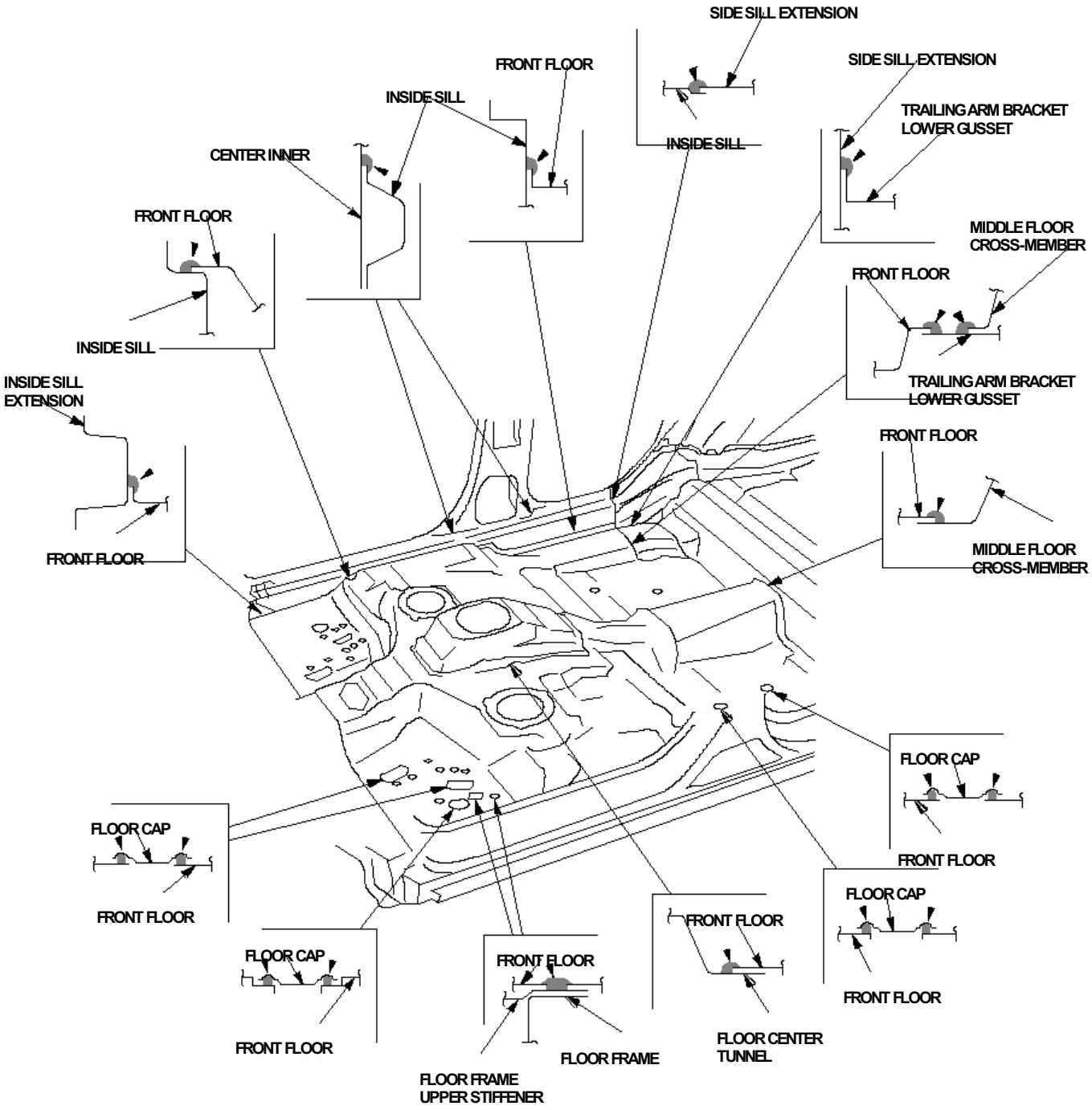
Cross Section of Body and Sealants - Engine Compartment and Damper Housing



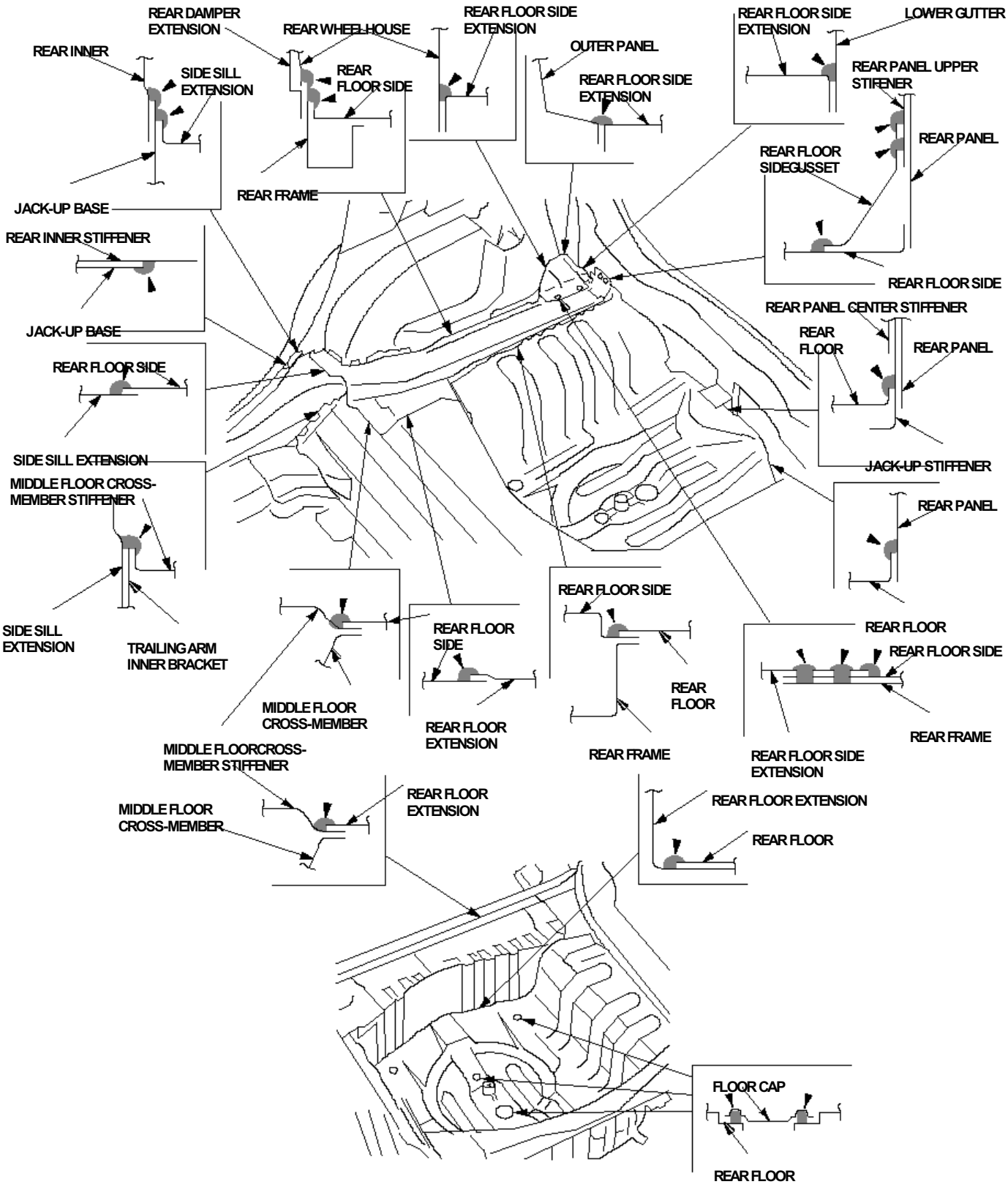
Cross Section of Body and Sealants - Dashboard Upper and Dashboard Lower



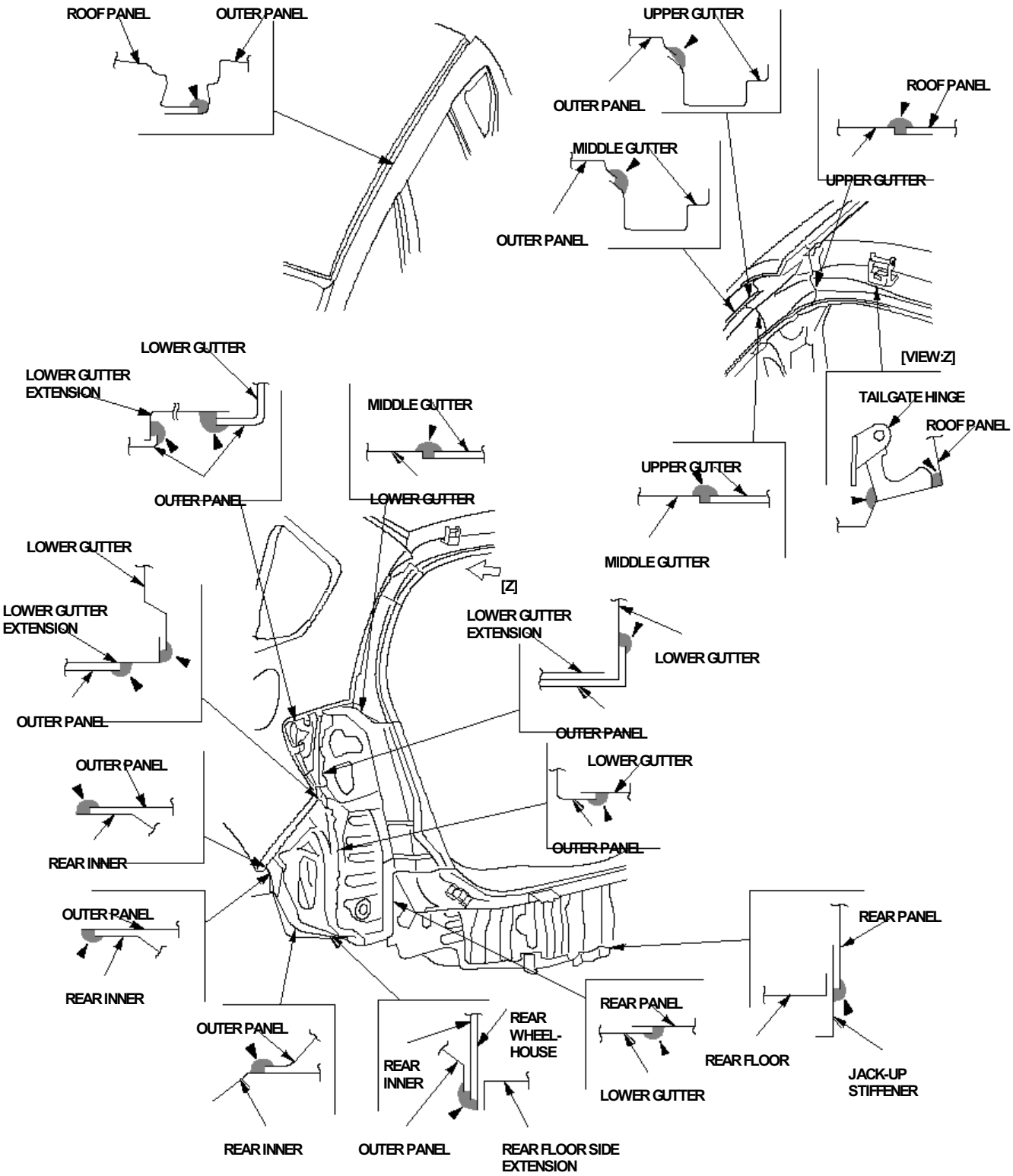
Cross Section of Body and Sealants - Front Floor



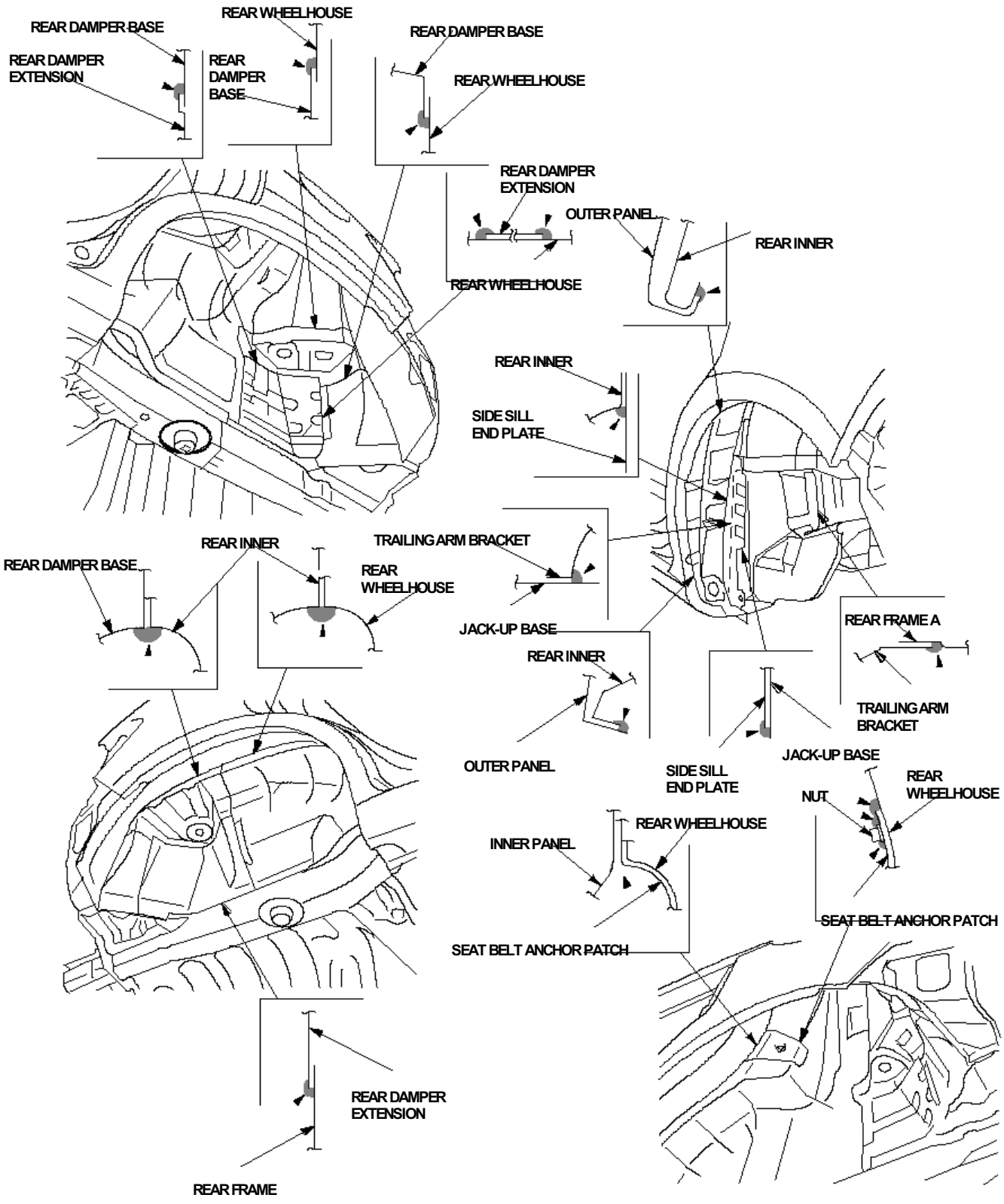
Cross Section of Body and Sealants - Rear Floor



Cross Section of Body and Sealants - Roof Panel/Rear Pillar Gutter and Rear Panel



Cross Section of Body and Sealants - Rear Wheelhouse



Rust-preventive Treatments - General

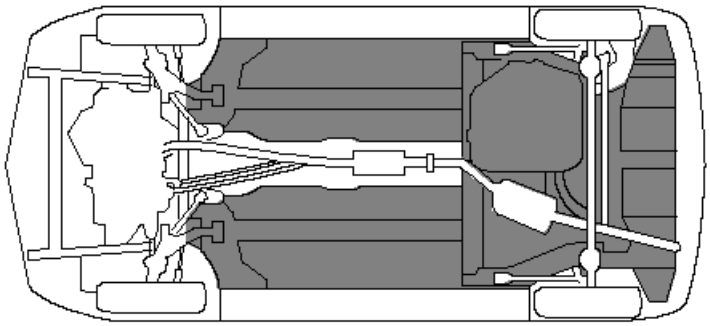
Undercoat

⚠WARNING

- Wear goggles or safety glasses to prevent eye injury.
- Ventilate when spraying undercoat.

NOTE:

- Mask the exhaust system, oxygen sensors, and suspension mount areas to protect them from undercoat overspray.
- Follow the undercoating manufacturer's instructions.
- Clean the body with wax and grease remover before the undercoat is sprayed.
- Apply the undercoat to the front wheelhouse, rear wheelhouse, and undersides of the front floor and rear floor, refer to undercoating diagram.
- Coat the bottom of the fuel tank.



ING

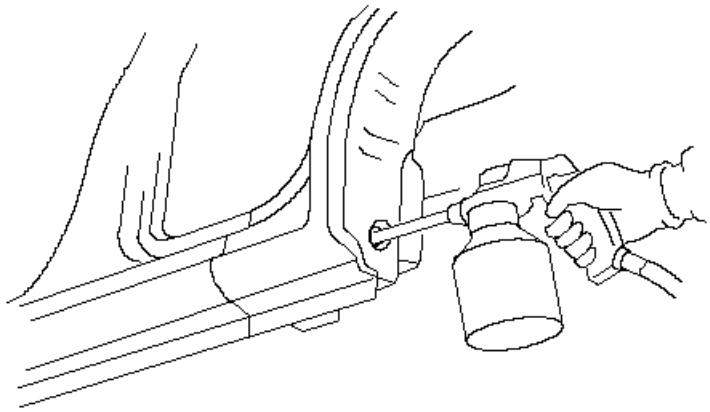
ow them, or get them on your skin. Wear coveralls, gloves, eye

organic solvent. Keep sparks, flames and cigarettes away.

system components and related parts, emission control devices in the
or parts.

ith a steam cleaner, etc., and let it dry. Waxoyl may be applied to a

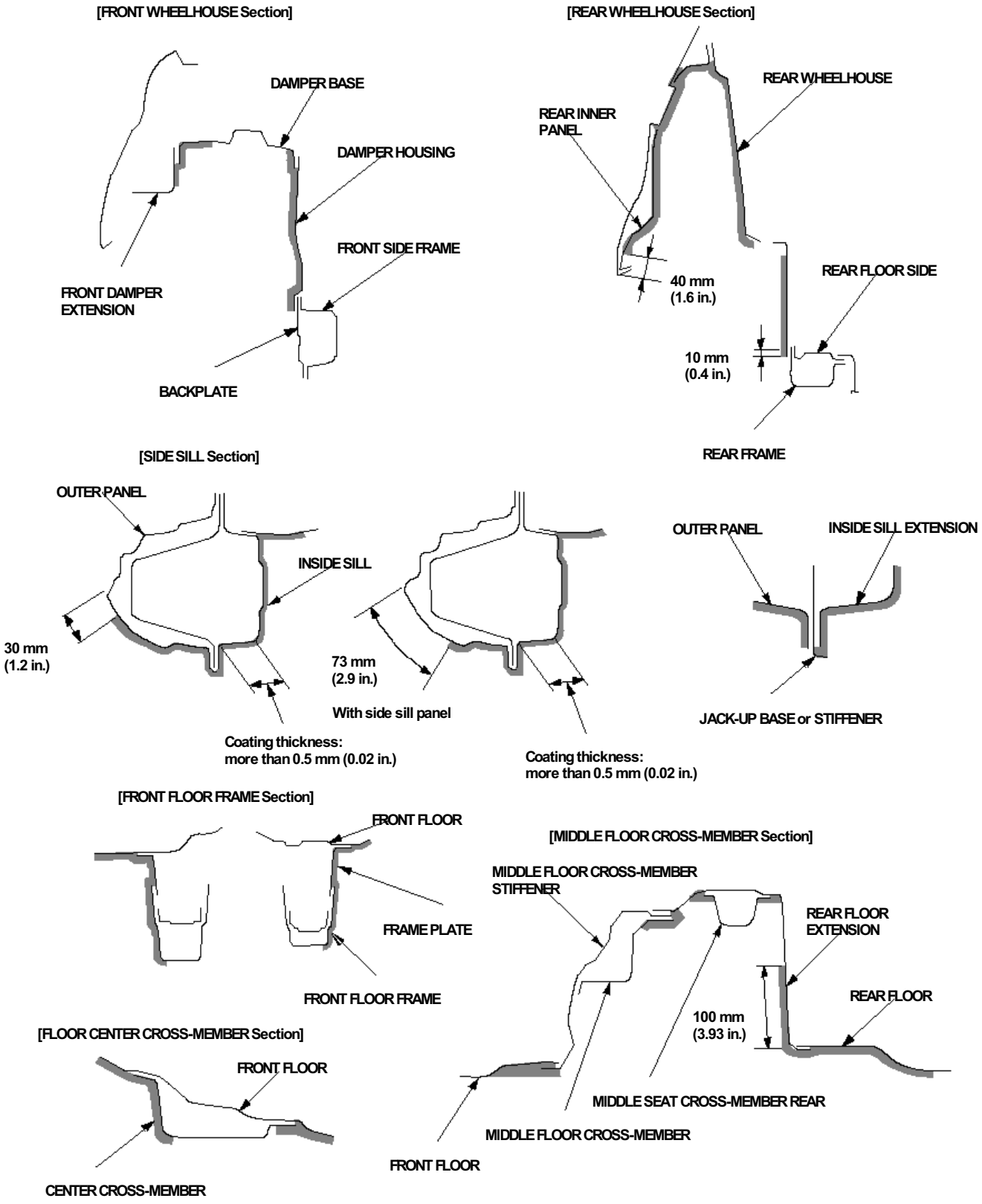
arts in the outer panel and the frame. Spray the anti-rust agent



Rust-preventive Treatments - Undercoating Area

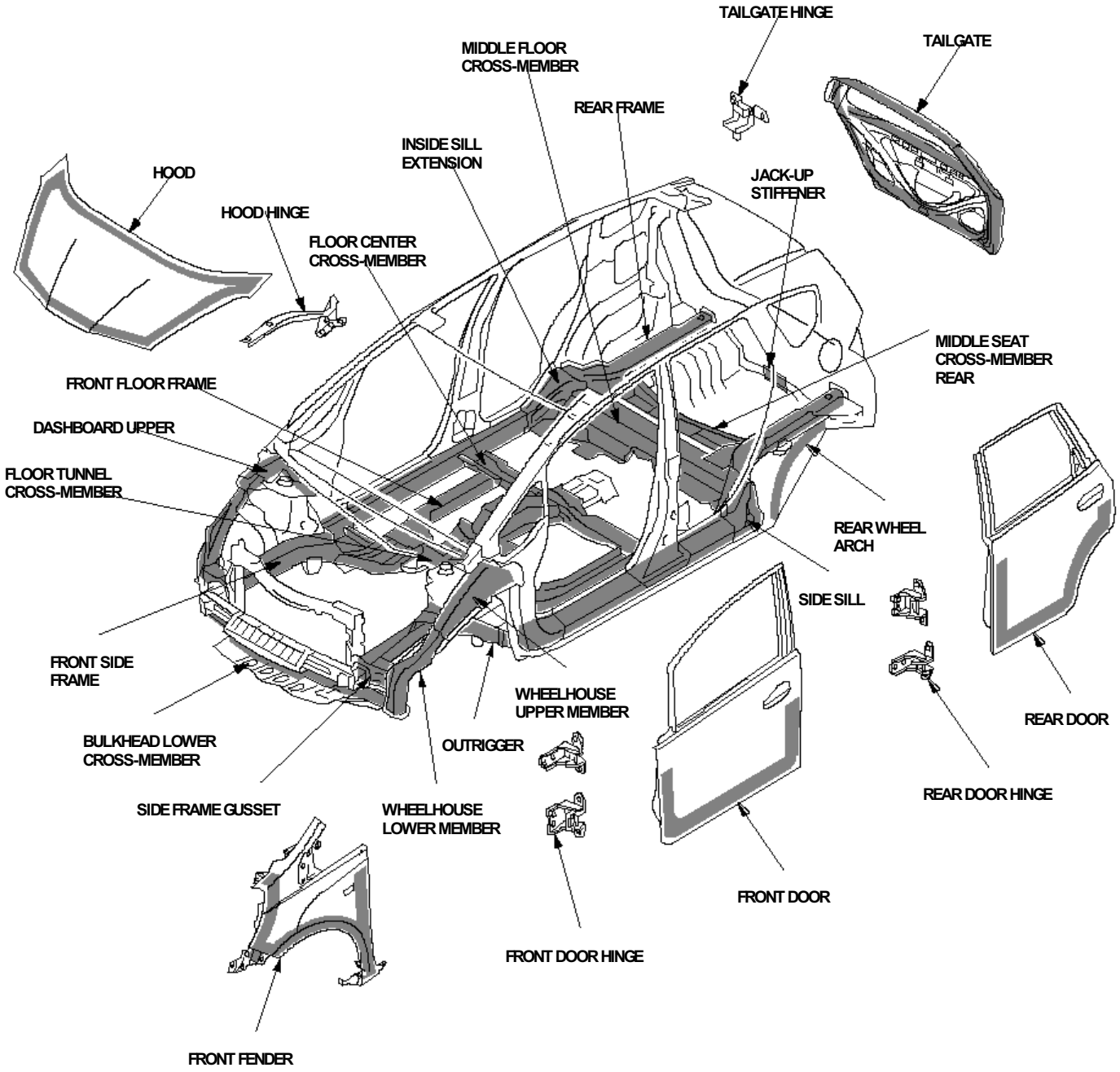
Apply undercoat to the areas shown.
NOTE:

- Coating thickness: 0.4 mm (0.016 in.) MIN.
- Front wheelhouse, rear wheelhouse, and dashboard lower coating thickness 0.5 mm (0.02 in.).
- Apply the undercoat 10 mm (0.4 in.) from the edge of the welded flanges.



Rust-preventive Treatments - Areas to be Covered by Internal Anti-rust Agents

: indicates anti-rust agents.



Service Precautions

General

⚠CAUTION

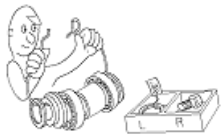
Observe all safety precautions and notes while working.

- Protect all painted surfaces and seats against dirt and scratches with a clean cloth or vinyl cover.

- Work safety and give your work your undivided attention. When either the front or rear wheels are to be raised, block the remaining wheels securely. Communicate at frequently as possible when work involves two or more workers. Do not run the engine unless the shop or working area is well ventilated.

- Before removing or disassembling parts, they must be inspected carefully to isolate the cause for which service is necessary. Observe all safety notes and precautions and follow the proper procedures as described in this manual.

- Mark or place all removed parts in order in a parts rack so they can be reassembled in their original places.



- Use the special tool when use of such a tool is specified.

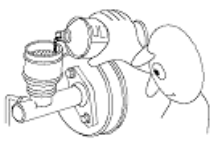
- Parts must be assembled with the proper torque according to the maintenance standards established.
- When tightening a series of bolts or nuts, begin with the center or large diameter bolts and tighten them in crisscross pattern in two or more steps.

- Use new packings, gaskets, O-rings, and cotter pins whenever reassembling.
- Do not reuse parts that must be required to replace. Always replace them.

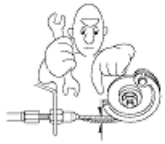
- Use Honda parts and lubricants or those equivalent. When parts are to be reused, they must be inspected carefully to make sure they are not damaged or deteriorated and are in good usable condition.

- Coat or fill parts with specified grease as specified. Clean all removed parts with solvent upon disassembly.

- Brake fluid and hydraulic components
  - When replenishing the system, use extreme care to prevent dust and dirt from entering the system.
  - Do not mix different brands of fluid as they may not be compatible.
  - Do not reuse drained brake fluid.
  - Because brake fluid can cause damage to painted and resin surfaces, care should be taken not to spill it on such materials. If spilled accidentally, quickly rinse it with water or warm water from painted or resin surfaces.
  - After disconnecting brake hoses or pipes, be sure to plug the openings to prevent loss of brake fluid.
  - Clean all disassembled parts only in clean BRAKE FLUID. Blow open all holes and passages with compressed air.
  - Keep disassembled parts from air-borne dust and abrasives.
  - Check that parts are clean before assembly.



- Avoid oil or grease getting on rubber parts and tubes, unless specified.
- Make sure not to get any silicone grease on the terminal part of the connectors and switches, especially if you have silicone grease on your hands or gloves.
- When spraying any agents that contain silicone, cover all the connectors, terminals, and switches in area with a protective cloth or plastic sheet.
- Upon assembling, check every part for proper installation and operation.

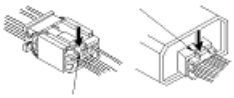


Electrical Troubleshooting Information

Before Troubleshooting

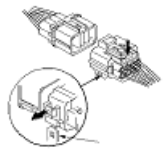
1. Check applicable fuses in the appropriate fuse/relay box.
2. Check the battery for damage, state of charge, and clean and tighten the connections.
   NOTICE
   - Do not quick-charge a battery unless the battery ground cable has been disconnected, otherwise you will damage the alternator diodes.
   - Do not attempt to crank the engine with the battery ground cable loosely connected or you will severely damage the wiring.
3. Check the drive belt tension.

Handling Connectors



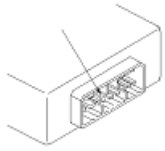
- Make sure the connectors are clean and have no loose wire terminals.
- Make sure multiple cavity connectors are packed with grease (except watertight connectors).
- All connectors have push-down release type locks (A).

- Some connectors have a clip on their side used to attach them to a mounting bracket on the body or on another component. This clip has a pull type lock.
- Some mounted connectors cannot be disconnected unless you first release the lock and remove the connector from its mount bracket (A).

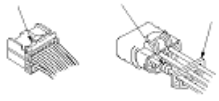


- Never try to disconnect connectors by pulling on their wires; pull on the connector halves instead.
- Always reinstall plastic covers.

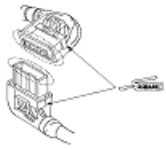
- Before connecting connectors, make sure the terminals (A) are in place and not bent.



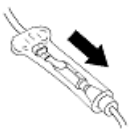
- Check for loose retainer (A) and rubber seals (B).



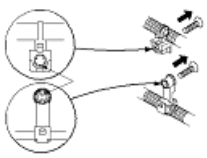
- The backs of some connectors are packed with grease. Add grease if necessary. If the grease is contaminated, replace it.



- Insert the connector all the way and make sure it is securely locked.
- Position wires so that the open end of the cover faces down.

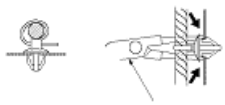


Handling Wires and Harnesses



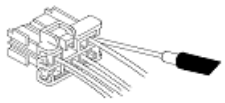
- Secure wires and wire harnesses to the frame with their respective wire ties at the designated locations.
- Remove clips carefully; don't damage their locks (A).

- Slip pliers (A) under the clip base and through the hole at an angle, then squeeze the expansion tabs to release the clip.



- After installing harness clips, make sure the harness doesn't interfere with any moving parts.
- Keep wire harnesses away from exhaust pipes and other hot parts, from sharp edges of brackets and holes, and from exposed screws and bolts.
- Seat grommets in their grooves properly (A). Do not leave grommets distorted (B).

Testing and Repairs



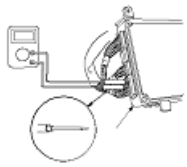
- Do not use wires or harnesses with broken insulation. Replace them or repair them by wrapping the break with electrical tape.
- After installing parts, make sure that no wires are pinched under them.
- When using electrical test equipment, follow the manufacturer's instructions and those described in this manual.
- If possible, insert the probe of the tester from the wire side (except waterproof connector).

- Use a probe with a tapered tip.
- Refer to the instructions in the Honda Terminal Kit for identification and replacement of connector terminals.

⚠CAUTION

- Puncturing the insulation on a wire can cause poor or intermittent electrical connections.
- For testing at connectors, bring the tester probe into contact with the terminal from the connector side of wire harness connectors in the engine compartment.
  For female connectors, just tough lightly with the tester probe and do not insert the probe.

When checking any control module(s) or unit(s) connector terminals, gently slide the sharp tester probe from the wire side into the connector until it comes in contact with the terminal end of the wire.



Five-step Troubleshooting

1. Verify The Complaint
   Turn on all the components in the problem circuit to verify the customer complaint. Note the symptoms. Do not begin disassembly or testing until you have narrowed down the problem area.

2. Analyze The Schematic
   Look up the schematic for the problem circuit. Determine how the circuit is supposed to work by tracing the current paths from the power feed through the circuit components to ground. If several circuits fail at the same time, the fuse or ground is a likely cause.
   Based on the symptoms and your understanding of the circuit operation, identify one or more possible causes of the problem.

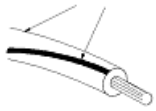
3. Isolate The Problem By Testing The Circuit
   Make circuit tests to check the diagnosis you made in Step 2 . Keep in mind that a logical, simple procedure is the key to efficient troubleshooting. Test for the most likely cause of failure first. Try to make tests at points that are easily accessible.

4. Fix The Problem
   Once the specific problem is identified, make the repair. Be sure to use proper tools and safe procedures.

5. Make Sure The Circuit Works
   Turn on all components in the repaired circuit in all modes to make sure you've fixed the entire problem. If the problem was a blown fuse, be sure to test all of the circuits on the fuse. Make sure no new problems turn up and the original problem does not recur.

Wire Color Codes

The following abbreviations are used to identify wire colors in the circuit schematics:



WHT.	White
YEL.	Yellow
BLK.	Black
BLU.	Blue
GRN.	Green
RED.	Red
ORN.	Orange
PNK.	Pink
BRN.	Brown
GRY.	Gray
PUR.	Purple
LT BLU.	Light Blue
LT GRN.	Light Green

The wire insulation has one color or one color with another color stripe. The second color is the stripe.

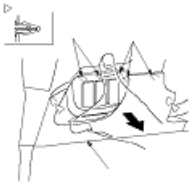
Dashboard Fuse Lid Panel Removal/Installation

LHD Model

NOTE:

- Take care not to scratch the dashboard and its related parts.
- When removing components, use the trim tools or equivalent.

1. Pull the fuse lid panel (A) back by hand to release the hooks (B) and the clips.



2. Pull the fuse lid panel (A) rearward to remove it.

3. Install the panel in the reverse order of removal, and note these items:
    - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
    - Push the clips and the hooks into place securely.

Dashboard Driver's Lower Cover Removal/Installation

LHD Model

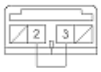
NOTE:

- Take care not to scratch the dashboard and its related parts.
- When removing components, use the trim tools or equivalent.

1. Remove the fuse lid panel.
2. Remove the driver's dashboard lower cover (A).
   -1. Use the trim tool to pry the bottom side of the panel partially out.
   -2. Pry the front bottom of the panel slightly toward you and release the clips and the hooks (B).
3. Install the lower cover in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips and the hooks into place securely.

SRS DTC Troubleshooting: 12-1x, 12-2x

DTC 12-1x ("x" can be 0 thru 9 or A thru F):
Open in the Front Passenger's Airbag Inflator (LHD model)
DTC 12-2x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in the Front Passenger's Airbag Inflator (LHD model)
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 12-1x or 12-2x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect the dashboard wire harness 4P connector from the front passenger's airbag.
7. Install a jumper wire between the No. 2 and the No. 3 terminals of the dashboard wire harness 4P connector.
8. Do the battery terminal reconnection procedure.
9. Clear the DTC memory.
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Read the DTC.

    Is DTC 12-1x or 12-2x indicated?
    YES - Go to Step 12 .
    NO - Faulty front passenger's airbag; replace the front passenger's airbag. ■
12. Turn the ignition switch to LOCK (0).
13. Do the battery terminal disconnection procedure , then wait for 3 minutes.
14. Remove a jumper wire from the dashboard wire harness 4P connector.
15. Disconnect SRS unit connector A (39P) from the SRS unit.

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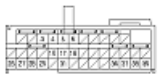
16. Install a jumper wire between the No. 5 and the No. 6 terminals of SRS unit connector A (39P).



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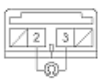
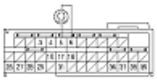
17. Check for continuity between the No. 2 and the No. 3 terminals of the dashboard wire harness 4P connector.



    Is there continuity?
    YES - Faulty SRS unit or poor connection at SRS unit connector A (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit. ■
    NO - Open or increased resistance in the dashboard wire harness; replace the dashboard wire harness.■

SRS DTC Troubleshooting: 12-3x

DTC 12-3x (‘‘x" can be 0 thru 9 or A thru F):
Short to Another Wire or Decreased Resistance in the Passenger's Airbag Inflator (LHD model)
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 12-3x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect the dashboard wire harness 4P connector from the front passenger's airbag.
7. Do the battery terminal reconnection procedure.
8. Clear the DTC memory.
9. Turn the ignition switch to ON (II), then wait for 10 seconds.
10. Read the DTC.

    Is DTC 12-3x indicated?
    YES - Go to Step 10 .
    NO - Faulty front passenger's airbag; replace the front passenger's airbag. ■
11. Turn the ignition switch to LOCK (0).
12. Do the battery terminal disconnection procedure , then wait for 3 minutes.
13. Disconnect SRS unit connector A (39P) from the SRS unit.
14. Connect an SRS short canceller (070AZ-SAA0100) to the No. 5 and the No. 6 terminals of the SRS unit connector A (39P).
15. Measure the resistance between the No. 5 and the No. 6 terminals of the SRS unit connector A (39P). There should be 0−1.0 Ω.

    Is the resistance as specified?
    YES - Short in the dashboard wire harness; replace the dashboard wire harness.■
    NO - Faulty SRS unit; replace the SRS unit. ■

SRS DTC Troubleshooting: 12-8x

DTC 12-8x (‘‘x" can be 0 thru 9 or A thru F):
Short to Power in the Front Passenger's Airbag Inflator (LHD model)
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 12-8x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect SRS unit connector A (39P) from the SRS unit.
7. Connect an SRS short canceller (070AZ-SAA0100) to the No. 5 and the No. 6 terminals of the SRS unit connector A (39P).
8. Do the battery terminal reconnection procedure.
9. Turn the ignition switch to ON (II), then wait for 10 seconds.
10. Measure the voltage between the No. 5 and the No. 6 terminals of the SRS unit connector A (39P) and body ground. There should be less than 1 V.

    Is the voltage as specified?
    YES - Faulty SRS unit; replace the SRS unit. ■
    NO - Go to Step 11 .
11. Turn the ignition switch to LOCK (0).
12. Do the battery terminal disconnection procedure , then wait for 3 minutes.
13. Disconnect the dashboard wire harness 4P connector from the front passenger's airbag.
14. Do the battery terminal reconnection procedure.
15. Turn the ignition switch to ON (II), then wait for 10 seconds.

---

16. Measure the voltage between the No. 5 and the No. 6 terminals of SRS unit connector A (39P) and body ground. There should be less than 1 V.

    Is the voltage as specified?
    YES - Faulty front passenger's airbag; replace the front passenger's airbag. ■
    NO - Short to power in the dashboard wire harness; replace the dashboard wire harness.■

SRS DTC Troubleshooting: 12-9x

DTC 12-9x (‘‘x" can be 0 thru 9 or A thru F):
Short to Ground in the Front Passenger's Airbag Inflator (LHD model)
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 12-9x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect SRS unit connector A (39P) from the SRS unit.
7. Check for continuity between the No. 5 and the No. 6 terminals of SRS unit connector A (39P) and body ground.

   Is there continuity?
   YES - Go to Step 8 .
   NO - Faulty SRS unit; replace the SRS unit. ■
8. Disconnect the dashboard wire harness 4P connector from the front passenger's airbag.

---

9. Check for continuity between the No. 5 and the No. 6 terminals of SRS unit connector A (39P) and body ground.

   Is there continuity?
   YES - Short to ground in the dashboard wire harness: replace the dashboard wire harness.■
   NO - Faulty front passenger's airbag; replace the front passenger's airbag. ■

ECM/PCM Circuit Diagram (cont'd)

LHD model

ROCKER ARM OIL CONTROL SOLENOID (1)

24P JUNCTION CONNECTOR (2) (A/T)

12P JUNCTION CONNECTOR (2) (M/T)

MAP SENSOR (3)

EVAP CANISTER PURGE VALVE (4)

No. 1 INJECTOR (1)

No. 2 INJECTOR (2)

No. 3 INJECTOR (3)

No. 4 INJECTOR (4)

A/F SENSOR (SENSOR 1) (5)

SECONDARY HO2S (SENSOR 2) (6)

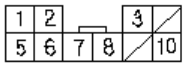
13P CONNECTOR

12P JUNCTION CONNECTOR (2)

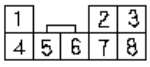
14P CONNECTOR

ESP CONTROL UNIT

UNDER-DASH FUSE/RELAY BOX (K) (1)



UNDER-DASH FUSE/RELAY BOX (N) (2)



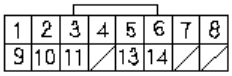
UNDER-DASH FUSE/RELAY BOX (S) (3)

UNDER-DASH FUSE/RELAY BOX (T) (4)

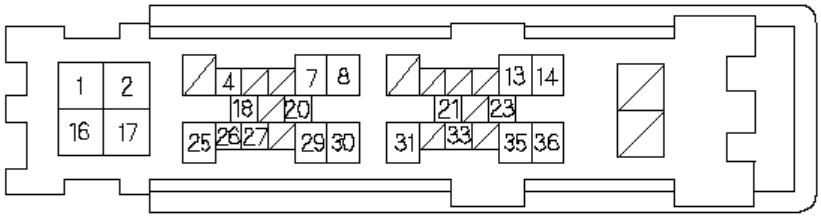
ELD (5)

UNDER-DASH FUSE/RELAY BOX (W) (6)

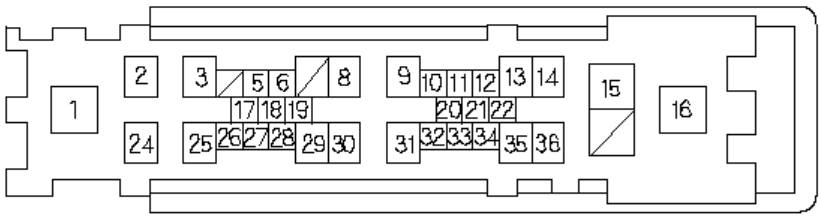
UNDER-DASH FUSE/RELAY BOX (Q) (7)



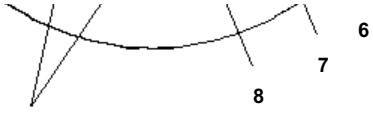
UNDER-DASH FUSE/RELAY BOX (A) (8)



UNDER-DASH FUSE/RELAY BOX (B) (9)



NOTE:
· Connector with male terminals (double outline): view from terminal side
· Connector with female terminals (single outline): view from wire side
*: Connector with female terminals (single outline): view from terminal side



UNDER-DASH FUSE/RELAY BOX

ECM/PCM Circuit Diagram (cont'd)

LHD model

ROCKER ARM OIL CONTROL SOLENOID (1)

12P JUNCTION CONNECTOR (2) (M/T, i-SHIFT System)

MAP SENSOR (3)

EVAP CANISTER PURGE VALVE (4)

24P JUNCTION CONNECTOR (5)

24P JUNCTION CONNECTOR (1) (A/T)

OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR (2) (A/T)

10P CONNECTOR (3) (A/T)

2ND CLUTCH TRANSMISSION FLUID PRESSURE SWITCH (4)

TRANSMISSION RANGE SWITCH (5) (A/T)

No. 1 IGNITION COIL (1)

No. 2 IGNITION COIL (2)

No. 3 IGNITION COIL (3)

No. 4 IGNITION COIL (4)

A/F SENSOR (SENSOR 1) (5)

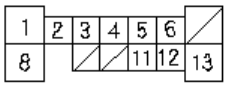
SECONDARY HO2S (SENSOR 2) (6)

ESP CONTROL UNIT

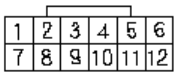
APP SENSOR

12P JUNCTION

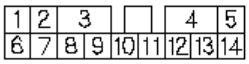
13P CONNECTOR (1)



12P JUNCTION CONNECTOR (2)

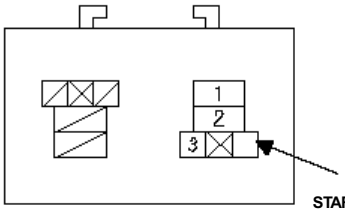


14P CONNECTOR (3)



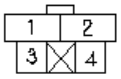
2P CONNECTOR (4) (i-SHIFT System)

AUXILIARY UNDER-DASH FUSE/RELAY BOX (5)



STARTER RELAY 2

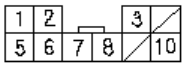
BRAKE PEDAL POSITION SWITCH (6)



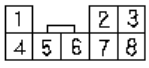
CLUTCH PEDAL POSITION SWITCH B (7) (M/T)

CLUTCH PEDAL POSITION SWITCH A (8) (KE, KG models) (M/T)

UNDER-DASH FUSE/RELAY BOX (K) (9)



UNDER-DASH FUSE/RELAY BOX (N) (10)



UNDER-DASH FUSE/RELAY BOX (S) (11)

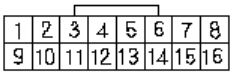
UNDER-DASH FUSE/RELAY BOX (T) (12)

ELD (13)

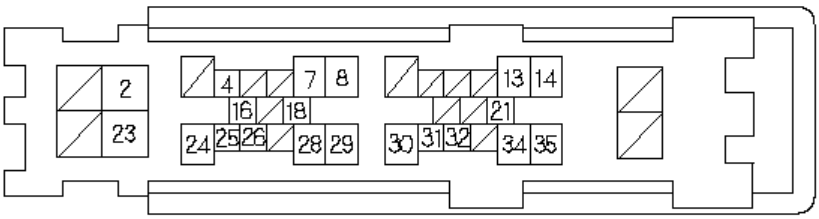
UNDER-DASH FUSE/RELAY BOX (X) (14)

UNDER-DASH FUSE/RELAY BOX (W) (15)

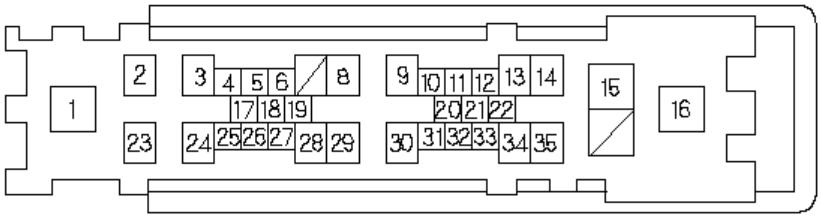
UNDER-DASH FUSE/RELAY BOX (Q) (16)



UNDER-DASH FUSE/RELAY BOX (A) (17)



UNDER-DASH FUSE/RELAY BOX (B) (18)



NOTE:
· Connector with male terminals (double outline): view from terminal side
· Connector with female terminals (single outline): view from wire side
*: Connector with female terminals (single outline): view from terminal side

Brake Booster Replacement

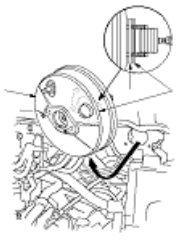
LHD Model

1. Remove the air cleaner cover, and the air cleaner case.
2. Remove the master cylinder.
3. Disconnect the brake booster vacuum hose (A) from the brake booster.

4. Remove the brake lines (A) from the clamp (B).

5. Remove the engine wire harness clamp (A).
6. Remove the driver's dashboard undercover.

7. Remove the lock pin (A) and the joint pin (B), then disconnect the yoke from the brake pedal.
8. Remove the brake booster mounting nuts (C).

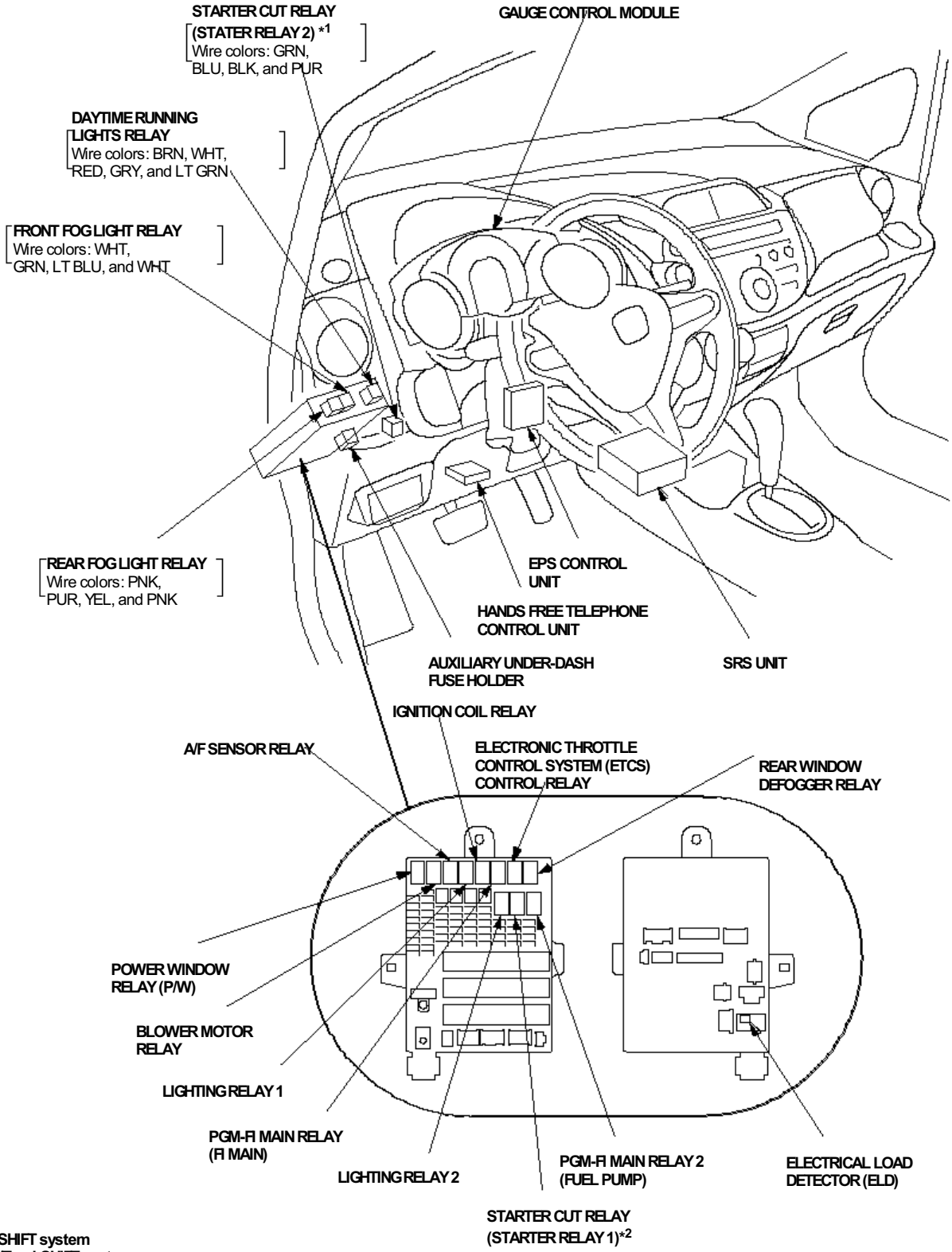


9. Remove the brake booster (A) from the engine compartment.
   NOTICE
   - Be careful not to damage the booster surfaces and threads of the booster stud bolts.
   - Be careful not to bend or damage the brake lines or other components hoses and lines.

   NOTE:
   - Use new booster gasket (B) reassembly.
   - KG ABS model: Install the brake booster bracket (C) between brake booster and new gasket reassembly.
10. Install the brake booster in the reverse order of removal, and note these items:
    - Install the master cylinder after installing the brake booster.
    - Check the brake pedal height and free play after installing the master cylinder, and adjust it if necessary.
    - Bleed the brake system.
    - KG ABS model: Check the brake assist.

Relay and Control Unit Locations - Dashboard 1

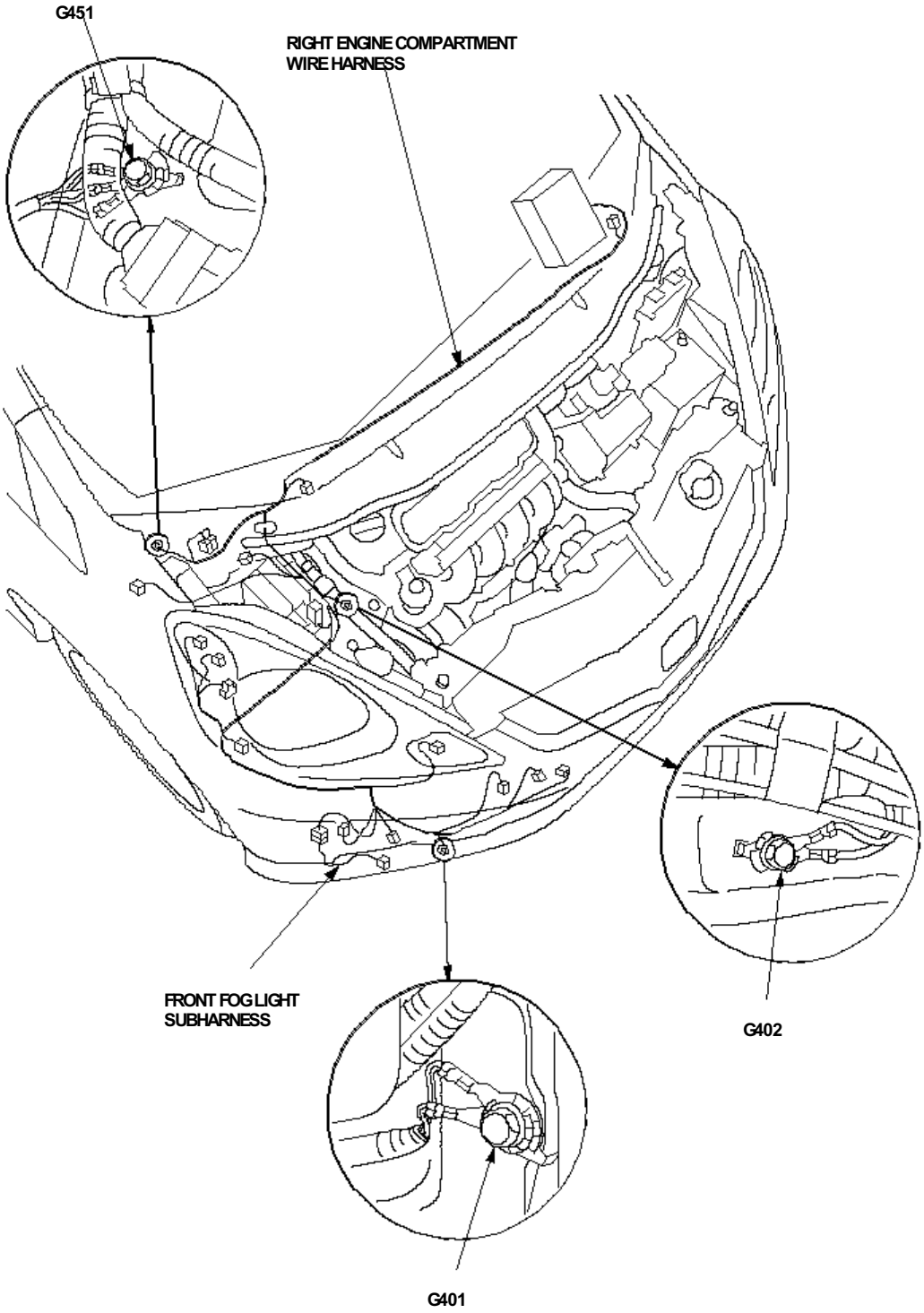
LHD model



*1: i-SHIFT system
*2: A/T or i-SHIFT system

Right Engine Compartment Wire Harness and Front Fog Light Subharness Locations

LHD model



SRS DTC Troubleshooting: 11-1x, 11-2x

DTC 11-1x ("x" can be 0 thru 9 or A thru F):
Open in the Driver's Airbag First Inflator (LHD model)
DTC 11-2x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in the Driver's Airbag First Inflator (LHD model)
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures , General Troubleshooting Information , and Battery Terminal Disconnection/Reconnection.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 11-1x or 11-2x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.■
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Disconnect the driver's airbag 4P connector from the cable reel.
7. Install a jumper wire between the No. 2 [No. 4] and the No. 3 terminals of the cable reel 4P connector.
   [ ]: KG model
8. Reconnect the negative cable to the battery.
9. Clear the DTC memory.
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Read the DTC.

    Is DTC 11-1x or 11-2x indicated?
    YES - Go to Step 12 .
    NO - Faulty driver's airbag; replace the driver's airbag. ■
12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.

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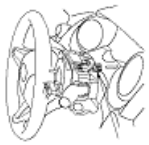
14. Remove the column cover , then disconnect the dashboard wire harness 4P connector (A) from the cable reel.



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15. Install a jumper wire between the No. 2 [No. 4] and the No. 3 terminals of the dashboard wire harness 4P connector.
    [ ]: KG model

16. Reconnect the negative cable to the battery.
17. Read the DTC.

    Is DTC 11-1x or 11-2x indicated?
    YES - Go to Step 18 .
    NO - Open or increased resistance in the cable reel; replace the cable reel. ■
18. Turn the ignition switch to LOCK (0).
19. Disconnect the negative cable from the battery, then wait at least 3 minutes.
20. Remove a jumper wire from the dashboard wire harness 4P connector.
21. Disconnect SRS unit connector A (39P) from the SRS unit.

---

22. Install a jumper wire between the No. 3 and the No. 4 terminals of SRS unit connector A (39P).

---

23. Measure the resistance between the No. 2 [No. 4] and the No. 3 terminals of the dashboard wire harness 4P connector. There should be less than 1.0 Ω.
[ ]: KG model

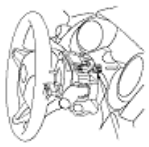
Is the resistance as specified?

YES - Faulty SRS unit or poor connection at SRS unit connector A (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit. ■

NO - Open or increased resistance in the dashboard wire harness; replace the dashboard wire harness.■

SRS DTC Troubleshooting: 11-3x

DTC 11-3x (‘‘x" can be 0 thru 9 or A thru F):
Short to Another Wire or Decreased Resistance in the Driver's Airbag First Inflator (LHD model)



Special Tools Required

SRS short canceller
070AZ-SAA0100
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures , General Troubleshooting Information , and Battery Terminal Disconnection/Reconnection.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

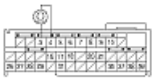
   Is DTC 11-3x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.■
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Disconnect the driver's airbag 4P connector from the cable reel.
7. Reconnect the negative cable to the battery.
8. Clear the DTC memory.
9. Turn the ignition switch to ON (II), then wait for 10 seconds.
10. Read the DTC.

    Is DTC 11-3x indicated?
    YES - Go to Step 11 .
    NO - Faulty driver's airbag; replace the driver's airbag. ■
11. Turn the ignition switch to LOCK (0).
12. Disconnect the negative cable from the battery, then wait at least 3 minutes.
13. Remove the column cover , then disconnect the dashboard wire harness 4P connector (A) from the cable reel.
14. Reconnect the negative cable to the battery.
15. Clear the DTC memory.
16. Turn the ignition switch to ON (II), then wait for 10 seconds.
17. Read the DTC.

    Is DTC 11-3x indicated?
    YES - Go to Step 18 .
    NO - Short in the cable reel; replace the cable reel. ■
18. Turn the ignition switch to LOCK (0).
19. Disconnect the negative cable from the battery, then wait at least 3 minutes.
20. Disconnect SRS unit connector A (39P) from the SRS unit.
21. Connect an SRS short canceller (070AZ-SAA0100) to the No. 3 and the No. 4 terminals of the SRS unit connector A (39P).

---

22. Measure the resistance between the No. 3 and the No. 4 terminals of SRS unit connector A (39P). There should be less than 1.0 Ω.



    Is the resistance as specified?
    YES - Short in the dashboard wire harness; replace the dashboard wire harness.■
    NO - Faulty SRS unit; replace the SRS unit. ■

SRS DTC Troubleshooting: 11-4x, 11-5x

DTC 11-4x ("x" can be 0, 2 thru 9 or A thru F):
Open in the Driver's Airbag Second Inflator (LHD model)
DTC 11-5x ("x" can be 0, 2 thru 9 or A thru F):
Increased Resistance in the Driver's Airbag Second Inflator (LHD model)
NOTE:

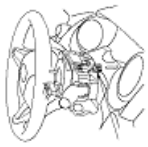
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures , General Troubleshooting Information , and Battery Terminal Disconnection/Reconnection.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 11-4x or 11-5x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.■
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Disconnect the driver's airbag 4P connector from the cable reel.
7. Install a jumper wire between the No. 1 and the No. 2 terminals of the cable reel 4P connector.
8. Reconnect the negative cable to the battery.
9. Read the DTC.

   Is DTC 11-4x or 11-5x indicated?
   YES - Go to Step 10 .
   NO - Faulty driver's airbag; replace the driver's airbag. ■
10. Turn the ignition switch to LOCK (0).
11. Disconnect the negative cable from the battery, then wait at least 3 minutes.

12. Remove the column cover , then disconnect the dashboard wire harness 4P connector (A) from the cable reel.



13. Install a jumper wire between the No. 1 and the No. 2 terminals of the dashboard wire harness 4P connector.
14. Reconnect the negative cable to the battery.

15. Read the DTC.

    Is DTC 11-4x or 11-5x indicated?
    YES - Go to Step 16 .
    NO - Open in the cable reel; replace the cable reel. ■
16. Turn the ignition switch to LOCK (0).
17. Remove the jumper wire from the dashboard wire harness 4P connector.
18. Disconnect the negative cable from the battery, then wait at least 3 minutes.
19. Disconnect SRS unit connector A (39P) from the SRS unit.

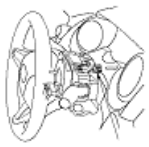
20. Install a jumper wire between the No. 7 and the No. 8 terminals of SRS unit connector A (39P).

21. Check for continuity between the No. 1 and the No. 2 terminals of the dashboard wire harness 4P connector.

    Is there continuity?
    YES - Faulty SRS unit or poor connection at SRS unit connector A (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit. ■
    NO - Open in the dashboard wire harness; replace the dashboard wire harness.■

SRS DTC Troubleshooting: 11-6x

DTC 11-6x ("x" can be 0 thru 9 or A thru F):
Short to Another Wire or Decreased Resistance in the Driver's Airbag Second Inflator (LHD model)



Special Tools Required

SRS short canceller
070AZ-SAA0100
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures , General Troubleshooting Information , and Battery Terminal Disconnection/Reconnection.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 11-6x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.■
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Disconnect the driver's airbag 4P connector from the cable reel.
7. Read the DTC.

   Is DTC 11-6x indicated?
   YES - Go to Step 8 .
   NO - Faulty driver's airbag; replace the driver's airbag. ■
8. Turn the ignition switch to LOCK (0).
9. Disconnect the negative cable from the battery, then wait at least 3 minutes.
10. Remove the column cover , then disconnect the dashboard wire harness 4P connector (A) from the cable reel.
11. Read the DTC.

    Is DTC 11-6x indicated?
    YES - Go to Step 12 .
    NO - Short in the cable reel; replace the cable reel. ■
12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector A (39P) from the SRS unit.
15. Connect an SRS short canceller (070AZ-SAA0100) to No. 7 and the No. 8 terminals of the SRS unit connector A (39P).

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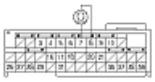
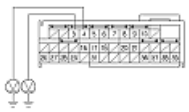
16. Measure the resistance between the No. 7 and the No. 8 terminals of the SRS unit connector A (39P). There should be less than 1.0 Ω.



    Is the resistance as specified?
    YES - Short in the dashboard wire harness; replace the dashboard wire harness.■
    NO - Faulty SRS unit; replace the SRS unit. ■

SRS DTC Troubleshooting: 11-8x

DTC 11-8x (“x" can be 0 thru 9 or A thru F):
Short to Power in the Driver's Airbag First Inflator (LHD model)



Special Tools Required

SRS short canceller
070AZ-SAA0100
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures , General Troubleshooting Information , and Battery Terminal Disconnection/Reconnection.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 11-8x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Disconnect SRS unit connector A (39P) from the SRS unit.
7. Connect an SRS short canceller (070AZ-SAA0100) to the No. 3 and the No. 4 terminals of SRS unit connector A (39P).
8. Reconnect the negative cable to the battery.
9. Turn the ignition switch to ON (II), then wait for 10 seconds.
10. Measure the voltage between the No. 3 and the No. 4 terminals of SRS unit connector A (39P) and body ground. There should be less than 1.0 V.

    Is the voltage as specified?
    YES - Faulty SRS unit; replace the SRS unit. ■
    NO - Go to Step 11 .
11. Turn the ignition switch to LOCK (0).
12. Disconnect the negative cable from the battery, then wait at least 3 minutes.
13. Disconnect the driver's airbag 4P connector from the cable reel.
14. Reconnect the negative cable to the battery.
15. Turn the ignition switch to ON (II), then wait for 10 seconds.

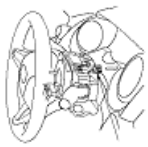
---

16. Measure the voltage between the No. 3 and the No. 4 terminals of SRS unit connector A (39P) and body ground. There should be less than 1.0 V.

    Is the voltage as specified?
    YES - Faulty driver's airbag; replace the driver's airbag. ■
    NO - Go to Step 17 .
17. Turn the ignition switch to LOCK (0).
18. Disconnect the negative cable from the battery, then wait at least 3 minutes.

---

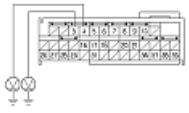
19. Remove the column cover , then disconnect the dashboard wire harness 4P connector (A) from the cable reel.



20. Reconnect the negative cable to the battery.
21. Turn the ignition switch to ON (II), then wait for 10 seconds.

---

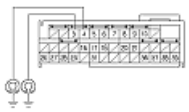
22. Measure the voltage between the No. 3 and the No. 4 terminals of SRS unit connector A (39P) and body ground. There should be less than 1.0 V.



    Is the voltage as specified?
    YES - Short to power in the cable reel; replace the cable reel. ■
    NO - Short to power in the dashboard wire harness; replace the dashboard wire harness.■

SRS DTC Troubleshooting: 11-9x

DTC 11-9x (‘‘x" can be 0 thru 9 or A thru F):
Short to Ground in the Driver's Airbag First Inflator (LHD model)
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 11-9x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.■
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Disconnect SRS unit connector A (39P) from the SRS unit.
7. Measure the resistance between the No. 3 and the No. 4 terminals of SRS unit connector A (39P) and body ground. There should be less than 1.0 Ω.

   Is the resistance as specified?
   YES - Go to Step 8 .
   NO - Faulty SRS unit; replace the SRS unit. ■
8. Disconnect the driver's airbag 4P connector from the cable reel.

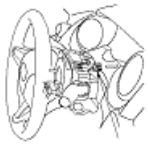
---

9. Measure the resistance between the No. 3 and the No. 4 terminals of SRS unit connector A (39P) and body ground. There should be less than 1.0 Ω.

   Is the resistance as specified?
   YES - Go to Step 10 .
   NO - Faulty driver's airbag; replace the driver's airbag. ■

---

10. Remove the column cover , then disconnect the dashboard wire harness 4P connector (A) from the cable reel.



---

11. Measure the resistance between the No. 3 and the No. 4 terminals of SRS unit connector A (39P) and body ground. There should be less than 1.0 Ω.

    Is the resistance as specified?
    YES - Short to ground in the dashboard wire harness: replace the dashboard wire harness.■
    NO - Short to ground in the cable reel; replace the cable reel. ■

SRS DTC Troubleshooting: 11-Ax

DTC 11-Ax (‘‘x" can be 0 thru 9 or A thru F):
Short to Power in the Driver's Airbag Second Inflator (LHD model)

Special Tools Required

SRS short canceller
070AZ-SAA0100
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures , General Troubleshooting Information , and Battery Terminal Disconnection/Reconnection.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 11-Ax indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.■
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Disconnect SRS unit connector A (39P) from the SRS unit.
7. Connect an SRS short canceller (070AZ-SAA0100) to the No. 7 and the No. 8 terminals of SRS unit connector A (39P).
8. Reconnect the negative cable to the battery.
9. Turn the ignition switch to ON (II), then wait for 10 seconds.
10. Measure the voltage between the No. 7 and the No. 8 terminals of the SRS unit connector A (39P) and body ground. There should be less than 1.0 V.

    Is the voltage as specified?
    YES - Faulty SRS unit; replace the SRS unit. ■
    NO - Go to Step 11 .
11. Turn the ignition switch to LOCK (0).
12. Disconnect the negative cable from the battery, then wait at least 3 minutes.
13. Disconnect the driver's airbag 4P connector from the cable reel.
14. Reconnect the negative cable to the battery.
15. Turn the ignition switch to ON (II), then wait for 10 seconds.

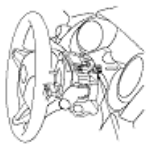
---

16. Measure the voltage between the No. 7 and the No. 8 terminals of SRS unit connector A (39P) and body ground. There should be less than 1.0 V.

    Is the voltage as specified?
    YES - Faulty driver's airbag; replace the driver's airbag. ■
    NO - Go to Step 17 .
17. Turn the ignition switch to LOCK (0).
18. Disconnect the negative cable from the battery, then wait at least 3 minutes.

---

19. Remove the column cover , then disconnect the dashboard wire harness 4P connector (A) from the cable reel.



20. Reconnect the negative cable to the battery.
21. Turn the ignition switch to ON (II), then wait for 10 seconds.

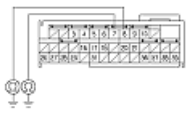
---

22. Measure the voltage between the No. 7 and the No. 8 terminals of SRS unit connector A (39P) and body ground. There should be less than 1.0 V.

    Is the voltage as specified?
    YES - Short to power in the cable reel; replace the cable reel. ■
    NO - Short to power in the dashboard wire harness; replace the dashboard wire harness.■

SRS DTC Troubleshooting: 11-Bx

DTC 11-Bx (‘‘x" can be 0 thru 9 or A thru F):
Short to Ground in the Driver's Airbag Second Inflator (LHD model)
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 11-Bx indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.■
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Disconnect SRS unit connector A (39P) from the SRS unit.
7. Check for continuity between the No. 7 and the No. 8 terminals of SRS unit connector A (39P) and body ground.

   Is there continuity?
   YES - Go to Step 8 .
   NO - Faulty SRS unit; replace the SRS unit. ■
8. Disconnect the driver's airbag 4P connector from the cable reel.

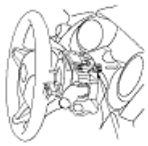
---

9. Check for continuity between the No. 7 and the No. 8 terminals of SRS unit connector A (39P) and body ground.

   Is there continuity?
   YES - Go to Step 10 .
   NO - Faulty driver's airbag; replace the driver's airbag. ■

---

10. Remove the column cover , then disconnect the dashboard wire harness 4P connector (A) from the cable reel.



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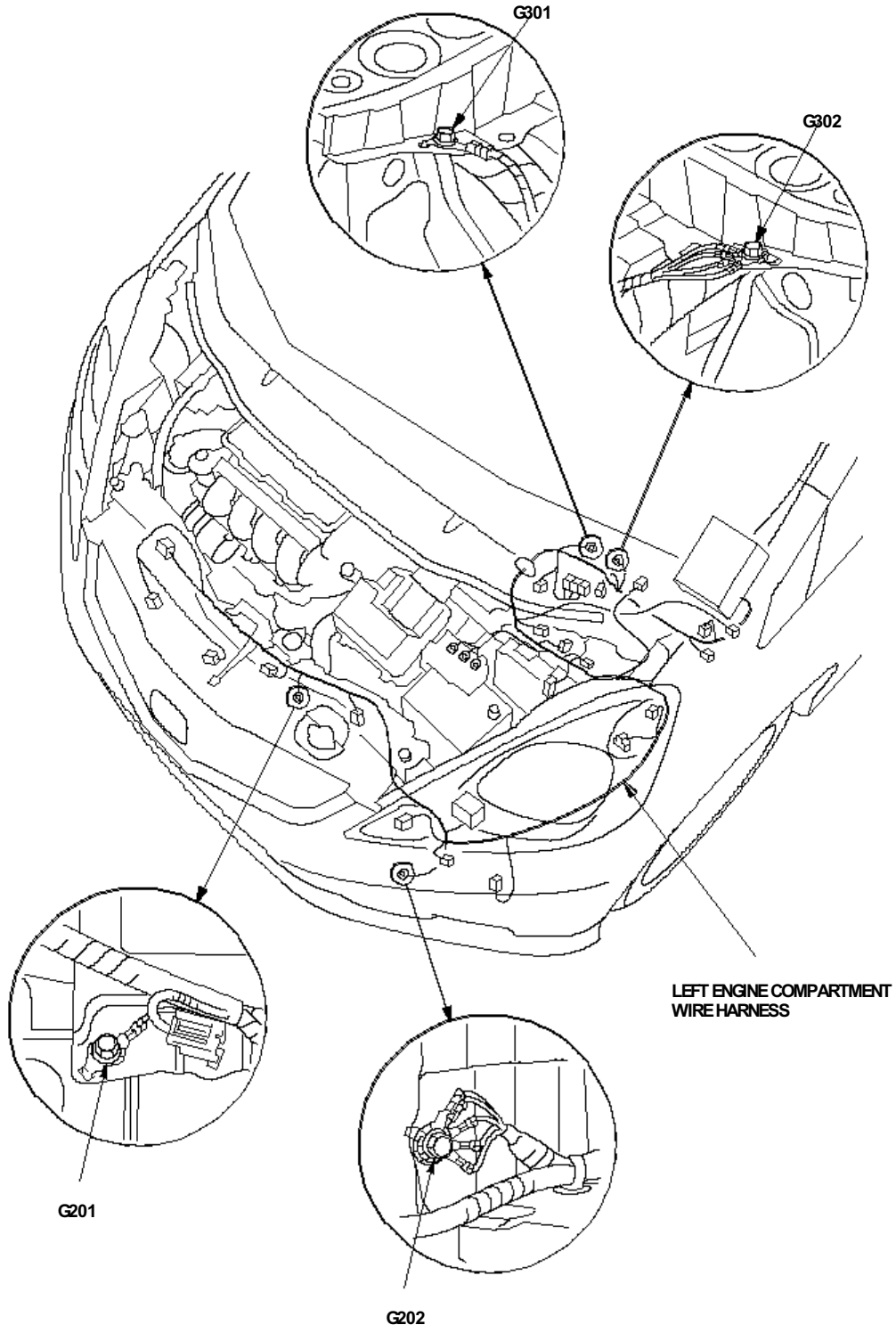
11. Check for continuity between the No. 7 and the No. 8 terminals of SRS unit connector A (39P) and body ground.

    Is there continuity?
    YES - Short to ground in the dashboard wire harness: replace the dashboard wire harness.■
    NO - Short to ground in the cable reel; replace the cable reel. ■

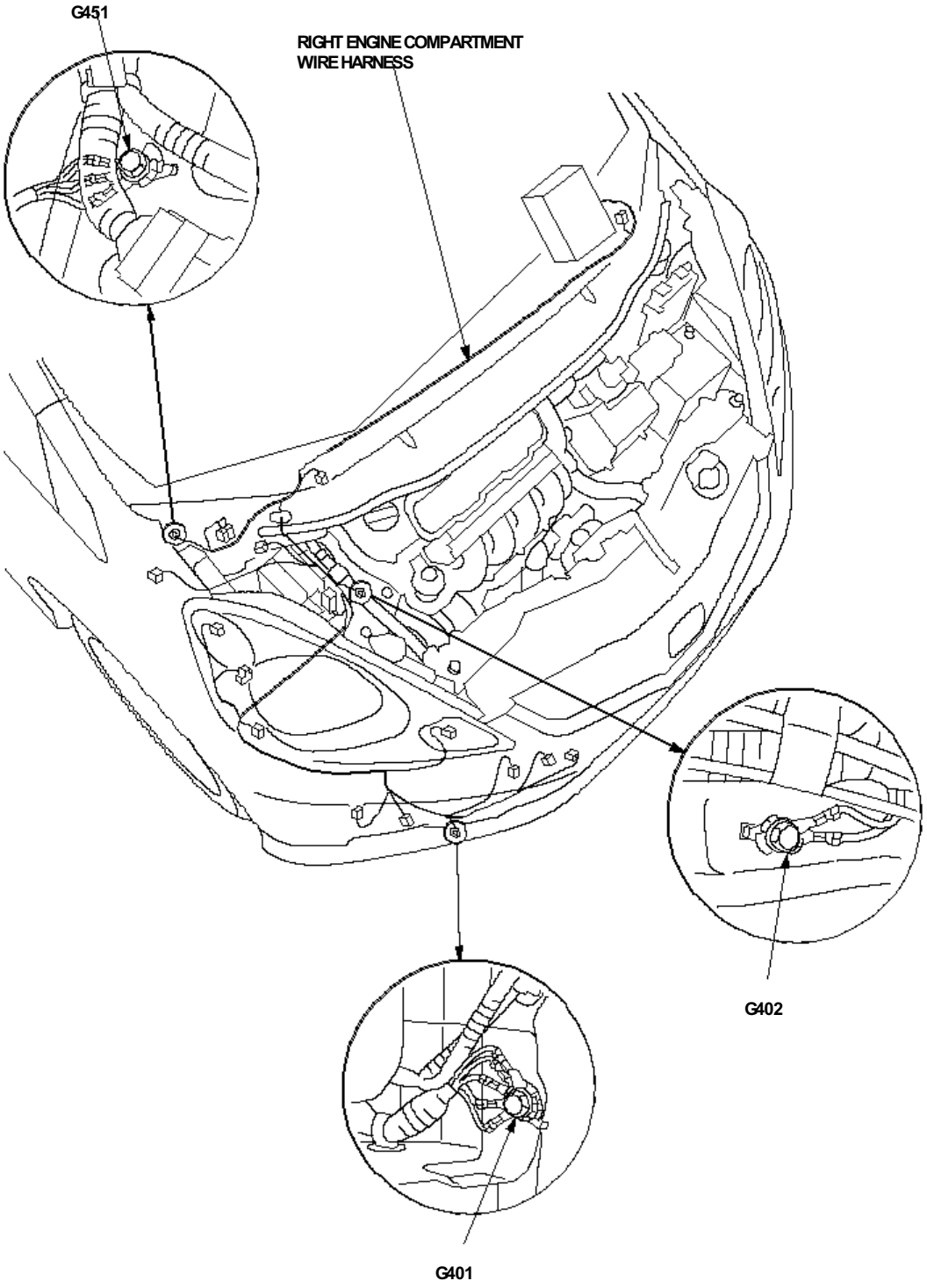
Left Engine Compartment Wire Harness Locations

LHD model



Right Engine Compartment Wire Harness Locations

LHD model



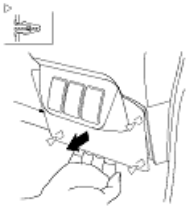
Dashboard Fuse Lid Panel Removal/Installation

RHD Model

NOTE:

- Take care not to scratch the dashboard and its related parts.
- When removing components, use the trim tools or equivalent.

1. Pull out the fuse lid panel (A) to detach the clips.



2. Gently pull down the bottom edge of the fuse lid panel (A) to detach the hooks (B).

3. Install the panel in the reverse order of removal, and note these items:
    - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
    - Push the clips and the hooks into place securely.

Dashboard Driver's Lower Cover Removal/Installation

RHD Model

NOTE:

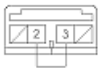
- Take care not to scratch the dashboard and its related parts.
- When removing components, use the trim tools or equivalent.

1. Remove the driver's dashboard lower cover (A).
   -1. Use the trim tool to pry the bottom side of the panel partially out.
   -2. Pry the front bottom of the panel slightly toward you and release the clips and the hooks (B).

2. Install the lower cover in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips and the hooks into place securely.

SRS DTC Troubleshooting: 11-1x, 11-2x

DTC 11-1x ("x" can be 0 thru 9 or A thru F):
Open in the Front Passenger's Airbag Inflator (RHD model)
DTC 11-2x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in the Front Passenger's Airbag Inflator (RHD model)
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 11-1x or 11-2x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect the dashboard wire harness 4P connector from the front passenger's airbag.
7. Install a jumper wire between the No. 2 and the No. 3 terminals of the dashboard wire harness 4P connector.
8. Do the battery terminal reconnection procedure.
9. Clear the DTC memory.
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Read the DTC.

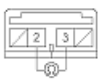
    Is DTC 11-1x or 11-2x indicated?
    YES - Go to Step 12 .
    NO - Faulty front passenger's airbag; replace the front passenger's airbag. ■
12. Turn the ignition switch to LOCK (0).
13. Do the battery terminal disconnection procedure , then wait for 3 minutes.
14. Remove a jumper wire from the dashboard wire harness 4P connector.
15. Disconnect SRS unit connector A (39P) from the SRS unit.

---

16. Install a jumper wire between the No. 3 and the No. 4 terminals of SRS unit connector A (39P).

---

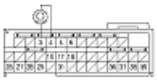
17. Check for continuity between the No. 2 and the No. 3 terminals of the dashboard wire harness 4P connector.



    Is there continuity?
    YES - Faulty SRS unit or poor connection at SRS unit connector A (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit. ■
    NO - Open or increased resistance in the dashboard wire harness; replace the dashboard wire harness.■

SRS DTC Troubleshooting: 11-3x

DTC 11-3x (‘‘x" can be 0 thru 9 or A thru F):
Short to Another Wire or Decreased Resistance in the Front Passenger's Airbag Inflator (RHD model)
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 11-3x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect the dashboard wire harness 4P connector from the front passenger's airbag.
7. Clear the DTC memory.
8. Turn the ignition switch to ON (II), then wait for 10 seconds.
9. Read the DTC.

   Is DTC 11-3x indicated?
   YES - Go to Step 10 .
   NO - Faulty front passenger's airbag; replace the front passenger's airbag. ■
10. Turn the ignition switch to LOCK (0).
11. Do the battery terminal disconnection procedure , then wait for 3 minutes.
12. Disconnect SRS unit connector A (39P) from the SRS unit.
13. Connect an SRS short canceller (070AZ-SAA0100) to No. 3 and No. 4 terminals of the SRS unit connector A (39P).
14. Measure the resistance between the No. 3 and No. 4 terminal of the SRS unit connector A (39P). There should be 0−1.0 Ω.

    Is the resistance as specified?
    YES - Short in the dashboard wire harness; replace the dashboard wire harness.■
    NO - Faulty SRS unit; replace the SRS unit. ■

SRS DTC Troubleshooting: 11-8x

DTC 11-8x (‘‘x" can be 0 thru 9 or A thru F):
Short to Power in the Front Passenger's Airbag Inflator (RHD model)
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 11-8x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect SRS unit connector A (39P) from the SRS unit.
7. Connect an SRS short canceller (070AZ-SAA0100) to the No. 3 and the No. 4 terminals of the SRS unit connector A (39P).
8. Do the battery terminal reconnection procedure.
9. Turn the ignition switch to ON (II), then wait for 10 seconds.
10. Measure the voltage between the No. 3 and the No. 4 terminals of the SRS unit connector A (39P) and body ground. There should be less than 1 V.

    Is the voltage as specified?
    YES - Faulty SRS unit; replace the SRS unit. ■
    NO - Go to Step 11 .
11. Turn the ignition switch to LOCK (0).
12. Do the battery terminal disconnection procedure , then wait for 3 minutes.
13. Disconnect the dashboard wire harness 4P connector from the cable reel.
14. Do the battery terminal reconnection procedure.
15. Turn the ignition switch to ON (II), then wait for 10 seconds.

---

16. Measure the voltage between the No. 3 and the No. 4 terminals of SRS unit connector A (39P) and body ground. There should be less than 1 V.

    Is the voltage as specified?
    YES - Faulty front passenger's airbag; replace the front passenger's airbag. ■
    NO - Short to power in the dashboard wire harness; replace the dashboard wire harness.■

SRS DTC Troubleshooting: 11-9x

DTC 11-9x (‘‘x" can be 0 thru 9 or A thru F):
Short to Ground in the Front Passenger's Airbag Inflator (RHD model)
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 11-9x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect SRS unit connector A (39P) from the SRS unit.
7. Check for continuity between the No. 3 and the No. 4 terminals of SRS unit connector A (39P) and body ground.

   Is there continuity?
   YES - Go to Step 8 .
   NO - Faulty SRS unit; replace the SRS unit. ■
8. Disconnect the dashboard wire harness 4P connector from the front passenger's airbag.

---

9. Check for continuity between the No. 3 and the No. 4 terminals of SRS unit connector A (39P) and body ground.

   Is there continuity?
   YES - Short to ground in the dashboard wire harness; replace the dashboard wire harness.■
   NO - Faulty front passenger's airbag; replace the front passenger's airbag. ■

SRS DTC Troubleshooting: Fx-11

DTC Fx-11 ("x" can be 0 thru 9 or A thru F):
Airbags and/or Tensioners Deployment Recorded
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Refer to the DTCs shown:
  - DTC F1-11: Driver's airbag and/or driver's seat belt tensioner deployed.
  - DTC F2-11: Front passenger's airbag and/or front passenger's seat belt tensioner deployed.
  - DTC F3-11: Driver's side airbag, left side curtain airbag, and/or driver's seat belt tensioner deployed.
  - DTC F4-11: Front passenger's side airbag, right side curtain airbag, and/or front seat belt tensioner deployed.

When any airbags or tensioners have deployed, go to Component Replacement/Inspection After Deployment. ■

ECM/PCM Circuit Diagram (cont'd)

RHD model

ROCKER ARM OIL CONTROL SOLENOID (1)

24P JUNCTION CONNECTOR (2) (A/T)

12P JUNCTION CONNECTOR (2) (M/T)

MAP SENSOR (3)

No. 1 INJECTOR (1)

No. 2 INJECTOR (2)

No. 3 INJECTOR (3)

No. 4 INJECTOR (4)

A/F SENSOR (SENSOR 1) (5)

SECONDARY HO2S (SENSOR 2) (6)

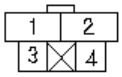
EPS CONTROL UNIT (1)

16P CONNECTOR (2)

PADDLE SHIFTER– (DOWNSHIFT SWITCH) (3) (A/T with paddle shifter model)

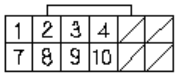
12P JUNCTION CONNECTOR (4)

BRAKE PEDAL POSITION SWITCH (1)

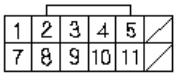


CLUTCH PEDAL POSITION SWITCH (2) (M/T)

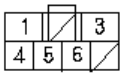
12P JUNCTION CONNECTOR (3)



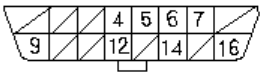
12P JUNCTION CONNECTOR (3)



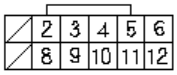
IGNITION SWITCH (5)



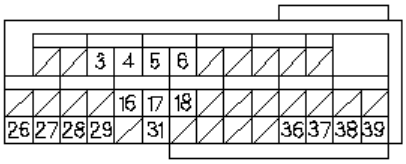
DATA LINK CONNECTOR (6)*



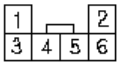
12P JUNCTION CONNECTOR (3)



SRS UNIT A (8)

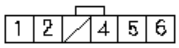


SHIFT LOCK SOLENOID (9) (A/T)

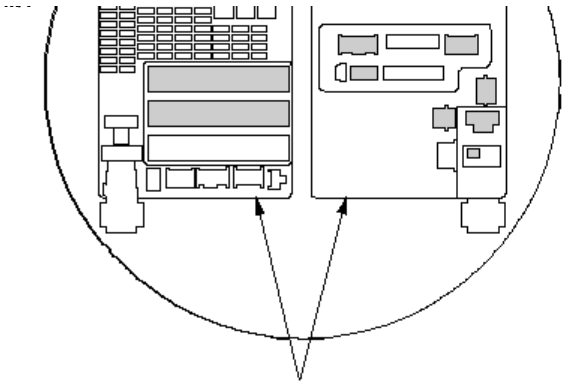


FUEL PUMP (10)

TEMPERATURE CONTROL DIAL (11) (KZ model)



NOTE:
· Connector with male terminals (double outline): view from terminal side
· Connector with female terminals (single outline): view from wire side
*: Connector with female terminals (single outline): view from terminal side



UNDER-DASH FUSE/RELAY BOX

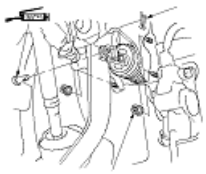
NOTE:
· Connector with male terminals (double outline): view from terminal side
· Connector with female terminals (single outline): view from wire side
*: Connector with female terminals (single outline): view from terminal side

Brake Booster Replacement

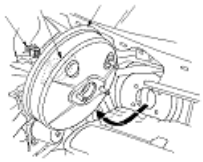
RHD Model

1. Remove the front wiper arms.
2. Remove the cowl cover and hood hinge covers.
3. Remove the wiper linkage assembly.
4. Remove the under cowl panel.
5. Remove the master cylinder.
6. Disconnect the brake booster vacuum hose (A) from the brake booster.

7. Disconnect the brake lines (A) from the ABS modulator-control unit (B).
8. Remove the driver's dashboard undercover.



9. Remove the lock pin (A) and the joint pin (B), then disconnect the yoke from the brake pedal.
10. Remove the brake booster mounting nuts (C).



11. Pull the brake booster (A) forward, then rotate it so the yoke (B) toward the driver's side.

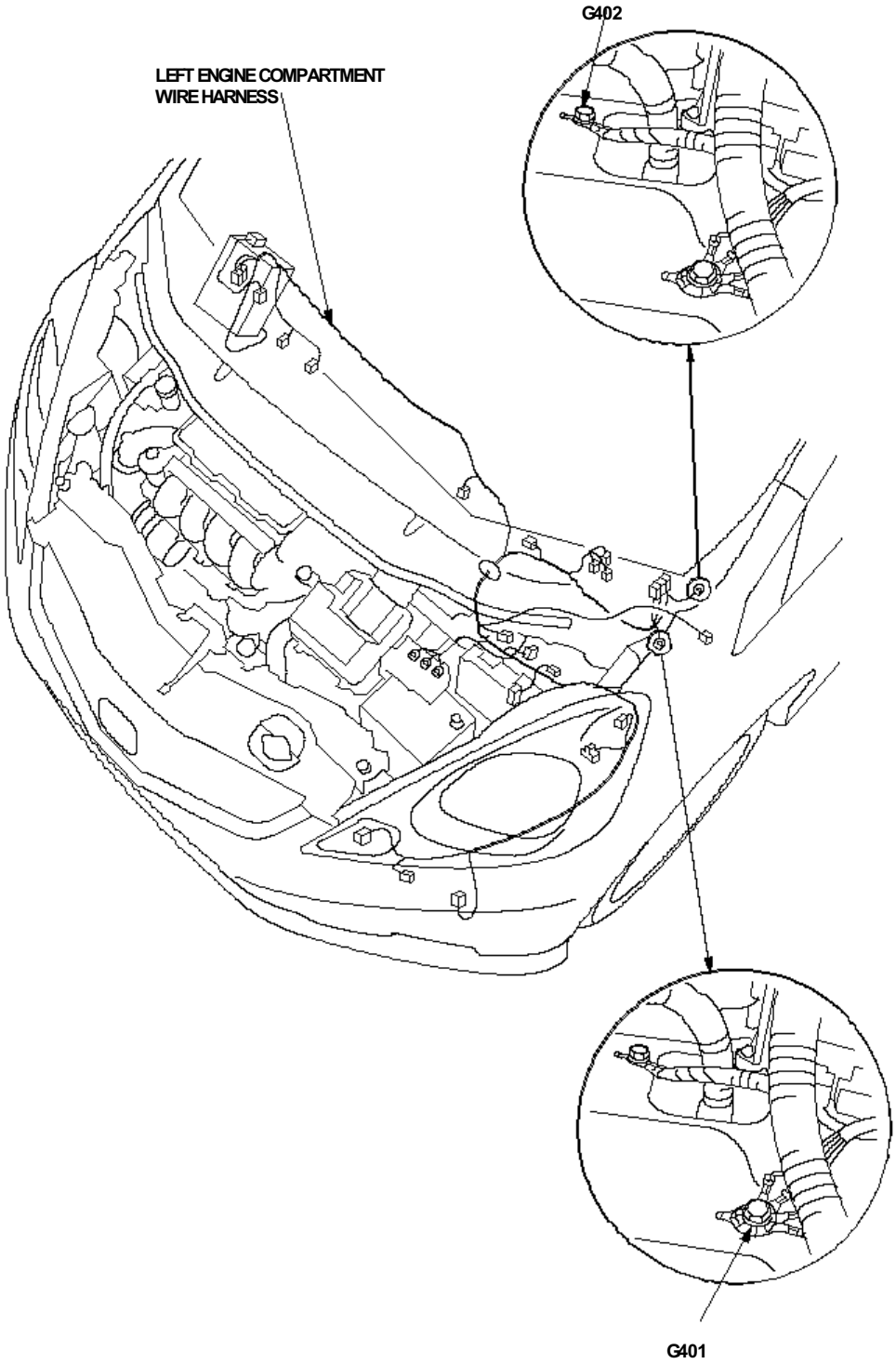
NOTICE

- Be careful not to damage the booster surfaces and threads of the booster stud bolts.
- Be careful not to bend or damage the brake lines or other components hoses and lines.

12. Remove the brake booster from the engine compartment.
    NOTE: Use new booster gasket (C) reassembly.
13. Install the brake booster in the reverse order of removal, and note these items:
    - Install the master cylinder after installing the brake booster.
    - Check the brake pedal height and free play after installing the master cylinder, and adjust it if necessary.
    - Bleed the brake system.

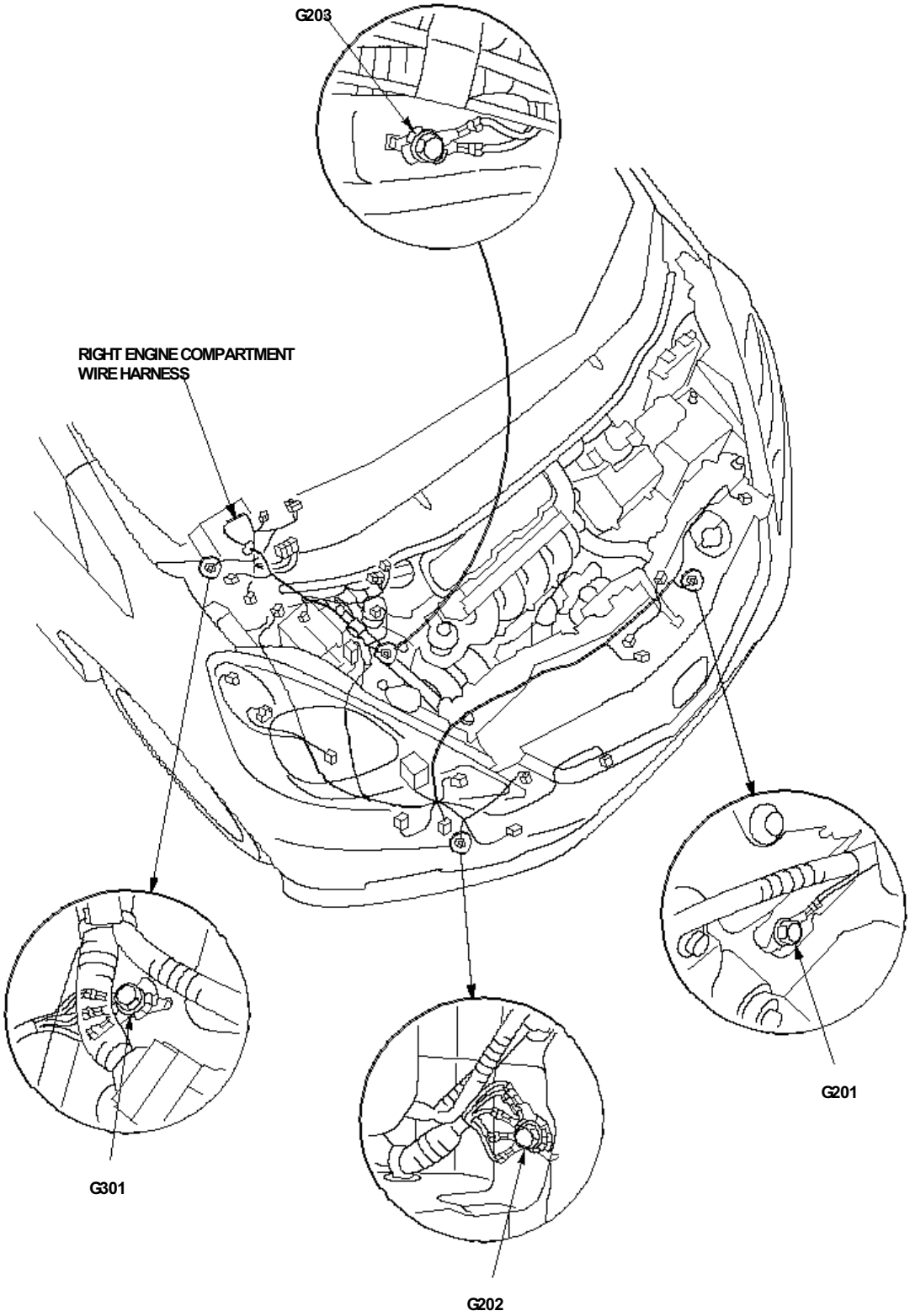
Left Engine Compartment Wire Harness Locations

RHD model



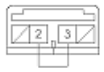
Right Engine Compartment Wire Harness Locations

RHD model



SRS DTC Troubleshooting: 12-1x, 12-2x

DTC 12-1x ("x" can be 0 thru 9 or A thru F):
Open in the Driver's Airbag Inflator (RHD model)
DTC 12-2x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in the Driver's Airbag Inflator (RHD model)
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

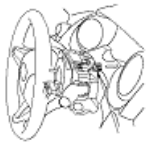
1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 12-1x or 12-2x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect the driver's airbag 4P connector from the cable reel.
7. Install a jumper wire between the No. 2 and No. 3 terminals of the cable reel 4P connector.
8. Do the battery terminal reconnection procedure.
9. Clear the DTC memory.
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Read the DTC.

    Are DTC 12-1x or 12-2x indicated?
    YES - Go to Step 12 .
    NO - Faulty driver's airbag; replace the driver's airbag. ■
12. Turn the ignition switch to LOCK (0).
13. Do the battery terminal disconnection procedure , then wait for 3 minutes.

---

14. Remove the column cover , then disconnect the dashboard wire harness 4P connector (A) from the cable reel.



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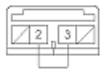
15. Install a jumper wire between the No. 2 and the No. 3 terminals of the dashboard wire harness 4P connector.
16. Do the battery terminal reconnection procedure.



17. Read the DTC.

    Is DTC 12-1x or 12-2x indicated?
    YES - Go to Step 18 .
    NO - Open or increased resistance in the cable reel; replace the cable reel. ■
18. Turn the ignition switch to LOCK (0).
19. Do the battery terminal disconnection procedure , then wait for 3 minutes.
20. Remove a jumper wire from the dashboard wire harness 4P connector.
21. Disconnect SRS unit connector A (39P) from the SRS unit.

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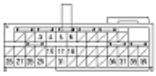
22. Install a jumper wire between the No. 5 and the No. 6 terminals of SRS unit connector A (39P).



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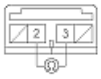
23. Measure the resistance between the No. 2 and the No. 3 terminals of the dashboard wire harness 4P connector. There should be 0−1.0 Ω.



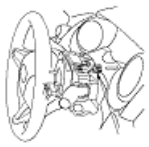
Is the resistance as specified?

YES - Faulty SRS unit or poor connection at SRS unit connector A (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit. ■

NO - Open or increased resistance in the dashboard wire harness; replace the dashboard wire harness.■

SRS DTC Troubleshooting: 12-3x

DTC 12-3x (‘‘x" can be 0 thru 9 or A thru F):
Short to Another Wire or Decreased Resistance in the Driver's Airbag Inflator (RHD model)
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

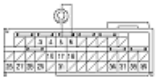
   Is DTC 12-3x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect the driver's airbag 4P connector from the cable reel.
7. Do the battery terminal reconnection procedure.
8. Clear the DTC memory.
9. Turn the ignition switch to ON (II), then wait for 10 seconds.
10. Read the DTC.

    Is DTC 12-3x indicated?
    YES - Go to Step 11 .
    NO - Faulty driver's airbag; replace the driver's airbag. ■
11. Turn the ignition switch to LOCK (0).
12. Do the battery terminal disconnection procedure , then wait for 3 minutes.
13. Remove the column cover , then disconnect the dashboard wire harness 4P connector (A) from the cable reel.
14. Do the battery terminal reconnection procedure.
15. Clear the DTC memory.
16. Turn the ignition switch to ON (II), then wait for 10 seconds.
17. Read the DTC.

    Is DTC 12-3x indicated?
    YES - Go to Step 18 .
    NO - Short in the cable reel; replace the cable reel. ■
18. Turn the ignition switch to LOCK (0).
19. Do the battery terminal disconnection procedure , then wait for 3 minutes.
20. Disconnect SRS unit connector A (39P) from the SRS unit.
21. Connect an SRS short canceller (070AZ-SAA0100) to No. 5 and the No. 6 terminals of the SRS unit connector A (39P).

---

22. Measure the resistance between the No. 5 and the No. 6 terminals of the SRS unit connector A (39P). There should be 0−1.0 Ω.



    Is the resistance as specified?
    YES - Short in the dashboard wire harness; replace the dashboard wire harness.■
    NO - Faulty SRS unit; replace the SRS unit. ■

SRS DTC Troubleshooting: 12-8x

DTC 12-8x (“x" can be 0 thru 9 or A thru F):
Short to Power in the Driver's Airbag Inflator (RHD model)
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 12-8x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal reconnection procedure , then wait for 3 minutes.
6. Disconnect SRS unit connector A (39P) from the SRS unit.
7. Connect an SRS short canceller (070AZ-SAA0100) to the No. 5 and the No. 6 terminals of the SRS unit connector A (39P).
8. Do the battery terminal reconnection procedure.
9. Turn the ignition switch to ON (II), then wait for 10 seconds.
10. Measure the voltage between the No. 5 and the No. 6 terminals of the SRS unit connector A (39P) and body ground. There should be less than 1 V.

    Is the voltage as specified?
    YES - Faulty SRS unit; replace the SRS unit. ■
    NO - Go to Step 11 .
11. Turn the ignition switch to LOCK (0).
12. Do the battery terminal disconnection procedure , then wait for 3 minutes.
13. Disconnect the driver's airbag 4P connector from the cable reel.
14. Do the battery terminal reconnection procedure.
15. Turn the ignition switch to ON (II), then wait for 10 seconds.

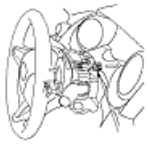
---

16. Measure the voltage between the No. 5 and the No. 6 terminals of SRS unit connector A (39P) and body ground. There should be less than 1 V.

    Is the voltage as specified?
    YES - Faulty driver's airbag; replace the driver's airbag. ■
    NO - Go to Step 17 .
17. Turn the ignition switch to LOCK (0).
18. Do the battery terminal disconnection procedure , then wait for 3 minutes.

---

19. Remove the column cover , then disconnect the dashboard wire harness 4P connector (A) from the cable reel.



20. Do the battery terminal reconnection procedure.
21. Turn the ignition switch to ON (II), then wait for 10 seconds.

---

22. Measure the voltage between the No. 5 and the No. 6 terminals of SRS unit connector A (39P) and body ground. There should be less than 1 V.

    Is the voltage as specified?
    YES - Short to power in the cable reel; replace the cable reel. ■
    NO - Short to power in the dashboard wire harness; replace the dashboard wire harness.■

SRS DTC Troubleshooting: 12-9x

DTC 12-9x (‘‘x" can be 0 thru 9 or A thru F):
Short to Ground in the Driver's Airbag Inflator (RHD model)
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 12-9x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect SRS unit connector A (39P) from the SRS unit.
7. Measure the resistance between the No. 5 and the No. 6 terminals of SRS unit connector A (39P) and body ground. There should be 0−1.0 Ω.

   Is the resistance as specified?
   YES - Go to Step 8 .
   NO - Faulty SRS unit; replace the SRS unit. ■
8. Disconnect the driver's airbag 4P connector from the cable reel.

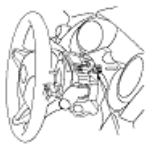
---

9. Measure the resistance between the No. 5 and the No. 6 terminals of SRS unit connector A (39P) and body ground. There should be 0−1.0 Ω.

   Is the resistance as specified?
   YES - Go to Step 10 .
   NO - Faulty driver's airbag; replace the driver's airbag. ■

---

10. Remove the column cover , then disconnect the dashboard wire harness 4P connector (A) from the cable reel.



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11. Measure the resistance between the No. 5 and the No. 6 terminals of SRS unit connector A (39P) and body ground. There should be 0−1.0 Ω.

    Is the resistance as specified?
    YES - Short to ground in the dashboard wire harness: replace the dashboard wire harness.■
    NO - Short to ground in the cable reel; replace the cable reel. ■

ECM/PCM Circuit Diagram (cont'd)

RHD model

ROCKER ARM OIL CONTROL SOLENOID (1)

12P JUNCTION CONNECTOR (2) (M/T, i-SHIFT System)

MAP SENSOR (3)

EVAP CANISTER PURGE VALVE (4)

24P JUNCTION CONNECTOR (1) (A/T)

10P CONNECTOR (2) (A/T)

OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR (3) (A/T)

2ND CLUTCH TRANSMISSION FLUID PRESSURE SWITCH (4) (A/T)

TRANSMISSION RANGE SWITCH (5) (A/T)

No. 1 IGNITION COIL (1)

No. 2 IGNITION COIL (2)

No. 3 IGNITION COIL (3)

No. 4 IGNITION COIL (4)

A/F SENSOR (SENSOR 1) (5)

SECONDARY HO2S (SENSOR 2) (6)

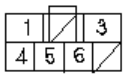
INERTIA SWITCH (1) (KE, KG models)

EPS CONTROL UNIT (2)

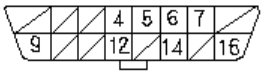
16P CONNECTOR (3)

PADDLE SHIFTER- (DOWNSHIFT SWITCH) (4) (A/T with paddle shifter model)

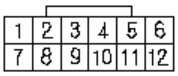
IGNITION SWITCH (1)



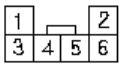
DATA LINK CONNECTOR (2)*



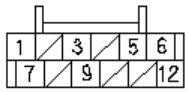
12P JUNCTION CONNECTOR (3)



SHIFT LOCK SOLENOID (4) (A/T)

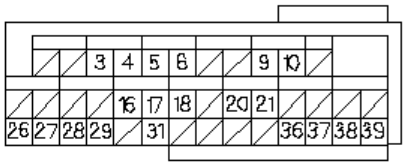


GEAR SHIFT CONTROL MODULE (5) (i-SHIFT System)

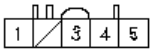


FUEL PUMP (6)

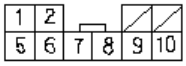
SRS UNIT A (7)



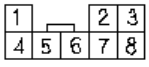
YAW RATE-LATERATERAL/ LONGITUDINAL ACCELERATION SENSOR (8) (With VSA)



UNDER-DASH FUSE/RELAY BOX (K) (9)



UNDER-DASH FUSE/RELAY BOX (N) (10)



UNDER-DASH FUSE/RELAY BOX (S) (11)

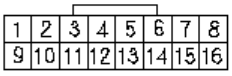
UNDER-DASH FUSE/RELAY BOX (T) (12)

ELD (13)

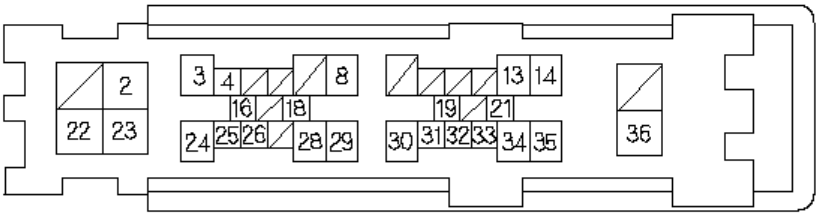
UNDER-DASH FUSE/RELAY BOX (X) (14)

UNDER-DASH FUSE/RELAY BOX (W) (15)

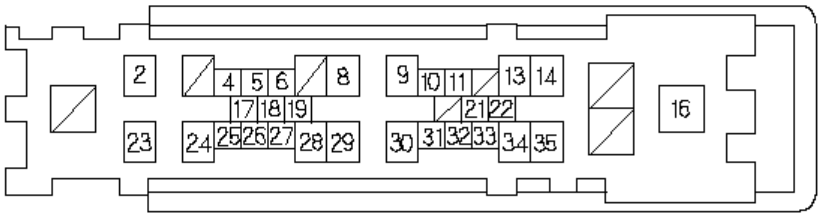
UNDER-DASH FUSE/RELAY BOX (Q) (16)



UNDER-DASH FUSE/RELAY BOX (A) (17)



UNDER-DASH FUSE/RELAY BOX (B) (18)



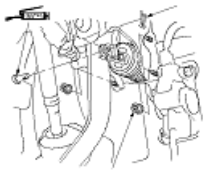
NOTE:
· Connector with male terminals (double outline): view from terminal side
· Connector with female terminals (single outline): view from wire side
*: Connector with female terminals (single outline): view from terminal side

Brake Booster Replacement

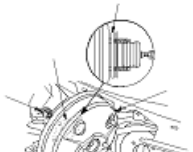
RHD Model

1. Remove the front wiper arms.
2. Remove the cowl cover and hood hinge covers.
3. Remove the wiper linkage assembly.
4. Remove the under cowl panel.
5. Remove the master cylinder.
6. Disconnect the brake booster vacuum hose (A) from the brake booster.

7. Disconnect the brake lines (A) from the ABS/VSA modulator-control unit (B).
8. Remove the driver's dashboard undercover.



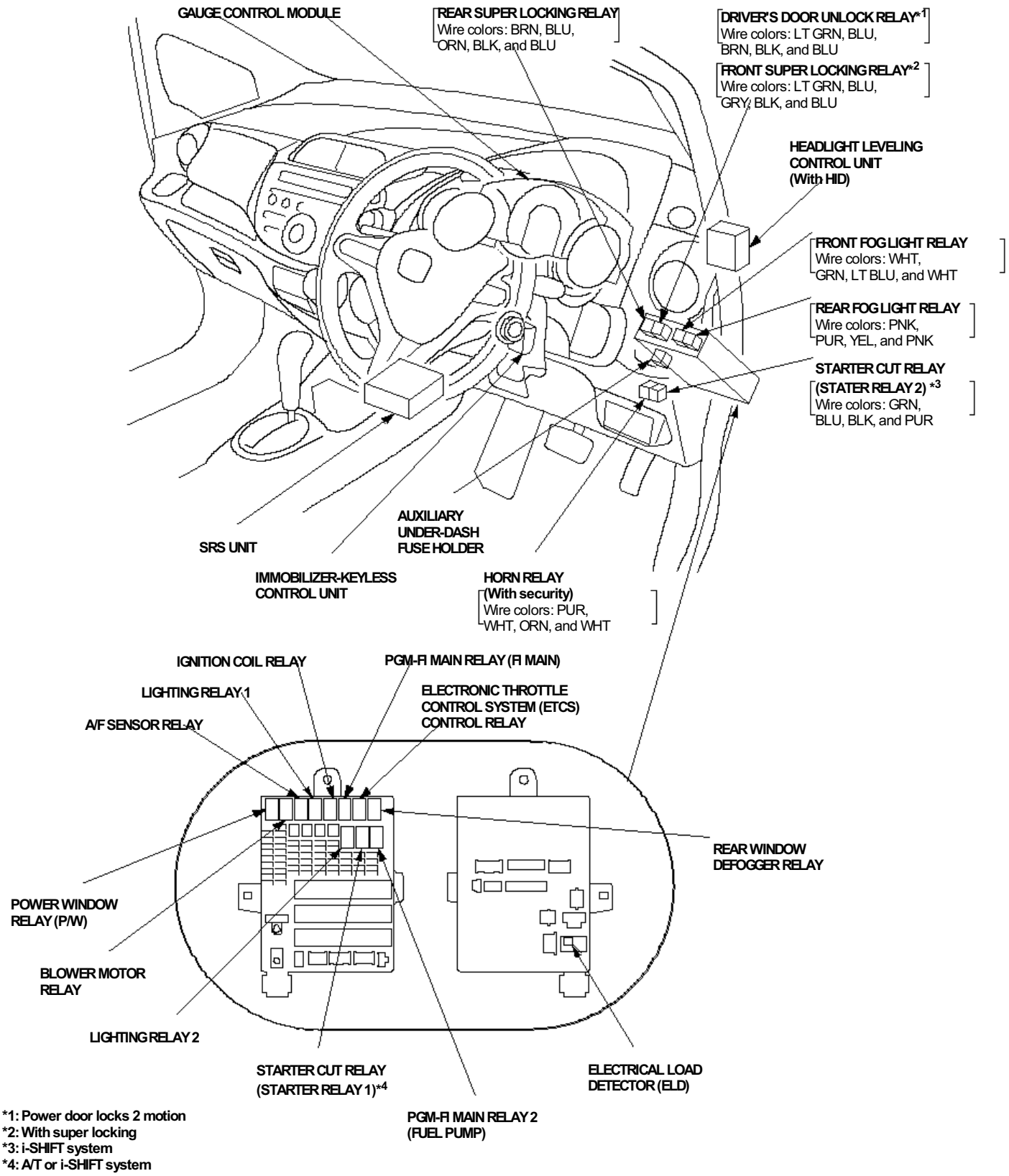
9. Remove the lock pin (A) and the joint pin (B), then disconnect the yoke from the brake pedal.
10. Remove the brake booster mounting nuts (C).



11. Pull the brake booster (A) forward, then rotate it so the yoke (B) toward the driver's side.
    NOTICE
    - Be careful not to damage the booster surfaces and threads of the booster stud bolts.
    - Be careful not to bend or damage the brake lines or other components hoses and lines.
12. Remove the brake booster from the engine compartment.
    NOTE:
    - Use new booster gasket (C) reassembly.
    - KE ABS model: Install the brake booster bracket (D) between brake booster and new gasket reassembly.
13. Install the brake booster in the reverse order of removal, and note these items:
    - Install the master cylinder after installing the brake booster.
    - Check the brake pedal height and free play after installing the master cylinder, and adjust it if necessary.
    - Bleed the brake system.
    - KE ABS model: Check the brake assist.

Relay and Control Unit Locations - Dashboard 1

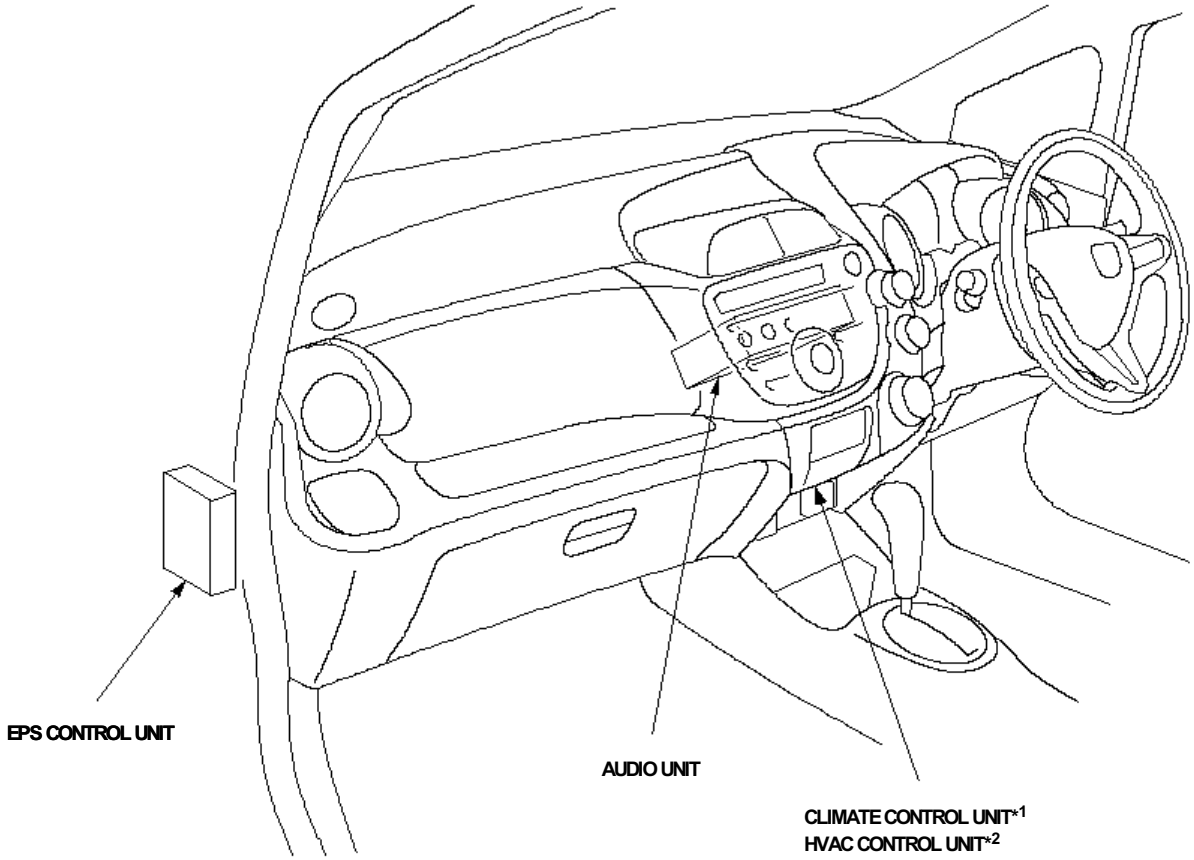
RHD model



*1: Power door locks 2 motion
*2: With super locking
*3: i-SHIFT system
*4: A/T or i-SHIFT system

Relay and Control Unit Locations - Dashboard 2

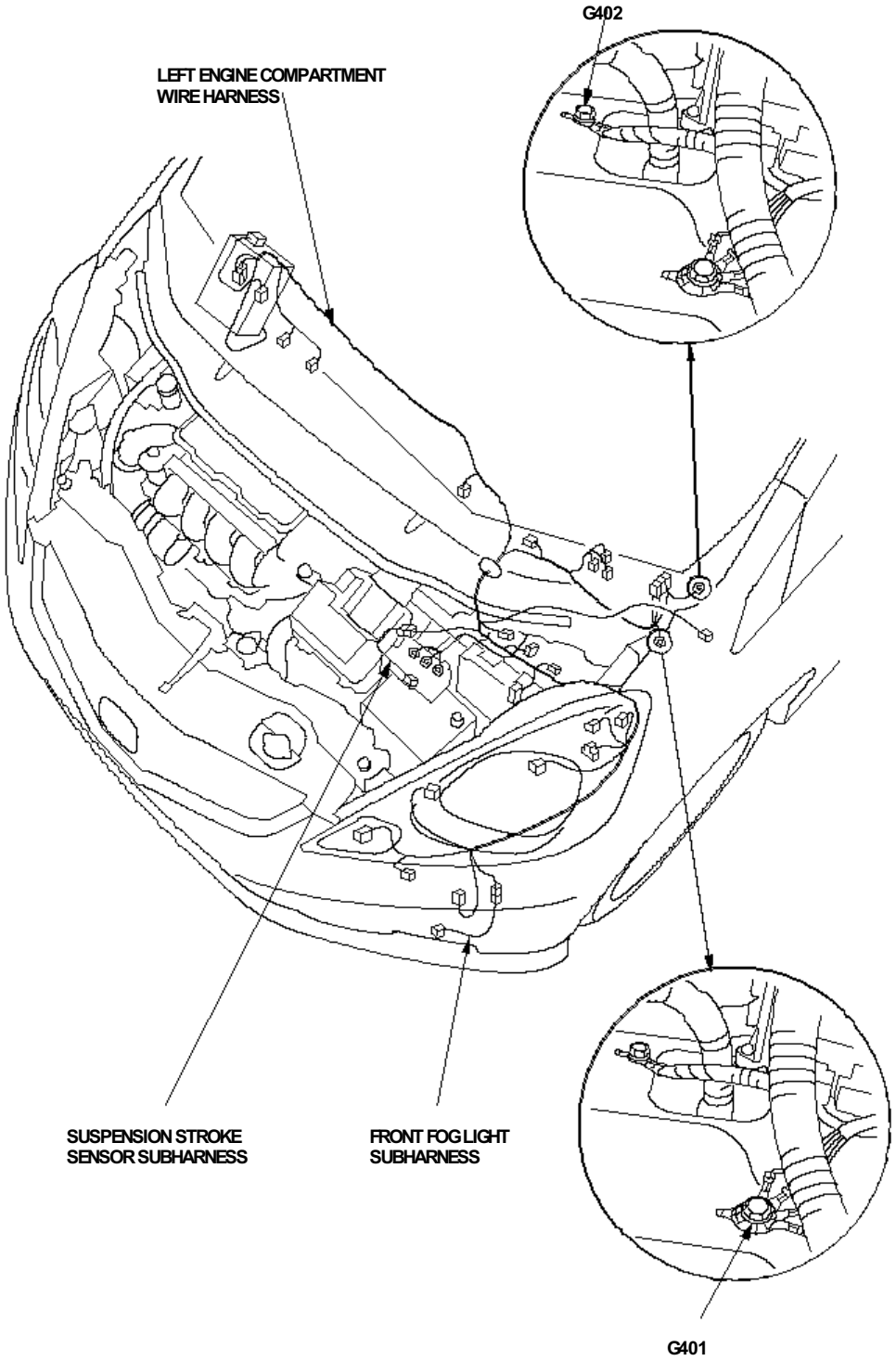
RHD model



*1: With climate control
*2: With HVAC control (push button type)

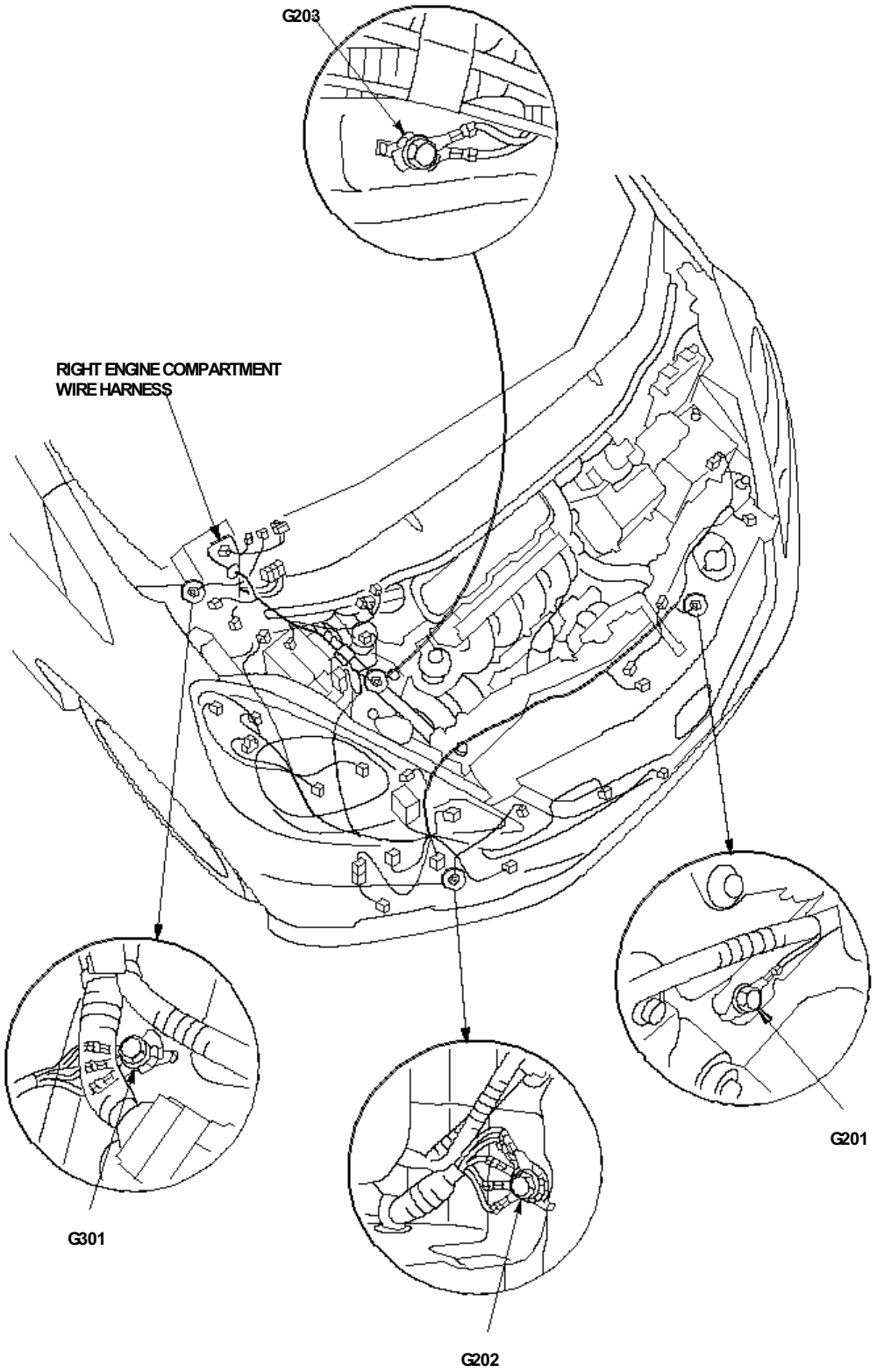
Left Engine Compartment Wire Harness, Front Fog Light Subharness, and Suspension Stroke Sensor Subharness Locations

RHD model



Right Engine Compartment Wire Harness Locations

RHD model



SRS DTC Troubleshooting: 12-1x, 12-2x

DTC 12-1x ("x" can be 0 thru 9 or A thru F):
Open in the Driver's Airbag First Inflator (RHD model)
DTC 12-2x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in the Driver's Airbag First Inflator (RHD model)
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures , General Troubleshooting Information , and Battery Terminal Disconnection/Reconnection.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 12-1x or 12-2x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.■
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Disconnect the driver's airbag 4P connector from the cable reel.
7. Install a jumper wire between the No. 2 [No. 4] and No. 3 terminals of the cable reel 4P connector.
   [ ]: KE model
8. Reconnect the negative cable to the battery.
9. Clear the DTC memory.
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Read the DTC.

    Are DTC 12-1x or 12-2x indicated?
    YES - Go to Step 12 .
    NO - Faulty driver's airbag; replace the driver's airbag. ■
12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.

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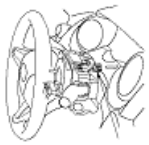
14. Remove the column cover , then disconnect the dashboard wire harness 4P connector (A) from the cable reel.



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15. Install a jumper wire between the No. 2 [No. 4] and the No. 3 terminals of the dashboard wire harness 4P connector.
    [ ]: KE model

16. Reconnect the negative cable to the battery.
17. Read the DTC.

    Is DTC 12-1x or 12-2x indicated?
    YES - Go to Step 18 .
    NO - Open or increased resistance in the cable reel; replace the cable reel. ■
18. Turn the ignition switch to LOCK (0).
19. Disconnect the negative cable from the battery, then wait at least 3 minutes.
20. Remove a jumper wire from the dashboard wire harness 4P connector.
21. Disconnect SRS unit connector A (39P) from the SRS unit.

---

22. Install a jumper wire between the No. 5 and the No. 6 terminals of SRS unit connector A (39P).

---

23. Measure the resistance between the No. 2 [No. 4] and the No. 3 terminals of the dashboard wire harness 4P connector. There should be less than 1.0 Ω.
[ ]: KE model

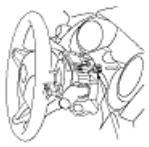
Is the resistance as specified?

YES - Faulty SRS unit or poor connection at SRS unit connector A (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit. ■

NO - Open or increased resistance in the dashboard wire harness; replace the dashboard wire harness.■

SRS DTC Troubleshooting: 12-3x

DTC 12-3x (‘‘x" can be 0 thru 9 or A thru F):
Short to Another Wire or Decreased Resistance in the Driver's Airbag First Inflator (RHD model)



Special Tools Required

SRS short canceller
070AZ-SAA0100
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures , General Troubleshooting Information , and Battery Terminal Disconnection/Reconnection.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 12-3x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.■
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Disconnect the driver's airbag 4P connector from the cable reel.
7. Reconnect the negative cable to the battery.
8. Clear the DTC memory.
9. Turn the ignition switch to ON (II), then wait for 10 seconds.
10. Read the DTC.

    Is DTC 12-3x indicated?
    YES - Go to Step 11 .
    NO - Faulty driver's airbag; replace the driver's airbag. ■
11. Turn the ignition switch to LOCK (0).
12. Disconnect the negative cable from the battery, then wait at least 3 minutes.
13. Remove the column cover , then disconnect the dashboard wire harness 4P connector (A) from the cable reel.
14. Reconnect the negative cable to the battery.
15. Clear the DTC memory.
16. Turn the ignition switch to ON (II), then wait for 10 seconds.
17. Read the DTC.

    Is DTC 12-3x indicated?
    YES - Go to Step 18 .
    NO - Short in the cable reel; replace the cable reel. ■
18. Turn the ignition switch to LOCK (0).
19. Disconnect the negative cable from the battery, then wait at least 3 minutes.
20. Disconnect SRS unit connector A (39P) from the SRS unit.
21. Connect an SRS short canceller (070AZ-SAA0100) to No. 5 and the No. 6 terminals of the SRS unit connector A (39P).

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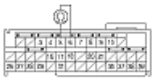
22. Measure the resistance between the No. 5 and the No. 6 terminals of the SRS unit connector A (39P). There should be less than 1.0 Ω.



    Is the resistance as specified?
    YES - Short in the dashboard wire harness; replace the dashboard wire harness.■
    NO - Faulty SRS unit; replace the SRS unit. ■

SRS DTC Troubleshooting: 12-4x, 12-5x

DTC 12-4x ("x" can be 0 thru 9 or A thru F):
Open in the Driver's Airbag Second Inflator (RHD model)
DTC 12-5x ("x" can be 0, 2 thru 9 or A thru F):
Increased Resistance in the Driver's Airbag Second Inflator (RHD model)
NOTE:

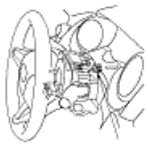
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures , General Troubleshooting Information , and Battery Terminal Disconnection/Reconnection.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 12-4x or 12-5x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.■
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Disconnect the driver's airbag 4P connector from the cable reel.
7. Install a jumper wire between the No. 1 and the No. 2 terminals of the cable reel 4P connector.
8. Reconnect the negative cable to the battery.
9. Read the DTC.

   Is DTC 12-4x or 12-5x indicated?
   YES - Go to Step 10 .
   NO - Faulty driver's airbag; replace the driver's airbag. ■
10. Turn the ignition switch to LOCK (0).
11. Disconnect the negative cable from the battery, then wait at least 3 minutes.

12. Remove the column cover, then disconnect the dashboard wire harness 4P connector (A) from the cable reel.



13. Install a jumper wire between the No. 1 and No. 2 terminals of dashboard wire harness 4P connector.
14. Reconnect the negative cable to the battery.

15. Read the DTC.

    Is DTC 12-4x or 12-5x indicated?
    YES - Go to Step 16 .
    NO - Open in the cable reel; replace the cable reel. ■
16. Turn the ignition switch to LOCK (0).
17. Remove the jumper wire from the dashboard wire harness 4P connector.
18. Disconnect the negative cable from the battery, then wait at least 3 minutes.
19. Disconnect SRS unit connector A (39P) from the SRS unit.

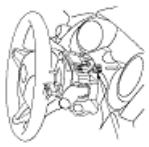
20. Install a jumper wire between the No. 9 and the No. 10 terminals of SRS unit connector A (39P).

21. Check for continuity between the No. 1 and the No. 2 terminals of dashboard wire harness 4P connector.

    Is the continuity?
    YES - Faulty SRS unit or poor connection at SRS unit connector A (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit. ■
    NO - Open in the dashboard wire harness; replace the dashboard wire harness.■

SRS DTC Troubleshooting: 12-6x

DTC 12-6x (‘‘x" can be 0 thru 9 or A thru F):
Short to Another Wire or Decreased Resistance in the Driver's Airbag Second Inflator (RHD model)



Special Tools Required

SRS short canceller
070AZ-SAA0100
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures , General Troubleshooting Information , and Battery Terminal Disconnection/Reconnection.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

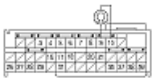
   Is DTC 12-6x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.■
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Disconnect the driver's airbag 4P connector from the cable reel.
7. Read the DTC.

   Is DTC 12-6x indicated?
   YES - Go to Step 8 .
   NO - Faulty driver's airbag; replace the driver's airbag. ■
8. Turn the ignition switch to LOCK (0).
9. Disconnect the negative cable from the battery, then wait at least 3 minutes.
10. Remove the column cover, then disconnect the dashboard wire harness 4P connector (A) from the cable reel.
11. Read the DTC.

    Is DTC 12-6x indicated?
    YES - Go to Step 12 .
    NO - Short in the cable reel; replace the cable reel. ■
12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector A (39P) from the SRS unit.
15. Connect an SRS short canceller (070AZ-SAA0100) to No. 7 and No. 8 terminals of the SRS unit connector A (39P).

---

16. Measure the resistance between the No. 9 and the No.10 terminal of the SRS unit connector A (39P). There should be less than 1.0 Ω.



    Is the resistance as specified?
    YES - Short in the dashboard wire harness; replace the dashboard wire harness.■
    NO - Faulty SRS unit: replace the SRS unit. ■

SRS DTC Troubleshooting: 12-8x

DTC 12-8x (“x" can be 0 thru 9 or A thru F):
Short to Power in the Driver's Airbag First Inflator (RHD model)

Special Tools Required

SRS short canceller
070AZ-SAA0100
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures , General Troubleshooting Information , and Battery Terminal Disconnection/Reconnection.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

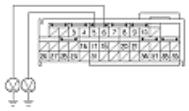
1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 12-8x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.■
4. Turn the ignition switch to LOCK (0).
5. Reconnect the negative cable to the battery.
6. Disconnect SRS unit connector A (39P) from the SRS unit.
7. Connect an SRS short canceller (070AZ-SAA0100) to the No. 5 and the No. 6 terminals of the SRS unit connector A (39P).
8. Reconnect the negative cable to the battery.
9. Turn the ignition switch to ON (II), then wait for 10 seconds.
10. Measure the voltage between the No. 5 and the No. 6 terminals of the SRS unit connector A (39P) and body ground. There should be less than 1.0 V.

    Is the voltage as specified?
    YES - Faulty SRS unit; replace the SRS unit. ■
    NO - Go to Step 11 .
11. Turn the ignition switch to LOCK (0).
12. Disconnect the negative cable from the battery, then wait at least 3 minutes.
13. Disconnect the driver's airbag 4P connector from the cable reel.
14. Reconnect the negative cable to the battery.
15. Turn the ignition switch to ON (II), then wait for 10 seconds.

---

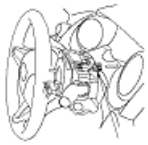
16. Measure the voltage between the No. 5 and the No. 6 terminals of SRS unit connector A (39P) and body ground. There should be less than 1.0 V.



    Is the voltage as specified?
    YES - Faulty driver's airbag; replace the driver's airbag. ■
    NO - Go to Step 17 .
17. Turn the ignition switch to LOCK (0).
18. Disconnect the negative cable from the battery, then wait at least 3 minutes.

---

19. Remove the column cover , then disconnect the dashboard wire harness 4P connector (A) from the cable reel.



20. Reconnect the negative cable to the battery.
21. Turn the ignition switch to ON (II), then wait for 10 seconds.

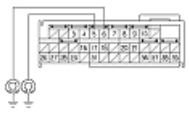
---

22. Measure the voltage between the No. 5 and the No. 6 terminals of SRS unit connector A (39P) and body ground. There should be less than 1.0 V.

    Is the voltage as specified?
    YES - Short to power in the cable reel; replace the cable reel. ■
    NO - Short to power in the dashboard wire harness; replace the dashboard wire harness.■

SRS DTC Troubleshooting: 12-9x

DTC 12-9x (‘‘x" can be 0 thru 9 or A thru F):
Short to Ground in the Driver's Airbag First Inflator (RHD model)
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

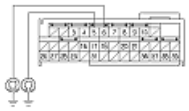
1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 12-9x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.■
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Disconnect SRS unit connector A (39P) from the SRS unit.
7. Measure the resistance between the No. 5 and the No. 6 terminals of SRS unit connector A (39P) and body ground. There should be less than 1.0 Ω.

   Is the resistance as specified?
   YES - Go to Step 8 .
   NO - Faulty SRS unit; replace the SRS unit. ■
8. Disconnect the driver's airbag 4P connector from the cable reel.

---

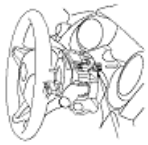
9. Measure the resistance between the No. 5 and the No. 6 terminals of SRS unit connector A (39P) and body ground. There should be less than 1.0 Ω.



   Is the resistance as specified?
   YES - Go to Step 10 .
   NO - Faulty driver's airbag; replace the driver's airbag. ■

---

10. Remove the column cover , then disconnect the dashboard wire harness 4P connector (A) from the cable reel.



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11. Measure the resistance between the No. 5 and the No. 6 terminals of SRS unit connector A (39P) and body ground. There should be less than 1.0 Ω.

    Is the resistance as specified?
    YES - Short to ground in the dashboard wire harness: replace the dashboard wire harness.■
    NO - Short to ground in the cable reel; replace the cable reel. ■

SRS DTC Troubleshooting: 12-Ax

DTC 12-Ax (‘‘x" can be 0 thru 9 or A thru F):
Short to Power in the Driver's Airbag Second Inflator (RHD model)

Special Tools Required

SRS short canceller
070AZ-SAA0100
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures , General Troubleshooting Information , and Battery Terminal Disconnection/Reconnection.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 12-Ax indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.■
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Disconnect SRS unit connector A (39P) from the SRS unit.
7. Connect an SRS short canceller (070AZ-SAA0100) to No. 9 and No. 10 terminals of the SRS unit connector A (39P).
8. Reconnect the negative cable to the battery.
9. Turn the ignition switch to ON (II), then wait for 10 seconds.
10. Measure the voltage between the No. 9 and the No. 10 terminals of SRS unit connector A (39P) and body ground. There should be less than 1.0 V.

    Is the voltage as specified?
    YES - Faulty SRS unit; replace the SRS unit. ■
    NO - Go to Step 11 .
11. Turn the ignition switch to LOCK (0).
12. Disconnect the negative cable from the battery, then wait at least 3 minutes.
13. Disconnect the driver's airbag 4P connector from the cable reel.
14. Reconnect the negative cable to the battery.
15. Turn the ignition switch to ON (II), then wait for 10 seconds.

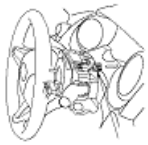
---

16. Measure the voltage between the No. 9 and the No. 10 terminals of SRS unit connector A (39P) and body ground. There should be less than 1.0 V.

    Is the voltage as specified?
    YES - Faulty driver's airbag: replace driver's airbag. ■
    NO - Go to Step 17 .
17. Turn the ignition switch to LOCK (0).
18. Disconnect the negative cable from the battery, then wait at least 3 minutes.

---

19. Remove the column cover, then disconnect the dashboard wire harness 4P connector (A) from the cable reel.



20. Reconnect the negative cable to the battery.
21. Turn the ignition switch to ON (II), then wait for 10 seconds.

---

22. Measure the voltage between the No. 9 and the No. 10 terminals of SRS unit connector A (39P) and body ground. There should be less than 1.0 V.

    Is the voltage as specified?
    YES - Short to power in the cable reel; replace the cable reel. ■
    NO - Short to power in the dashboard wire harness; replace the dashboard wire harness.■

SRS DTC Troubleshooting: 12-Bx

DTC 12-Bx (‘‘x" can be 0 thru 9 or A thru F):
Short to Ground in the Driver's Airbag Second Inflator (RHD model)
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 12-9x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.■
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Disconnect SRS unit connector A (39P) from the SRS unit.
7. Check for continuity between the No. 9 and the No. 10 terminals of SRS unit connector A (39P) and body ground.

   Is there continuity?
   YES - Go to Step 8 .
   NO - Faulty SRS unit; replace the SRS unit. ■
8. Disconnect the driver's airbag 4P connector from the cable reel.

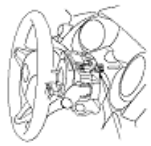
---

9. Check for continuity between the No. 9 and the No. 10 terminals of SRS unit connector A (39P) and body ground.

   Is there continuity?
   YES - Go to Step 10 .
   NO - Faulty driver's airbag; replace the driver's airbag. ■

---

10. Remove the column cover, then disconnect the dashboard wire harness 4P connector (A) from the cable reel.



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11. Check for continuity between the No. 9 and the No. 10 terminals of SRS unit connector A (39P) and body ground.

    Is there continuity?
    YES - Short to ground in the dashboard wire harness; replace the dashboard wire harness.■
    NO - Short to ground in the cable reel; replace the cable reel. ■

ECM/PCM Idle Learn Procedure

The idle learn procedure must be done so the ECM/PCM can learn the engine idle characteristics.
Do the idle learn procedure whenever you do any of these actions:

- Replace the ECM/PCM.
- Reset the ECM/PCM.
- Update the ECM/PCM.
- Replace or clean the throttle body.
- When the engine or transmission is disassembled.

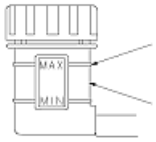
NOTE: Clearing the DTCs with the HDS does not require you to do the idle learn procedure.

Procedure

1. Make sure all electrical items (A/C, audio, lights, etc.) are off.
2. Reset the ECM/PCM with the HDS.
3. Turn the ignition switch to ON (II), and wait 2 seconds.
4. Start the engine. Hold the engine speed at 3,000 rpm (min^{-1}) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, or until the engine coolant temperature reaches 90 °C (194 °F).
5. Let the engine idle for about 5 minutes with the throttle fully closed.
   NOTE: If the radiator fan comes on, do not include its running time in the 5 minutes.
6. Verify on the HDS data list that the idle learn procedure is complete.

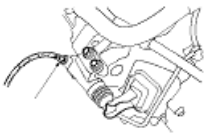
Clutch Hydraulic System Bleeding

NOTE:



- Do not reuse the drained fluid. Use only clean genuine Honda DOT 3 or DOT 4 Brake Fluid from an unopened container. Fluid from an unopened container. Using a non-Honda brake fluid can cause corrosion and shorten the life of the system.
- Make sure no dirt or other foreign matter is allowed to contaminate the brake fluid.
- Do not spill brake fluid on the vehicle; it may damage the paint or plastic. If brake fluid does contact the paint or plastic, wash it off immediately with water.
- If may be necessary to limit the movement of the release fork with a block of wood to remove all the air from the system.
- Use fender covers to avoid damaging painted surfaces.

1. Make sure the brake fluid level in the clutch reservoir (A) is at the MAX (upper) level line (B).



2. Attach one end of a clear tube to the bleeder screw (A), and put the other end into a container. Loosen the bleeder screw to allow air to escape from the system.
3. Make sure there is an adequate supply of fluid in the reservoir, then slowly push the clutch pedal all the way down. Before releasing the pedal, have an assistant temporarily tighten the bleeder screw. Loosen the bleeder screw and push the clutch pedal down again. Repeat this step until no more bubbles appear at the clear tube.
   NOTE: Make sure the fluid level on the reservoir does not go below MIN.
4. Tighten the bleeder screw securely.
5. Refill the brake fluid in the reservoir to the MAX (upper) level line.

Clutch Hose Replacement

NOTE:

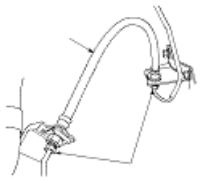
- Replace the clutch hose it is twisted, cracked, or if it leaks.
- Use fender covers to avoid damaging painted surfaces.
- Do not spill brake fluid on the vehicle; it may damage the paint or plastic. If brake fluid does contact the paint or plastic, wash it off immediately water.

1. Do the battery removal procedure.
2. Remove the air cleaner housing.
3. Disconnect the clutch hose (A) from the clutch lines (B).

4. Remove and discard the clutch hose clips (A) from the clutch hose (B).

5. Install the clutch hose (A) with the new clutch hose clips (B).

6. Connect the clutch lines (A) to the clutch hose (B).
7. Bleed the clutch hydraulic system.
8. Do the following checks:
   - Check the clutch hose and line joint for leaks, and tighten if necessary.
   - Check the clutch hose for interference and twisting.
9. Install the air cleaner housing.
10. Do the battery installation procedure.
11. Test-drive the vehicle.



Clutch Master Cylinder Overhaul

Exploded View

NOTE:

- Refer to the Exploded View, as needed during this procedure.
- Do not spill brake fluid on the vehicle; it may damage the paint or plastic. If brake fluid does contact the paint or plastic, wash it off immediately with water.
- Clean all parts in brake fluid and air dry; blow out all passages with compressed air.
- Before reassembling, check that all part are free of dust and other foreign particles.
- Replace parts with new ones whenever specified to do so.
- Make sure no dirt or other foreign matter is allowed to contaminate the brake fluid.
- Do not reuse the drained fluid. Use only clean genuine Honda DOT 3 or DOT 4 brake fluid.

1. Remove the clutch master cylinder, then disconnect the reservoir hose and clutch line connector from the master cylinder.
2. Pry the circlip off the clutch master cylinder.
3. Remove the pushrod with the stopper plate and the york.

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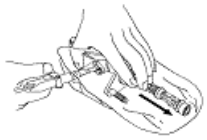
4. Carefully remove the piston by applying air pressure through the clutch line hole.



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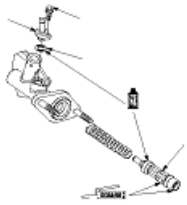
5. Remove the piston assembly (A), the connector (B), and the O-ring (C).
6. Apply the rubber grease to the piston, and slide the piston assembly into the clutch master cylinder, then install the pushrod with the stopper plate, and the circlip in the groove of the clutch master cylinder while pushing the piston.
7. Install the connector with a new O-ring.
8. Connect the clutch line connector and the reservoir hose to the master cylinder, then install the clutch master cylinder.



Clutch Slave Cylinder Replacement

NOTE:

- Use fender covers to avoid damaging painted surfaces.
- Do not spill brake fluid on the vehicle; it may damage the paint or plastic. If brake fluid does contact the paint or plastic, wash it off immediately with water.

1. Do the battery removal procedure.
2. Remove the air cleaner housing.
3. Remove the mounting bolts (A), clutch line bracket (B), and clutch line clip (C), then remove the slave cylinder (D).

---

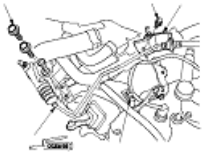
4. Disconnect the clutch line (A). Plug the end of the clutch line with a shop towel to prevent brake fluid from coming out.
   NOTE: Loosen the flare nut (B) while holding the clutch line connector (C) with a wrench.

---

5. Connect the clutch line (A).
   NOTE: Tighten the flare nut (B) while holding the clutch line connector (C) with a wrench.

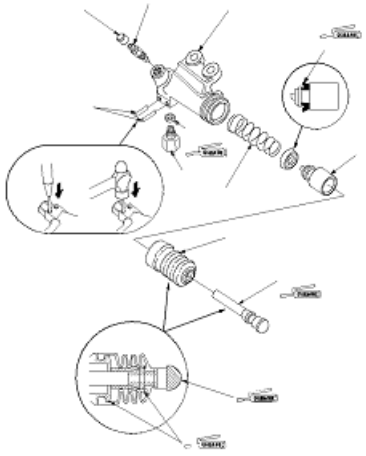
---

6. Apply a light coat of molybdenum to the push rod (A) of the slave cylinder.
7. Install the clutch line clip (B), clutch line bracket (C), and mounting bolts (D).



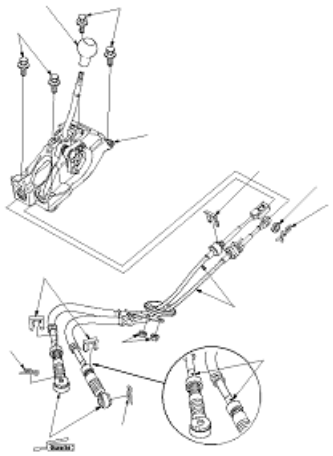
8. Bleed the clutch hydraulic system.
9. Check the clutch operation, and check for leaks.
10. Install the air cleaner housing.
11. Do the battery installation procedure.
12. Test-drive the vehicle.

Clutch Slave Cylinder Overhaul



M/T Gearshift Mechanism Replacement

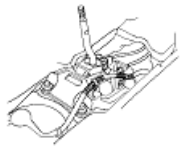
NOTE: When you apply the silicone grease, make sure not to adhere to the terminal part of connectors and surrounding switches. Also do not touch the switches and the terminal part of connector by hands or glove that adheres the silicone grease.



M/T Shift Lever Housing Replacement

NOTE:

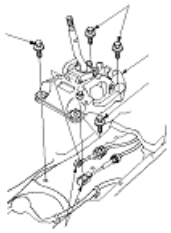
- When removing components, use the trim tool or equivalent.
- Take care not to scratch the center console, dashboard, and related parts.



1. Remove the center console.
2. Remove the harness clamps.

3. Remove the lock pin (A), washer (B), and shift cable clip (C), shift cables (D) from the shift lever housing assembly (E).

4. Remove the shift lever assembly (A) from bolts (B) and the shift cables (C).
5. Install the shift lever housing in the reverse order of removal.



DTC Troubleshooting: P0134 (41)

DTC P0134:
A/F Sensor (Sensor 1) Heater System Malfunction
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.
- If the vehicle was out of fuel and the engine stalled before this DTC was stored, refuel and clear the DTC with the HDS.
- If DTC P0135 is stored at the same time as DTC P0134, troubleshoot DTC P0135 first, then recheck for DTC P0134.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0134 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay, and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Replace the A/F sensor (Sensor 1).
7. Turn the ignition switch to ON (II).
8. Reset the ECM/PCM with the HDS.
9. Do the ECM/PCM idle learn procedure.
10. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0134 indicated?
    YES - Check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay, and the ECM/PCM, then go to Step 1 .
    NO - Go to Step 11 .
11. Monitor the OBD STATUS for DTC P0134 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?
    YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 10 , go to the indicated DTC's troubleshooting.■
    NO - If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay, and the ECM/PCM, then go to Step 1 . If the screen indicates NOT COMPLETED, go to Step 8 .

DTC Troubleshooting: P0339 (4)

DTC P0339:
CKP Sensor Intermittent Interruption
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle for 10 seconds.
4. Check the CKP NOISE in the DATA LIST with the HDS.

   Are 0 counts indicated?
   YES - Go to Step 7 .
   NO - Go to Step 5 .
5. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
   - ENGINE SPEED
   - VSS
6. Check the CKP NOISE in the DATA LIST with the HDS.

   Are 0 counts indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the CKP sensor and the ECM/PCM.■
7. Check for poor or loose connections and terminals at these locations:
   - CKP sensor
   - ECM/PCM
   - Engine ground
   - Body ground

   Are the connections and terminals OK?
   YES - Go to Step 8 .
   NO - Repair the connectors or terminals, then go to Step 11 .
8. Check for damage on the CKP sensor pulser plate.

   Is the pulser plate damaged?
   YES - Replace the CKP sensor pulser plate, then go to Step 11 .
   NO - Go to Step 9 .
9. Turn the ignition switch to LOCK (0).
10. Replace the CKP sensor.
11. Turn the ignition switch to ON (II).
12. Reset the ECM/PCM with the HDS.
13. Clear the CKP pattern with the HDS.
14. Do the ECM/PCM idle learn procedure.
15. Do the CKP pattern learn procedure.
16. Start the engine, and let it idle for 10 seconds.
17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0339 indicated?
    YES - Check for poor connections or loose terminals at the CKP sensor and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0369 (8)

DTC P0369:
CMP Sensor Intermittent Interruption
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle for 10 seconds.
4. Check the CMP B NOISE in the DATA LIST with the HDS.

   Are 0 counts indicated?
   YES - Go to Step 7 .
   NO - Go to Step 5 .
5. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
   - ENGINE SPEED
   - VSS
6. Check the CMP B NOISE in the DATA LIST with the HDS.

   Are 0 counts indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the CMP sensor and the ECM/PCM.■
7. Check for poor or loose connections and terminals at these locations:
   - CMP sensor
   - ECM/PCM
   - Engine ground
   - Body ground

   Are the connections and terminals OK?
   YES - Go to Step 8 .
   NO - Repair the connectors or terminals, then go to Step 11 .
8. Check for damage on the CMP sensor pulser plate.

   Is the pulser plate damaged?
   YES - Replace the CMP sensor pulser plate, then go to Step 11 .
   NO - Go to Step 9 .
9. Turn the ignition switch to LOCK (0).
10. Replace the CMP sensor.
11. Turn the ignition switch to ON (II).
12. Reset the ECM/PCM with the HDS.
13. Do the ECM/PCM idle learn procedure.
14. Start the engine, and let it idle for 10 seconds.
15. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0369 indicated?
    YES - Check for poor connections or loose terminals at the CMP sensor and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0562

DTC P0562:
Charging System Low Voltage
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.
- If any high current load accessories are installed, this DTC can be set.
- If DTC P16BB and/or P16BC is stored at the same time as DTC P0562, troubleshoot DTC P16BB and/or P16BC first, then recheck for DTC P0562.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check under these conditions:
   - A/C on
   - Temperature control at maximum cool
   - Blower fan at maximum speed
   - Rear window defogger on
   - Headlights on high beam
5. Hold the engine speed at 2,000 rpm (min^{-1}) (A/T in P or N, M/T in neutral) for 1 minute.
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0562 indicated?

   YES -
   - Check for poor connections or loose terminals at the alternator and the under-hood fuse/relay box, then go to Step 7.
   - Replace the alternator, then go to Step 7.

   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the alternator and the under-hood fuse/relay box, and check the battery performance. ■
7. Turn the ignition switch to ON (II).
8. Reset the ECM/PCM with the HDS.
9. Do the ECM/PCM idle learn procedure.
10. Start the engine.
11. Check under these conditions:
    - A/C on
    - Temperature control at maximum cool
    - Blower fan at maximum speed
    - Rear window defogger on
    - Headlights on high beam
12. Hold the engine speed at 2,000 rpm (min^{-1}) (A/T in P or N, M/T in neutral) for 1 minute.
13. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0562 indicated?

    YES - Check for poor connections or loose terminals at the alternator and the under-hood fuse/relay box, then go to Step 1.

    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P1549

DTC P1549:
Charging System High Voltage
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.
- If a high voltage battery (24 V, etc.) is connected to the vehicle, this DTC can be stored.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check under these conditions:
   - A/C off
   - Headlights off
   - Rear window defogger off
5. Hold the engine speed at 2,000 rpm (min $^{-1}$) (A/T in P or N, M/T in neutral) for 1 minute.
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1549 indicated?
   YES - Replace the alternator, then go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the alternator and the battery terminal fuse box.■
7. Turn the ignition switch to ON (II).
8. Reset the ECM/PCM with the HDS.
9. Do the ECM/PCM idle learn procedure.
10. Start the engine.
11. Check under these conditions:
    - A/C off
    - Headlights off
    - Rear window defogger off
12. Hold the engine speed at 2,000 rpm (min $^{-1}$) (A/T in P or N, M/T in neutral) for 1 minute.
13. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1549 indicated?
    YES - Check for poor connections or loose terminals at the alternator and the battery terminal fuse box, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P16BB

DTC P16BB:
Alternator B Terminal Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with HDS.
3. Start the engine.
4. Check under these conditions:
   - A/C on
   - Temperature control at maximum cool
   - Blower fan at maximum speed
   - Rear window defogger on
   - Headlights on high beam
5. Hold the engine speed at 2,000 rpm (min $^{-1}$) (A/T in P or N, M/T in neutral) for 1 minute.
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P16BB indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the alternator and the battery terminal fuse box, and check the battery performance. ■
7. Check for poor connections or loose terminals at the alternator and the battery terminal fuse box (+B line).

   Are the connections and terminals OK?
   YES - Go to Step 8 .
   NO - Repair the connectors or terminals, then go to Step 9 .
8. Check for an open in the wire between the alternator and battery terminal fuse box at the engine wire harness.

   Is the harness OK?
   YES - Replace the alternator, then go to Step 9 .
   NO - Repair open in the wire between the alternator and the battery terminal fuse box, then go to Step 9 .
9. Turn the ignition switch to ON (II).
10. Reset the ECM/PCM with the HDS.
11. Do the ECM/PCM idle learn procedure.
12. Start the engine.
13. Check under these conditions:
    - A/C on
    - Temperature control at maximum cool
    - Blower fan at maximum speed
    - Rear window defogger on
    - Headlights on high beam
14. Hold the engine speed at 2,000 rpm (min $^{-1}$) (A/T in P or N, M/T in neutral) for 1 minute.
15. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P16BB indicated?
    YES - Check for poor connections or loose terminals at the alternator and the battery terminal fuse box, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: U0155 (126)

DTC U0155:
F-CAN Malfunction (ECM/PCM-Gauge Control Module)
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

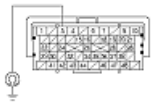
1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC U0155 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the gauge control module and the ECM/PCM.■
4. Check for body electrical DTCs in the DTCs MENU with the HDS.

   Is DTC B1168, B1169, and/or B1178 indicated?
   YES - Go to Step 5 .
   NO - Do the gauge control module input test. ■
5. Turn the ignition switch to LOCK (0).
6. Jump the SCS line with the HDS.
7. Remove the gauge control module.
8. Disconnect the gauge control module 32P connector.
9. Disconnect ECM/PCM connector A (49P).
10. Connect gauge control module 32P connector terminal No. 30 to body ground with a jumper wire.

---

11. Check for continuity between ECM/PCM connector terminal A3 and body ground.



    Is there continuity?
    YES - Go to Step 12 .
    NO - Repair open in the wire between the ECM/PCM (A3) and the gauge control module, then go to Step 14 .

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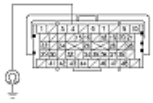
12. Connect gauge control module 32P connector terminal No. 29 to body ground with a jumper wire.

---

13. Check for continuity between ECM/PCM connector terminal A4 and body ground.

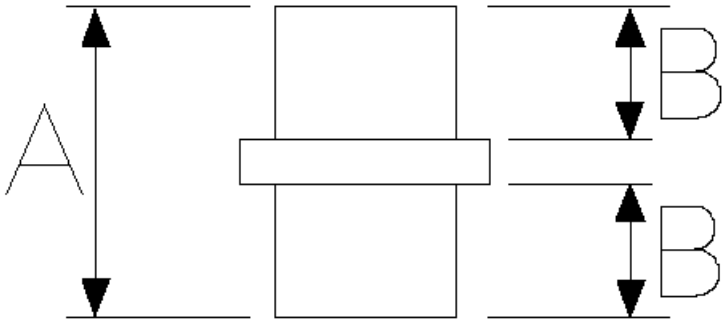


    Is there continuity?
    YES - Substitute a known-good gauge control module, then go to Step 14 and recheck. If DTC U0155 is not indicated after substitution, replace the original gauge control module, then go to Step 14 .
    NO - Repair open in the wire between the ECM/PCM (A4) and the gauge control module, then go to Step 14 .
14. Reconnect all connectors.
15. Turn the ignition switch to ON (II).
16. Reset the ECM/PCM with the HDS.
17. Do the ECM/PCM idle learn procedure.
18. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC U0155 indicated?
    YES - Check for poor connections or loose terminals at the gauge control module and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

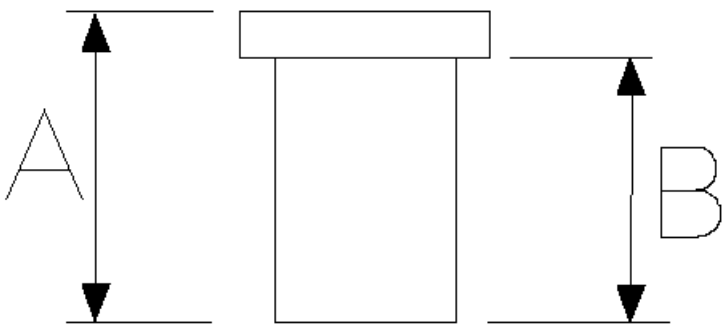
Manual Transmission and M/T Differential

Item	Measurement	Qualification	Standard or New	Service Limit
Manual transmission fluid	Capacity Use genuine Honda MTF	Fluid change	1.5 L (1.6 US qt, 1.3 Imp qt)	
		Overhaul	1.6 L (1.7 US qt, 1.4 Imp qt)	
Mainshaft	End play		0.11–0.18 mm (0.004–0.007 in.)	Adjust
	Diameter of ball bearing contact area (transmission housing side)		25.987–26.000 mm (1.0231–1.0236 in.)	25.93 mm (1.020 in.)
	Diameter of distance collar contact area		28.992–29.005 mm (1.1414–1.1419 in.)	28.93 mm (1.139 in.)
	Diameter of needle bearing contact area		34.984–35.000 mm (1.3773–1.3780 in.)	34.93 mm (1.375 in.)
	Diameter of ball bearing contact area (clutch housing side)		25.977–25.990 mm (1.0227–1.0232 in.)	25.92 mm (1.020 in.)
	Diameter of pilot bearing contact area		14.870–14.890 mm (0.5854–0.5862 in.)	———
	Runout		0.02 mm (0.001 in.) max.	0.05 mm (0.002 in.)
Mainshaft 3rd and 4th gear	I.D.		39.009–39.025 mm (1.5358–1.5364 in.)	39.07 mm (1.538 in.)
	Clearance	2nd-3rd	0.06–0.21 mm (0.002–0.008 in.)	0.33 mm (0.013 in.)
	Endplay	4th	0.06–0.19 mm (0.002–0.007 in.)	0.31 mm (0.012 in.)
	Thickness	3rd	27.92–27.97 mm (1.099–1.101 in.)	27.85 mm (1.096 in.)
		4th	27.02–27.07 mm (1.064–1.066 in.)	26.65 mm (1.049 in.)
Mainshaft 5th gear	I.D.		39.009–39.025 mm (1.5358–1.5364 in.)	39.07 mm (1.538 in.)
	End play		0.06–0.19 mm (0.002–0.007 in.)	0.31 mm (0.012 in.)
	Thickness		28.92–28.97 mm (1.139–1.141 in.)	28.95 mm (1.140 in.)
Mainshaft 4th and 5th gear distance collar	I.D.		29.014–29.024 mm (1.1423–1.1427 in.)	29.06 mm (1.144 in.)
	O.D.		34.989–35.000 mm (1.3775–1.3780 in.)	34.93 mm (1.375 in.)
	Length	A	51.97–52.03 mm (2.046–2.048 in.)	———
			.946–0.947 in.)	———
Mainshaft MBS distance collar			1.024–1.030 in.)	———
			.472–0.474 in.)	———



Manual Transn

Item			ard or New	Service Limit
Countershaft			(1.3386–1.3392 in.)	33.95 mm (1.337 in.)
			(0.9835–0.9840 in.)	24.93 mm (0.981 in.)
			(1.4365–1.4370 in.)	36.440 mm (1.435 in.)
			) max.	0.05 mm (0.002 in.)
Countershaft 1st gear			(1.9098–1.9104 in.)	48.580 mm (1.9126 in.)
			1–0.005 in.)	0.24 mm (0.009 in.)
			080–1.081 in.)	27.39 mm (1.078 in.)
Countershaft 2nd gear	I.D.		45.009–45.025 mm (1.7720–1.7726 in.)	45.07 mm (1.774 in.)
	End play		0.04–0.12 mm (0.002–0.005 in.)	0.24 mm (0.009 in.)
	Thickness		27.41–27.46 mm (1.079–1.081 in.)	27.36 mm (1.077 in.)
Countershaft 1st gear distance collar	I.D.		36.50–36.51 mm (1.4370–1.4373 in.)	36.52 mm (1.4378 in.)
	O.D.		44.489–45.000 mm (1.7515–1.7717 in.)	44.44 mm (1.7500 in.)
	Length	A	30.50–30.54 mm (1.2007–1.2023 in.)	———
			0445–1.0464 in.)	———
Countershaft 2nd gear distance collar			(1.3386–1.3390 in.)	34.04 mm (1.340 in.)
			(1.5744–1.5748 in.)	39.93 mm (1.572 in.)
			084–1.085 in.)	27.51 mm (1.083 in.)
Reverse idler gear			(0.5912–0.5922 in.)	15.08 mm (0.594 in.)
			0012–0.0030 in.)	0.14 mm (0.006 in.)
Synchro ring			3–0.043 in.)	0.4 mm (0.02 in.)
Shift fork			.30 in.)	———
			.27 in.)	———
			4–0.026 in.)	1.0 mm (0.04 in.)
Reverse shift fork			–0.54 in.)	———
			1–0.075 in.)	2.5 mm (0.098 in.)
Shift arm			(0.5501–0.5512 in.)	———
			8–0.512 in.)	———
			0.020 in.)	0.62 mm (0.024 in.)
Select lever	Finger width		12.80–12.95 mm (0.504–0.510 in.)	———
Change lever	Shaft-to-select lever clearance		0.05–0.35 mm (0.002–0.014 in.)	0.55 mm (0.022 in.)
	Groove width		13.00–13.15 mm (0.512–0.518 in.)	———



Item	Measurement	Qualification	Standard or New	Service Limit
	Shaft-to-shift arm clearance		0.013−0.070 mm (0.0005−0.0028 in.)	0.1 mm (0.004 in.)
M/T differential pinion gear	Backlash		0.05−0.15 mm (0.002−0.006 in.)	———
M/T differential 72 mm shim (L13Z1)	72 mm shim-to-bearing outer race clearance in transmission housing		0.01−0.1 mm (0.0004−0.004 in.)	Adjust
M/T differential 80 mm shim (L15A7)	80 mm shim-to-bearing outer race clearance in transmission housing		0.01−0.1 mm (0.0004−0.004 in.)	Adjust

Fuel and Emissions System Description - ECM/PCM Inputs and Outputs

ECM/PCM Inputs and Outputs at Connector A (□) (49P)
ECM/PCM Inputs and Outputs at Connector A (□) (49P)
ECM/PCM Inputs and Outputs at Connector A (□) (49P)
ECM/PCM Inputs and Outputs at Connector B (△) (49P)
ECM/PCM Inputs and Outputs at Connector B (△) (49P)
ECM/PCM Inputs and Outputs at Connector B (△) (49P)
ECM/PCM Inputs and Outputs at Connector C (○) (49P)
ECM/PCM Inputs and Outputs at Connector C (○) (49P)

Manual transmission fluid

Item	Measurement	Qualification	Standard or New	Service Limit
Manual transmission fluid	Capacity Use genuine Honda MTF	Fluid change	1.5 L (1.6 US qt, 1.3 Imp qt)	
		Overhaul	1.6 L (1.7 US qt, 1.4 Imp qt)	

Clutch disc

Item	Measurement	Qualification	Standard or New	Service Limit
Clutch disc	Rivet head depth		1.00−1.50 mm (0.039−0.059 in.)	0.2 mm (0.008 in.)
	Thickness		7.25−7.95 mm (0.285−0.313 in.)	5.0 mm (0.20 in.)

Clutch pedal

Item	Measurement	Qualification	Standard or New	Service Limit
Clutch pedal	Height from the floor	RHD	145 mm (5.71 in.)	———
		LHD	150 mm (5.91 in.)	———
	Stroke		120−130 mm (4.72−5.12 in.)	———

Pressure plate

Item	Measurement	Qualification	Standard or New	Service Limit
Pressure plate	Warpage		0.03 mm (0.001 in.) max.	0.15 mm (0.006 in.)
	Height difference of diaphragm spring fingers measured with dial indicator		0.6 mm (0.02 in.) max.	1.0 mm (0.04 in.)

Flywheel

Item	Measurement	Qualification	Standard or New	Service Limit
Flywheel	Runout on clutch mating surface		0.05 mm (0.002 in.) max.	0.15 mm (0.006 in.)

Reverse idler gear

Item	Measurement	Qualification	Standard or New	Service Limit
Reverse idler gear	I.D.		15.016−15.043 mm (0.5912−0.5922 in.)	15.08 mm (0.594 in.)
	Gear-to-reverse idler gear shaft clearance		0.032−0.077 mm (0.0012−0.0030 in.)	0.14 mm (0.006 in.)

Countershaft

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft	Diameter of needle bearing contact area (transmission housing side)		34.000−34.015 mm (1.3386−1.3392 in.)	33.95 mm (1.337 in.)
	Diameter of ball bearing contact area (clutch housing side)		24.980−24.993 mm (0.9835−0.9840 in.)	24.93 mm (0.981 in.)
	Diameter of distance collar contact area		36.487−36.500 mm (1.4365−1.4370 in.)	36.440 mm (1.435 in.)
	Runout		0.02 mm (0.0008 in.) max.	0.05 mm (0.002 in.)

Countershaft 1st gear

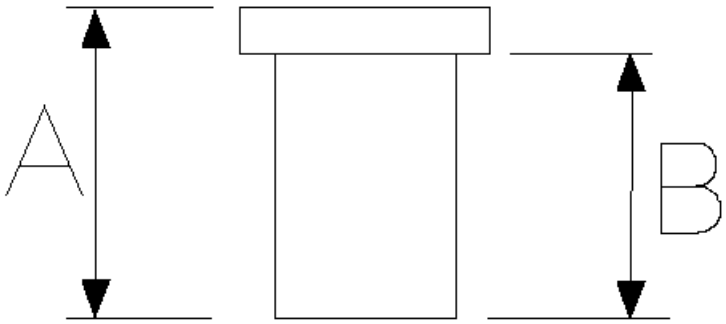
Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft 1st gear	I.D.		48.509−48.525 mm (1.9098−1.9104 in.)	48.580 mm (1.9126 in.)
	End play		0.03−0.12 mm (0.001−0.005 in.)	0.24 mm (0.009 in.)
	Thickness		27.42−27.47 mm (1.080−1.081 in.)	27.39 mm (1.078 in.)

Countershaft 2nd gear

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft 2nd gear	I.D.		45.009−45.025 mm (1.7720−1.7726 in.)	45.07 mm (1.774 in.)
	End play		0.04−0.12 mm (0.002−0.005 in.)	0.24 mm (0.009 in.)
	Thickness		27.41−27.46 mm (1.079−1.081 in.)	27.36 mm (1.077 in.)

Countershaft 1st gear distance collar

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft 1st gear distance collar	I.D.		36.50−36.51 mm (1.4370−1.4373 in.)	36.52 mm (1.4378 in.)
	O.D.		44.489−45.000 mm (1.7515−1.7717 in.)	44.44 mm (1.7500 in.)
	Length	A	30.50−30.54 mm (1.2007−1.2023 in.)	———
			0445−1.0464 in.)	———



Countershaft 2nd gear distance collar

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft 2nd gear distance collar	I.D.		34.000−34.010 mm (1.3386−1.3390 in.)	34.04 mm (1.340 in.)
	O.D.		39.989−40.000 mm (1.5744−1.5748 in.)	39.93 mm (1.572 in.)
	Length		27.53−27.56 mm (1.084−1.085 in.)	27.51 mm (1.083 in.)

Change lever

Item	Measurement	Qualification	Standard or New	Service Limit
Change lever	Shaft-to-select lever clearance		0.05−0.35 mm (0.002−0.014 in.)	0.55 mm (0.022 in.)
	Groove width		13.00−13.15 mm (0.512−0.518 in.)	———
	Shaft-to-shift arm clearance		0.013−0.070 mm (0.0005−0.0028 in.)	0.1 mm (0.004 in.)

Select lever

Item	Measurement	Qualification	Standard or New	Service Limit
Select lever	Finger width		12.80−12.95 mm (0.504−0.510 in.)	———

Reverse shift fork

Item	Measurement	Qualification	Standard or New	Service Limit
Reverse shift fork	Finger width		13.5−13.8 mm (0.53−0.54 in.)	———
	Fork-to-reverse idler gear clearance		1.30−1.90 mm (0.051−0.075 in.)	2.5 mm (0.098 in.)

Shift fork

Item	Measurement	Qualification	Standard or New	Service Limit
Shift fork	Finger thickness	1st-2nd and 3rd-4th forks	7.4−7.6 mm (0.29−0.30 in.)	———
		5th fork	6.7−6.9 mm (0.26−0.27 in.)	———
	Fork-to-synchro sleeve clearance		0.35−0.65 mm (0.014−0.026 in.)	1.0 mm (0.04 in.)

Shift arm

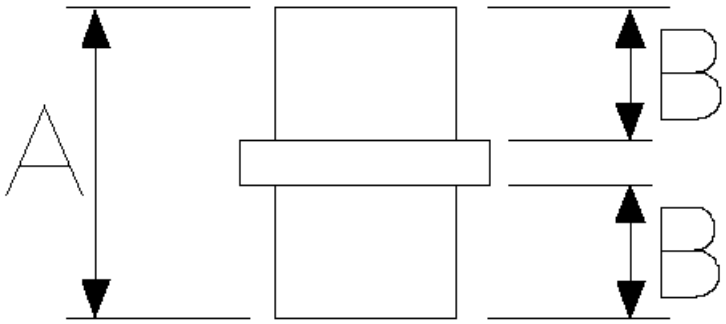
Item	Measurement	Qualification	Standard or New	Service Limit
Shift arm	I.D.		13.973−14.000 mm (0.5501−0.5512 in.)	———
	Finger width		12.9−13.0 mm (0.508−0.512 in.)	———
	Shift arm-to-shift fork clearance		0.2−0.5 mm (0.008−0.020 in.)	0.62 mm (0.024 in.)

Mainshaft

Item	Measurement	Qualification	Standard or New	Service Limit
Mainshaft	End play		0.11−0.18 mm (0.004−0.007 in.)	Adjust
	Diameter of ball bearing contact area (transmission housing side)		25.987−26.000 mm (1.0231−1.0236 in.)	25.93 mm (1.020 in.)
	Diameter of distance collar contact area		28.992−29.005 mm (1.1414−1.1419 in.)	28.93 mm (1.139 in.)
	Diameter of needle bearing contact area		34.984−35.000 mm (1.3773−1.3780 in.)	34.93 mm (1.375 in.)
	Diameter of ball bearing contact area (clutch housing side)		25.977−25.990 mm (1.0227−1.0232 in.)	25.92 mm (1.020 in.)
	Diameter of pilot bearing contact area		14.870−14.890 mm (0.5854−0.5862 in.)	———
	Runout		0.02 mm (0.001 in.) max.	0.05 mm (0.002 in.)

Mainshaft 4th and 5th gear distance collar

Item	Measurement	Qualification	Standard or New	Service Limit
Mainshaft 4th and 5th gear distance collar	I.D.		29.014−29.024 mm (1.1423−1.1427 in.)	29.06 mm (1.144 in.)
	O.D.		34.989−35.000 mm (1.3775−1.3780 in.)	34.93 mm (1.375 in.)
	Length	A	51.97−52.03 mm (2.046−2.048 in.)	———
			.946−0.947 in.)	———



Mainshaft MBS distance collar

Item	Measurement	Qualification	Standard or New	Service Limit
Mainshaft MBS distance collar	I.D.		26.02−26.17 mm (1.024−1.030 in.)	———
	Length		12.00−12.05 mm (0.472−0.474 in.)	———

Mainshaft 3rd and 4th gear

Item	Measurement	Qualification	Standard or New	Service Limit
Mainshaft 3rd and 4th gear	I.D.		39.009−39.025 mm (1.5358−1.5364 in.)	39.07 mm (1.538 in.)
	Clearance	2nd-3rd	0.06−0.21 mm (0.002−0.008 in.)	0.33 mm (0.013 in.)
	Endplay	4th	0.06−0.19 mm (0.002−0.007 in.)	0.31 mm (0.012 in.)
	Thickness	3rd	27.92−27.97 mm (1.099−1.101 in.)	27.85 mm (1.096 in.)
		4th	27.02−27.07 mm (1.064−1.066 in.)	26.65 mm (1.049 in.)

Mainshaft 5th gear

Item	Measurement	Qualification	Standard or New	Service Limit
Mainshaft 5th gear	I.D.		39.009−39.025 mm (1.5358−1.5364 in.)	39.07 mm (1.538 in.)
	End play		0.06−0.19 mm (0.002−0.007 in.)	0.31 mm (0.012 in.)
	Thickness		28.92−28.97 mm (1.139−1.141 in.)	28.95 mm (1.140 in.)

M/T differential pinion gear

Item	Measurement	Qualification	Standard or New	Service Limit
M/T differential pinion gear	Backlash		0.05−0.15 mm (0.002−0.006 in.)	———

Synchro ring

Item	Measurement	Qualification	Standard or New	Service Limit
Synchro ring	Ring-to-gear clearance	Ring pushed against gear	0.85−1.10 mm (0.033−0.043 in.)	0.4 mm (0.02 in.)

Set speed does not cancel (engine rpm stays high) when the clutch pedal is pressed

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Do the clutch pedal position switch B test.
3. Do the cruise control input test. Test the clutch pedal position switch B signal input.

Also check for

- Short to ground on the WHT wire
- Faulty clutch pedal position switch B

Set speed will not resume when the resume/accel switch is pressed (with the cruise control main switch turned on, and set speed temporarily canceled by pressing the clutch pedal)

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Check the clutch pedal position switch B adjustment.
3. Do the cruise control combination switch test.
4. Do the cruise control input test. Test the cruise control resume/accel switch B signal input. Test the clutch pedal position switch B signal input.

Also check for

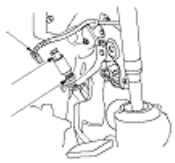
- Faulty clutch pedal position switch B
- Open circuit, loose or disconnected terminals: LT GRN/BLK, BLU wire

Clutch Pedal Position Switch B Test

1. Disconnect the clutch pedal position switch B connector.

2. Check for continuity between the terminals according to the table.
   - If the continuity is not as specified, replace the clutch pedal position switch B.
   - If OK, install the clutch pedal position switch B, and adjust the pedal height.

Clutch Pedal Position Switch B Replacement



1. Disconnect the clutch pedal position switch B connector (A).
2. Loosen the locknut (B), then remove the clutch pedal position switch B (C).
3. Install the clutch pedal position switch B, and adjust the pedal height.

Cruise Control (ECM/PCM) Input Test

1. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC).
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the engine control module (ECM)/powertrain control module (PCM). If it does not communicate, troubleshoot the DLC circuit.
4. Go to PGM-FI, and check for DTCs.
5. Do the following tests while monitoring parameters in the PGM-FI DATA LIST with the HDS.
   NOTE: Intermittent failures are often caused by loose circuit connections. While monitoring cruise control inputs, flex their circuits, and note if any of the test results change.

Signal to be tested	Test condition	Parameter: Desired result	Possible cause if result is not obtained
Brake pedal position switch signal	Brake pedal pressed, then released	CRUISE BRAKE SW should indicate OFF when the brake pedal is pressed and ON when the brake pedal is released.	• Faulty brake pedal position switch • Blown No. 24 (10 A) fuse in the under-dash fuse/relay box • An open in the wire between the ECM/PCM and the brake pedal position switch • A wire shorted to ground between the ECM/PCM and the brake pedal position switch
Clutch pedal position switch B signal (M/T model)	Clutch pedal pressed, then released	SHIFT/CLUTCH SW should indicate OFF when the clutch pedal is pressed and ON when the clutch pedal is released.	• Faulty clutch pedal position switch B • An open in the wire between the ECM and the clutch pedal position switch B • A wire shorted to ground between the ECM and the clutch pedal position switch B • Poor ground G401
Transmission range switch signal (A/T model)	Shift lever in D and S	SHIFT/CLUTCH SW should indicate ON in P, R, and N and OFF in D and S.	• Faulty transmission range switch • An open in the wire between the PCM and the transmission range switch • A wire shorted to ground between the PCM and the transmission range switch • Poor ground G101
Set switch signal	Set/decel switch pressed and released	CRUISE CONTROL SET SW should indicate ON when the set/decel switch is pressed and OFF when the set/decel switch is released.	• Faulty cruise control combination switch • An open in the wire between the gauge control module and the cruise control combination switch • A wire shorted to ground between the gauge control module and the cruise control combination switch
Resume switch signal	Resume/accel switch pressed and released	CRUISE CONTROL RESUME SW should indicate ON when the resume/accel switch is pressed and OFF when the resume/accel switch is released.	• Faulty cruise control combination switch • An open in the wire between the gauge control module and the cruise control combination switch • A wire shorted to ground between the gauge control module and the cruise control combination switch
Cancel switch signal	Cancel switch pressed and released	CRUISE CONTROL CANCEL SW should indicate ON when the cancel switch is pressed and OFF when the cancel switch is released.	Faulty cruise control combination switch
Cruise control main switch signal	Cruise control main switch ON and OFF	CRUISE CONTROL MAIN SW should indicate ON when the cruise control main switch is turned ON and OFF when the cruise control main switch is turned OFF.	• Faulty cruise control combination switch • An open in the wire between the gauge control module and the cruise control combination switch • A wire shorted to ground between the gauge control module and the cruise control combination switch • An open in the wire between the cruise control combination switch and ground

Signal to be tested	Test condition	Parameter: Desired result	Possible cause if result is not obtained
Cruise control indicator signal	Start the engine, turn the cruise control main switch on, and drive the vehicle above 40 km/h (25 mph). Set and cancel the cruise control.	CRUISE INDICATOR should indicate ON when the cruise control is set and OFF when the cruise control is canceled.	Faulty gauge control module

SIL never comes on

Diagnostic procedure

1. Troubleshoot shift indicator lamp.

When the clutch pedal pressed, light out of SIL is slow

Diagnostic procedure

1. Troubleshoot shift indicator lamp.

SIL does not work once in a while

Diagnostic procedure

1. Troubleshoot shift indicator lamp.

Shift up indicator lamp does not come on, or shift down indicator lamp does not come on

Diagnostic procedure

1. Check for body electrical system DTCs.

SIL stays on

Diagnostic procedure

1. Check for body electrical system DTCs.

Fuel and Emissions System Description - ECM/PCM Inputs and Outputs

ECM/PCM Inputs and Outputs at Connector A (□) (49P)
ECM/PCM Inputs and Outputs at Connector A (□) (49P)
ECM/PCM Inputs and Outputs at Connector A (□) (49P)
ECM/PCM Inputs and Outputs at Connector B (△) (49P)
ECM/PCM Inputs and Outputs at Connector B (△) (49P)
ECM/PCM Inputs and Outputs at Connector B (△) (49P)
ECM/PCM Inputs and Outputs at Connector C (○) (49P)
ECM/PCM Inputs and Outputs at Connector C (○) (49P)

Clutch Pedal Position Switch A Replacement

KE, KG models (M/T)

1. Remove the driver's dashboard undercover.
2. Disconnect clutch pedal position switch A connector (A).
3. Remove clutch pedal position switch A (B).
4. Install the parts in the reverse order of removal.
   NOTE: Adjust clutch pedal position switch A.

How to Troubleshoot the Fuel and Emissions Systems

Intermittent Failures

The term ‘‘intermittent failure" means a system may have had a failure, but it checks OK now. If the malfunction indicator lamp (MIL) on the dash does not come on, check for poor connections or loose terminals at all connectors related to the circuit that you are troubleshooting. If the MIL was on but then went out, the original problem may have been intermittent.

Service Information

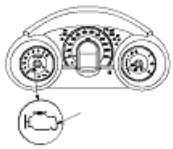
Periodically, new ECM/PCM software or new service procedures may become available. Always check online for the latest software or service information related to the DTCs or symptoms you are troubleshooting.

Opens and Shorts

‘‘Open" and ‘‘short" are common electrical terms. An open is a break in a wire or at a connection. A short is an accidental connection of a wire to ground or to another wire. In simple electronics, this usually means something won't work at all. With complex electronics (such as ECMs or PCMs) this can sometimes mean something works, but not the way it's supposed to.

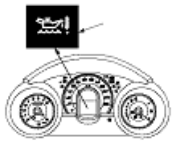
MIL indication

If you turn the ignition switch to the ON (II) position, without starting the engine, the malfunction indicator lamp (MIL) (A) will come on for about 20 seconds. It then goes off or brinks 5 times under various conditions. This is normal: it shows the self-testing condition of the diagnostics for the emissions control systems.
If the MIL in the gauge assembly will come on, go to how to use the HDS.



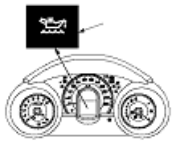
CHECK SYSTEM display (A) Indication (CHECK OIL LEVEL SENSOR)

If display is on, engine oil level sensor may have had a failure. Connect the HDS to the data link connector (DLC) located under the driver's side of the dashboard. Check the diagnostic trouble code (DTC) and note it. Then refer to the indicated DTC's troubleshooting, and begin the appropriate troubleshooting procedure.



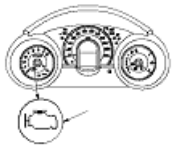
CHECK ENGINE OIL LEVEL display (A) Indication

If display is on, engine oil level may have had a failure. Check the engine oil level sensor.



How to Use the HDS (Honda Diagnostic System)

If the MIL (malfunction indicator lamp) has come on



1. Start the engine, and check the MIL (A).

2. If the MIL stays on, connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
3. Turn the ignition switch to ON (II).
4. Make sure the HDS communicates with the ECM/PCM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting.
5. Check the diagnostic trouble code (DTC) and note it. Also check the freeze data and/or on-board snapshot data, and download any data found. Then refer to the indicated DTC's troubleshooting, and begin the appropriate troubleshooting procedure.
   NOTE:
   - Freeze data indicates the engine conditions when the first system malfunction, misfire, or fuel trim malfunction that activated the MIL was detected.
   - The HDS can read the DTC, freeze data, on-board snapshot, current data, and other engine control module (ECM) or powertrain control module (PCM) data.
   - For specific operations, refer to the user's manual that came with the HDS.
6. If no DTCs are found, go to MIL troubleshooting.

If the MIL did not stay on

If the MIL did not stay on but there is a driveability problem, do the symptom troubleshooting.

If you can't duplicate the DTC

Some of the troubleshooting requires you to reset the ECM/PCM and try to duplicate the DTC. If the problem is intermittent and you can't duplicate the code, do not continue through the procedure. To do so will only result in confusion and possibly, a needlessly replaced ECM/PCM.

HDS Clear Command

The ECM/PCM stores various specific data to correct the system even if there is no electrical power such as when the battery negative terminal is disconnected. Stored data based on failed parts should be cleared by using the "CLEAR COMMAND" of the HDS, if parts are replaced.
The HDS has three kinds of clear commands to meet this purpose. They are clear DTCs, ECM/PCM reset, and CKP pattern clear. DTC clear command erases all stored DTC codes, freeze data, and on-board snapshot. This must be done with the HDS after reproducing the DTC during troubleshooting.
The ECM/PCM reset command erases all stored DTC codes, freeze data, on-board snapshot, and all specific data to correct the system except CKP pattern. If the CKP pattern data in the ECM/PCM was cleared, you must do the CKP pattern learn procedure. The CKP pattern clear command erases only CKP pattern data. This command is for repair of a misfire or the CKP sensor.

Scan Tool Clear Command

If you are using a generic scan tool to clear commands, be aware that there is only one setting for clearing the ECM/PCM, and it clears all commands at the same time (CKP pattern learn, idle learn, freeze data, on-board snapshot, and DTCs). After you clear all commands, you then need to do these procedures, in this order: ECM/PCM idle learn procedure; CKP pattern learn procedure.

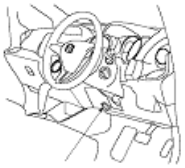
DTC Clear

1. Clear the DTC with the HDS while the engine is stopped.
2. Turn the ignition switch to LOCK (0).
3. Turn the ignition switch to ON (II), and wait 30 seconds.
4. Turn the ignition switch to LOCK (0), and disconnect the HDS from the DLC.

ECM/PCM Reset

1. Reset the ECM/PCM with the HDS while the engine is stopped.
2. Turn the ignition switch to LOCK (0).
3. Turn the ignition switch to ON (II), and wait 30 seconds.
4. Turn the ignition switch to LOCK (0), and disconnect the HDS from the DLC.
5. Do the ECM/PCM idle learn procedure.

CKP Pattern Clear/CKP Pattern Learn Clear/Learn Procedure (with the HDS)



1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the ECM/PCM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting.
4. Select CRANK PATTERN in the ADJUSTMENT MENU with the HDS.
5. Select CRANK PATTERN LEARNING with the HDS, and follow the screen prompts.
6. The CKP pattern learn procedure is complete.

Learn Procedure (without the HDS)

1. Start the engine. Hold the engine speed at 3,000 rpm (min^{-1}) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
2. Test-drive the vehicle on a level road: Decelerate (with the throttle fully closed) from an engine speed of 2,500 rpm (min^{-1}) down to 1,000 rpm (min^{-1}) with the A/T in 2 position, or the M/T in 1st gear.
3. Repeat Step 2 several times.
4. Turn the ignition switch to LOCK (0).
5. Turn the ignition switch to ON (II), and wait 30 seconds. The CKP pattern learn procedure is complete.

How to End a Troubleshooting Session (required after any troubleshooting)

1. Reset the ECM/PCM with the HDS.
2. Do the ECM/PCM idle learn procedure.
3. Turn the ignition switch to LOCK (0).
4. Disconnect the HDS from the DLC.
   NOTE: The ECM/PCM is part of the immobilizer system. If you replace the ECM/PCM, it will have a different immobilizer code. In order for the engine to start, you must rewrite the immobilizer code with the HDS (immobilizer system section).

How to Troubleshoot Circuits at the ECM/PCM Connectors

NOTE: The ECM/PCM stays on up to about 15 minutes after the ignition switch is turned to LOCK (0). Jumping the SCS line after turning the ignition switch to LOCK (0) cancels this function. Disconnecting the ECM/PCM during this function, without jumping the SCS line first, can damage the ECM/PCM.

1. Jump the SCS line with the HDS.
2. Disconnect ECM/PCM connectors A, B, and C.
   NOTE: ECM/PCM connectors A, B, and C have symbols (A=□, B=△, C=○) embossed on them for identification.

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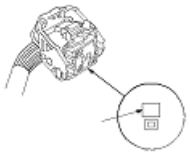
3. When diagnosis/troubleshooting is done at the ECM/PCM connector, use the terminal test port (A) above the terminal you need to check.



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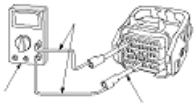
4. Connect one side of the patch cord (A) terminals to a commercially available digital multimeter (B), and connect the other side of the patch cord terminals to a commercially available banana jack (Pomona Electronics Tool No. 3563 or equivalent) (C).



5. Gently contact the pin probe (male) at test port from the terminal side. Do not force the tips into the terminals.

NOTICE

- For accurate results, always use the pin probe (male).
- To prevent damage to the connector terminals, do not insert test equipment probes, paper clips, or other substitutes as they can damage the terminals. Damaged terminals cause a poor connection and an incorrect measurement.
- Do not puncture the insulation on a wire. Punctures can cause poor or intermittent electrical connections.

Substituting the ECM/PCM

Special Tools Required

- Honda diagnostic system (HDS)
- Honda interface module (HIM)
- HDS pocket tester

NOTE: Use this procedure when you have to substitute a known-good ECM/PCM during troubleshooting procedure.

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the ECM/PCM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting.
4. Jump the SCS line with the HDS.
5. Turn the ignition switch to LOCK (0).

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6. Remove the ECM/PCM cover (A).

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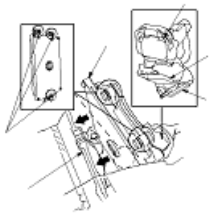
7. Remove the battery setting plate, and reposition the battery (D) away from the ECM/PCM.
   NOTE: Do not disconnect the battery terminals.
8. Remove the bolts (E).
9. Disconnect ECM/PCM connectors A, B, and C, then remove the ECM/PCM (F).
   NOTE: ECM/PCM connectors A, B, and C have symbols (A=□, B=△, C=○) embossed on them for identification.
10. Install a known-good ECM/PCM in the reverse order of removal.
11. Turn the ignition switch to ON (II).
    NOTE: DTC P0630 ‘‘VIN Not Programmed or Mismatch" may be stored because the VIN has not been programmed into the ECM/PCM; ignore it, and continue this procedure.
12. Manually input the VIN to the ECM/PCM with the HDS.
13. Select the IMMOBI SYSTEM with the HDS.
14. Enter the immobilizer code using the ECM/PCM replacement procedure in the HDS; it allows you to start the engine.
15. Reset the ECM/PCM with the HDS.
16. Update the ECM/PCM if it does not have the latest software.
17. Do the ECM/PCM idle learn procedure.
18. Do the CKP pattern learn procedure.



OBD Status

The OBD status shows the current system status of each DTC and all of the parameters. This function is used to see if the repair was successfully completed. The results of diagnostic tests for the DTC are displayed as:

- PASSED: The on board diagnosis is successfully finished.
- FAILED: The on board diagnosis has finished but failed.
- EXECUTING: The vehicle is in enable criteria conditions for the DTC and the on board diagnosis is running.
- NOT COMPLETED: The on board diagnosis was running but is out for the enable conditions for the DTC.
- OUT OF CONDITION: The vehicle has stayed out of the enable conditions for the DTC.

DTC Troubleshooting: P0171 (45), P0172 (45)

DTC P0171:
Fuel System Too Lean
DTC P0172:
Fuel System Too Rich
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.
- If some of the DTCs listed below are indicated at the same time as DTC P0171 and/or P0172, troubleshoot those DTCs first, then recheck for P0171 and/or P0172.
  P0102, P0103: Mass air flow (MAF) sensor
  P0107, P0108: Manifold absolute pressure (MAP) sensor
  P0133, P1157, P2238, P2252, P2A00: Air fuel ratio (A/F) sensor (Sensor 1)
  P0134, P0135: Air fuel ratio (A/F) sensor (Sensor 1) heater
  P0137, P0138, P0139: Secondary HO2S (Sensor 2)
  P0141: Secondary HO2S (Sensor 2) heater
  P2648, P2649: VTEC system
  P0443: EVAP canister purge valve

1. Check the fuel pressure.

   Is the fuel pressure OK?
   YES - Go to Step 2.
   NO -
   - If the pressure is too high, replace the fuel pressure regulator, then go to Step 10.
   - If the pressure is too low, check the fuel pump, the fuel feed pipe, and the fuel filter. If they are OK, replace the fuel pressure regulator, then go to Step 10.

2. Check for vacuum leaks at these parts:
   - PCV valve
   - PCV hose
   - EVAP canister purge valve
   - Throttle body
   - Intake manifold
   - Brake booster hose
   - Brake booster
   - Intake air duct

   Are the parts OK?
   YES - Go to Step 3.
   NO - Repair or replace parts with leaks, then go to Step 10.

3. Turn the ignition switch to LOCK (0).

4. Disconnect the vacuum hose (A) from the EVAP canister purge valve (B), and connect a vacuum pump/gauge to the EVAP canister purge valve.

5. Apply vacuum to the hose.

   Does the hold vacuum?
   YES - Go to Step 6.
   NO - Replace the EVAP canister purge valve, then go to Step 10.

6. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.

7. Check for these conditions:
   - Engine coolant temperature (ECT SENSOR 1) above 70 °C (158 °F)
   - A/T in P or N (M/T in neutral)
   - All electrical loads off

8. Monitor the ENGINE SPEED in the DATA LIST with the HDS, and hold the engine speed at 2,500 rpm (min $^{-1}$). Once the engine speed is met, hold the accelerator pedal steady for more than 10 seconds.

   Did the engine speed vary more than 100 rpm (min $^{-1}$) from 2,500 rpm (min $^{-1}$)?
   YES - Repeat Step 8.
   NO - Go to Step 9.

9. While holding the engine speed at 2,500 rpm (min $^{-1}$), check the MAF SENSOR in the DATA LIST with the HDS.

   Is there about 4.3−5.3 gm/s (L12B1 engine) or 4.5−5.5 gm/s (L13Z1 engine) or 4.6−5.7 gm/s (L15A7 engine)?
   YES - Check the engine valve clearances and adjust them if needed. If the valve clearances are OK, replace the injectors, then go to Step 10.
   NO - Replace the MAF sensor/IAT sensor, then go to Step 10.

10. Turn the ignition switch to ON (II).

11. Reset the ECM/PCM with the HDS.

12. Do the ECM/PCM idle learn procedure.

13. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.

14. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 70 °C (158 °F)
    - A/T in D, M/T in 4th
    - Drive at a steady speed between 24−120 km/h (15−75 mph) for 15 minutes

    NOTE: DTC P0171 and/or P0172 may take up to 80 minutes of test driving to set. Using the HDS, monitor the long term fuel trim (LT FUEL TRIM) or the air fuel feed back average (AF FB AVE). If the long term fuel trim/air fuel feed back average stays within 0.80−1.25, there is no problem at this time.

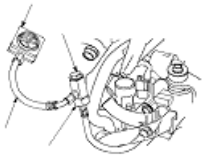
15. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0171 or P0172 indicated?

    YES - Check for poor connections or loose terminals at the MAF sensor/IAT sensor, the injectors, the EVAP canister purge valve, and the ECM/PCM, then go to Step 1 .

    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0300 (75) and any combination of P0301 (71), P0302 (72), P0303 (73), P0304 (74)



DTC P0300:
Random Misfire and Any Combination of the Following:
DTC P0301:
No. 1 Cylinder Misfire Detected
DTC P0302:
No. 2 Cylinder Misfire Detected
DTC P0303:
No. 3 Cylinder Misfire Detected
DTC P0304:
No. 4 Cylinder Misfire Detected

Special Tools Required

Oil pressure gauge attachment
07NAJ-P070100

Low pressure gauge assy. 1,000 kpa
07406-0070002

Oil pressure hose
07ZAJ-S5A0200

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.
- If the misfire is frequent enough to trigger detection of increased emissions during two consecutive driving cycles, the MIL will come on, and DTC P0300 (and some of the combination of P0301 through P0304) will be stored.
- If the misfire is frequent enough to damage the catalyst, the MIL will flash whenever the misfire occurs, and DTC P0300 (and some of the combination of P0301 through P0304) will be stored. When the misfire stops, the MIL will remain on.
- If any of the DTCs listed below are indicated at the same time as the random misfire DTCs, troubleshoot those DTCs first, then recheck for random misfire DTCs:
  P0102, P0103: Mass air flow (MAF) sensor
  P0107, P0108: Manifold absolute pressure (MAP) sensor
  P0171, P0172: Fuel system
  P0335, P0339: Crankshaft position (CKP) sensor
  P0365, P0369: Camshaft position (CMP) sensor
  P2648, P2649: VTEC system

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral).
4. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?
   YES - Go to Step 9.
   NO - If the screen indicates PASSED, go to Step 5. If the screen indicates EXECUTING, keep idling until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, wait for several minutes, then recheck.
5. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

   Does the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?
   YES - Go to Step 9.
   NO - Go to Step 6.
6. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
   - ENGINE SPEED
   - VSS
   - REL TP SENSOR
   - CLV (calculated load value)
   - APP SENSOR
7. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?
   YES - Go to Step 9.
   NO - If the screen indicates PASSED, go to Step 8. If the screen indicates EXECUTING, keep driving until a result comes on. if the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 6 and recheck.
8. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

   Does the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?
   YES - Go to Step 9.
   NO - Intermittent failure, the system is OK at this time.■

9. Turn the ignition switch to LOCK (0).
10. Check the fuel quality.

    Is the quality good?
    YES - Go to Step 11 .
    NO - Drain the tank and fill with a known-good fuel, then go to Step 24 .
11. Inspect the spark plugs. If the spark plugs are fouled or worn, replace them.
12. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
    - ENGINE SPEED
    - VSS
    - REL TP SENSOR
    - CLV (calculated load value)
    - APP SENSOR
13. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

    Does the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?
    YES - Go to Step 14 .
    NO - Go to Step 24 .
14. Check the fuel pressure.

    Is the fuel pressure OK?
    YES - Go to Step 15 .
    NO -
    - If the fuel pressure is too high, replace the fuel pressure regulator, then go to Step 24 .
    - If the fuel pressure is too low, check the fuel pump, the fuel feed pipe, and the fuel filter. If they are OK, replace the fuel pressure regulator, then go to Step 24 .
15. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
16. Check for these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 80 °C (176 °F)
    - A/T in P or N, M/T in neutral
    - All electrical loads off
17. Monitor the ENGINE SPEED in the DATA LIST with the HDS, and hold the engine speed at 2,500 rpm (min $^{-1}$). Once the engine speed is met, hold the accelerator pedal steady for more than 10 seconds.

    Did the engine speed vary more than 100 rpm (min $^{-1}$) from 2,500 rpm (min $^{-1}$)?
    YES - Repeat Step 17 .
    NO - Go to Step 18 .
18. While holding the engine speed at 2,500 rpm (min $^{-1}$), check the MAF SENSOR in the DATA LIST with the HDS.

    Is there about 4.3−5.3 gm/s (L12B1 engine), 4.5−5.5 gm/s (L13Z1 engine), 4.6−5.7 gm/s (L15A7 engine)?
    YES - Go to Step 19 .
    NO - Replace the MAF sensor/IAT sensor, then go to Step 24 .
19. Turn the ignition switch to LOCK (0).
20. Remove rocker arm oil pressure switch.
21. Attach the bolt (A) from the rocker arm oil control valve and connect the special tool as shown, the install the bolt that was removed to the pressure gauge joint attachment.
22. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
23. Check the oil pressure at engine speeds of 1,000 rpm (min $^{-1}$) and 2,000 rpm (min $^{-1}$).

    Is the oil pressure below 49 kPa (0.5 kgf/cm ^{2} , 7 psi)?
    YES - Check for air in the fuel line, then go to Step 24 .
    NO - Inspect the VTEC system, then go to Step 24 .
24. Turn the ignition switch to ON (II).
25. Reset the ECM/PCM with the HDS.
26. Clear the CKP pattern with the HDS.
27. Do the ECM/PCM idle learn procedure.
28. Do the CKP pattern learn procedure.
29. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
    - ENGINE SPEED
    - VSS

- REL TP SENSOR
- CLV (calculated load value)
- APP SENSOR

30. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0300, P0301, P0302, P0303, or P0304 indicated?

YES - Check for a poor connections or loose terminals at the ignition coils, the injectors, and the ECM/PCM, then go to the troubleshooting for DTC P0301, P0302, P0303, or P0304.

NO - Go to Step 31 .

31. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 30 , go to the indicated DTC's troubleshooting.■

NO - If the screen indicates FAILED, go to Step 1 and recheck. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 29 .

DTC Troubleshooting: P0401 (80)

DTC P0401:
EGR Insufficient Flow
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm (min^{-1}) without load (in neutral) until the radiator fan comes on, then let it idle.
4. Do the EGR TEST in the INSPECTION MENU with the HDS.

   Is the result OK?
   YES - Go to Step 5.
   NO - Go to Step 7.
5. Test-drive under these conditions:
   - Engine coolant temperature (ECT SENSOR 1) above 70 °C (158 °F)
   - M/T in 4th
   - Drive the vehicle at a steady speed between 24–60 km/h (15–38 mph)
   - During the drive, decelerate (with the throttle fully closed) for 4 seconds
6. Monitor the OBD STATUS for DTC P0401 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?
   YES - Clean the intake manifold EGR port and EGR pipe with throttle plate and induction cleaner. Also, clean the passage inside the EGR valve with throttle plate and induction cleaner, then go to Step 9.
   NO - If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EGR valve and the ECM. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 5 and recheck.
7. Turn the ignition switch to LOCK (0).
8. Replace the EGR valve.
9. Turn the ignition switch to ON (II).
10. Reset the ECM with the HDS.
11. Do the ECM idle learn procedure.
12. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 70 °C (158 °F)
    - M/T in 4th
    - Drive the vehicle at a steady speed between 24–60 km/h (15–38 mph)
    - During the drive, decelerate (with the throttle fully closed) for 4 seconds
13. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0401 indicated?
    YES - Check for poor connections or loose terminals at the EGR valve and the ECM. If the connections are OK, go to Step 15.
    NO - Go to Step 14.
14. Monitor the OBD STATUS for DTC P0401 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?
    YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 13, go to the indicated DTC's troubleshooting.■
    NO - If the screen indicates FAILED, check for poor connections or loose terminals at the EGR valve and the ECM, then go to Step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 12.
15. Update the ECM if it does not have the latest software, or substitute a known-good ECM.
16. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 70 °C (158 °F)
    - M/T in 4th
    - Drive the vehicle at a steady speed between 24–60 km/h (15–38 mph)
    - During the drive, decelerate (with the throttle fully closed) for 4 seconds
17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0401 indicated?
    YES - Check for poor connections or loose terminals at the EGR valve and the ECM. If the ECM was updated, substitute a known-good ECM, then go to Step 16. If the ECM was substituted, go to Step 1.
    NO - Go to Step 18.

18. Monitor the OBD STATUS for DTC P0401 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES - If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM. If any other Temporary DTCs or DTCs were indicated in Step 17 , go to the indicated DTC's troubleshooting.■

NO - If the screen indicates FAILED, check for poor connections or loose terminals at the EGR valve and the ECM. If the ECM was updated, substitute a known-good ECM, then go to Step 16 . If the ECM was substituted, go to Step 1 . If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 16 .

DTC Troubleshooting: P0404 (12)

DTC P0404:
EGR Control Circuit Range/Performance Problem
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (in neutral) until the radiator fan comes on, then let it idle.
4. Do the EGR TEST in the INSPECTION MENU with the HDS.

   Is the result OK?
   YES - Intermittent failure, the system is OK at this time. Clean any carbon build-up on the EGR valve with throttle plate and induction cleaner.■
   NO - Go to Step 5 .
5. Turn the ignition switch to LOCK (0).
6. Disconnect the EGR valve 5P connector.
7. At the EGR valve side, measure the resistance between EGR valve 5P connector terminals No. 2 and No. 3.

   Is there 100 kΩ or more?
   YES - Go to Step 25 .
   NO - Go to Step 8 .

---

8. Measure the resistance between EGR valve 5P connector terminals No. 2 and No. 4.

   Is there 100 kΩ or more?
   YES - Go to Step 25 .
   NO - Go to Step 9 .

---

9. Check for continuity between EGR valve 5P connector terminal No. 5 and body ground.

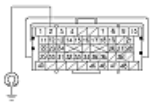
   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wire between the EGR valve and G101, then go to Step 26 .

10. Jump the SCS line with the HDS.
11. Disconnect ECM connector B (49P).

---

12. Check for continuity between ECM connector terminal B2 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the ECM (B2) and the EGR valve, then go to Step 26 .
    NO - Go to Step 13 .



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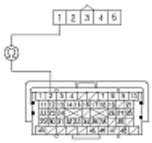
13. Check for continuity between ECM connector terminal B2 and EGR valve 5P connector terminal No. 1.

    Is there continuity?
    YES - Go to Step 14 .
    NO - Repair open in the wire between the ECM (B2) and the EGR valve, then go to Step 26 .



14. Remove the EGR valve.
15. Clean the intake manifold EGR port and the EGR pipe with throttle plate and induction cleaner. Also, clean the passage inside the EGR valve with throttle plate and induction cleaner.
16. Install the EGR valve.
17. Reconnect the EGR valve 5P connector.
18. Reconnect ECM connector B (49P).
19. Turn the ignition switch to ON (II).
20. Reset the ECM with the HDS.
21. Do the ECM idle learn procedure.
22. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (in neutral) until the radiator fan comes on, then let it idle.
23. Do the EGR TEST in the INSPECTION MENU with the HDS.

Is the result OK?

YES - Go to Step 32 .
NO - Go to Step 24 .

24. Turn the ignition switch to LOCK (0).
25. Replace the EGR valve.
26. Reconnect all connectors.
27. Turn the ignition switch to ON (II).
28. Reset the ECM with the HDS.
29. Do the ECM idle learn procedure.
30. Start the engine. Hold the engine speed at 3,000 rpm (min^{-1}) without load (in neutral) until the radiator fan comes on, then let it idle.
31. Do the EGR TEST in the INSPECTION MENU with the HDS.
32. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0404 indicated?

    YES - Check for poor connections or loose terminals at the EGR valve and the ECM, then go to Step 1 . If the connections and terminals are OK, go to Step 34 .
    NO - Go to Step 33 .

33. Monitor the OBD STATUS for DTC P0404 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 32 , go to the indicated DTC's troubleshooting.■
    NO - If the screen indicates FAILED, check for poor connections or loose terminals at the EGR valve and the ECM, then go to Step 1 . If the screen indicates EXECUTING, keep testing until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 30 .

34. Reconnect all connectors.
35. Update the ECM if it does not have the latest software, or substitute a known-good ECM.
36. Do the EGR TEST in the INSPECTION MENU with the HDS.
37. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0404 indicated?

    YES - Check for poor connections or loose terminals at the EGR valve and the ECM. If the ECM was updated, substitute a known-good ECM, then go to Step 36 . If the ECM was substituted, go to Step 1 .
    NO - Go to Step 38 .

38. Monitor the OBD STATUS for DTC P0404 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES - If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM. If any other Temporary DTCs or DTCs were indicated in Step 37 , go to the indicated DTC's troubleshooting.■
    NO - If the screen indicates FAILED, check for poor connections or loose terminals at the EGR valve and the ECM. If the ECM was updated, substitute a known-good ECM, then go to Step 36 . If the ECM was substituted, go to Step 1 . If the screen indicates EXECUTING, keep testing until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 36 .

DTC Troubleshooting: P0406 (12)

DTC P0406:
EGR Valve Position Sensor Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check the EGR VLS in the DATA LIST with the HDS.

   Is 4.88 V or more indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EGR valve and the ECM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the EGR valve 5P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between EGR valve 5P connector terminals No. 3 and No. 4.

   Is there about 5 V?
   YES - Go to Step 11 .
   NO - Go to Step 7 .
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM connector B (49P).

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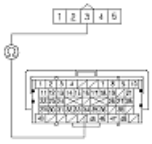
10. Check for continuity between ECM connector terminal B34 and EGR valve 5P connector terminal No. 3.



    Is there continuity?
    YES - Go to Step 18 .
    NO - Repair open in the wire between the EGR valve and the ECM (B34), then go to Step 13 .
11. Turn the ignition switch to LOCK (0).
12. Replace the EGR valve.
13. Reconnect all connectors.
14. Turn the ignition switch to ON (II).
15. Reset the ECM with the HDS.
16. Do the ECM idle learn procedure.
17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0406 indicated?
    YES - Check for poor connections or loose terminals at the EGR valve and the ECM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
18. Reconnect all connectors.
19. Update the ECM if it does not have the latest software, or substitute a known-good ECM.
20. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0406 indicated?
    YES - Check for poor connections or loose terminals at the EGR valve and the ECM. If the ECM was updated, substitute a known-good ECM, then recheck. If the ECM was substituted, go to Step 1 .
    NO - If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2413 (12)

DTC P2413:
EGR System Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (in neutral) until the radiator fan comes on, then let it idle.
4. Do the EGR TEST in the INSPECTION MENU with the HDS.

   Is the result OK?
   YES - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EGR valve and the ECM.■
   NO - Go to Step 5 .
5. Turn the ignition switch to LOCK (0).
6. Turn the ignition switch to ON (II).
7. Check the EGR VLS in the DATA LIST with the HDS.

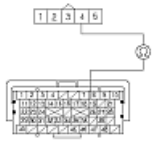
   Is about 0 V indicated?
   YES - Go to Step 8 .
   NO - Go to Step 21 .
8. Turn the ignition switch to LOCK (0).
9. Disconnect the EGR valve 5P connector.
10. Turn the ignition switch to ON (II).
11. Measure the voltage between EGR valve 5P connector terminal No. 4 and body ground.

    Is there about 5 V?
    YES - Go to Step 16 .
    NO - Go to Step 12 .
12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.
14. Disconnect ECM connector B (49P).

---

15. Check for continuity between ECM connector terminal B19 and EGR valve 5P connector terminal No. 4.

    Is there continuity?
    YES - Go to Step 51 .
    NO - Repair open in the wire between the EGR valve and the ECM (B19), then go to Step 44 .

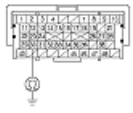


16. Turn the ignition switch to LOCK (0).
17. Jump the SCS line with the HDS.
18. Disconnect ECM connector B (49P).

---

19. Check for continuity between ECM connector terminal B30 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the ECM (B30) and the EGR valve, then go to Step 44 .
    NO - Go to Step 20 .



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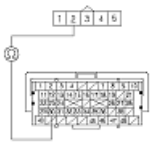
20. Check for continuity between ECM connector terminal B30 and EGR valve 5P connector terminal No. 2.

    Is there continuity?
    YES - Go to Step 21 .
    NO - Repair open in the wire between the ECM (B30) and the EGR valve, then go to Step 44 .



21. Turn the ignition switch to LOCK (0).
22. If not already done, disconnect the EGR valve 5P connector.

---

23. At the EGR valve side, measure the resistance between EGR valve 5P connector terminals No. 2 and No. 3.

Is there 100 kΩ or more?
YES - Go to Step 43 .
NO - Go to Step 24 .

---

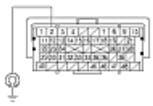
24. At the EGR valve side, measure the resistance between EGR valve 5P connector terminals No. 2 and No. 4.

Is there 100 kΩ or more?
YES - Go to Step 43 .
NO - Go to Step 25 .

25. If not already done, jump the SCS line with the HDS.
26. If not already done, disconnect ECM connector B (49P).

---

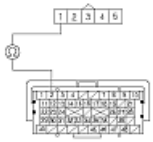
27. Check for continuity between ECM connector terminal B2 and body ground.



Is there continuity?
YES - Repair short in the wire between the ECM (B2) and the EGR valve, then go to Step 44 .
NO - Go to Step 28 .

---

28. Check for continuity between ECM connector terminal B2 and EGR valve 5P connector terminal No. 1.



Is there continuity?
YES - Go to Step 29 .
NO - Repair open in the wire between the ECM (B2) and the EGR valve, then go to Step 44 .

---

29. Check for continuity between EGR valve 5P connector terminal No. 5 and body ground.

Is there continuity?
YES - Go to Step 30 .
NO - Repair open in the wire between the EGR valve and G101, then go to Step 44 .

30. Reconnect ECM connector B (49P).

---

31. At the EGR valve side, connect the battery positive terminal to EGR valve 5P connector terminal No. 1 with a jumper wire.

32. Start the engine, and let it idle. Then connect the battery negative terminal to EGR valve 5P connector terminal No. 5 with a jumper wire.

Does the engine stall or run roughly?
YES - Go to Step 51 .
NO - Go to Step 33 .

33. Turn the ignition switch to LOCK (0).
34. Remove the EGR valve.
35. Clean the intake manifold EGR port and the EGR pipe with throttle plate and induction cleaner. Also, clean the passage inside the EGR valve with throttle plate and induction cleaner.
36. Install the EGR valve.
37. Reconnect all connectors.
38. Turn the ignition switch to ON (II).
39. Reset the ECM with the HDS.
40. Do the ECM idle learn procedure.
41. Do the EGR TEST in the INSPECTION MENU with the HDS.

Is the result OK?
YES - Go to Step 49 .
NO - Go to Step 42 .

42. Turn the ignition switch to LOCK (0).
43. Replace the EGR valve.
44. Reconnect all connectors.

45. Turn the ignition switch to ON (II).
46. Reset the ECM with the HDS.
47. Do the ECM idle learn procedure.
48. Do the EGR TEST in the INSPECTION MENU with the HDS.
49. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2413 indicated?
    YES - Check for poor connections or loose terminals at the EGR valve and the ECM, then go to Step 1 .
    NO - Go to Step 50 .

50. Monitor the OBD STATUS for DTC P2413 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?
    YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 49 , go to the indicated DTC's troubleshooting.■
    NO - If the screen indicates FAILED, check for poor connections or loose terminals at the EGR valve and the ECM, then go to Step 1 . If the screen indicates EXECUTING, keep testing until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 47 .

51. Reconnect all connectors.
52. Update the ECM if it does not have the latest software, or substitute a known-good ECM.
53. Do the EGR TEST in the INSPECTION MENU with the HDS.
54. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2413 indicated?
    YES - Check for poor connections or loose terminals at the EGR valve and the ECM. If the ECM was updated, substitute a known-good ECM, then go to Step 52 . If the ECM was substituted, go to Step 1 .
    NO - Go to Step 55 .

55. Monitor the OBD STATUS for DTC P2413 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?
    YES - If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM. If any other Temporary DTCs or DTCs were indicated in Step 54 , go to the indicated DTC's troubleshooting.■
    NO - If the screen indicates FAILED, check for poor connections or loose terminals at the EGR valve and the ECM. If the ECM was updated, substitute a known-good ECM, then go to Step 53 . If the ECM was substituted, go to Step 1 . If the screen indicates EXECUTING, keep testing until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 53 .

DTC Troubleshooting: P250A

DTC P250A:
Engine Oil Level Sensor Circuit Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Wait 5 seconds.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P250A indicated?
   YES - Go to Step 5.
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the engine oil level sensor and the ECM.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the engine oil level sensor 3P connector.
7. Turn the ignition switch to ON (II).
8. Measure the voltage between engine oil level sensor 3P connector terminal No. 3 and body ground.

   Is there battery voltage?
   YES - Go to Step 9.
   NO - Repair open in the wire between the engine oil level sensor and the No. 31 OIL LVL (7.5 A) fuse then go to Step 19.

---

9. Check for continuity between engine oil level sensor 3P connector terminal No. 2 and body ground.

   Is there continuity?
   YES - Go to Step 10.
   NO - Repair open in the wire between the engine oil level sensor and G101, then go to Step 19.

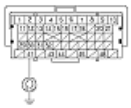
---

10. Measure the voltage between engine oil level sensor 3P connector terminal No. 1 and body ground.

    Is there battery voltage?
    YES - Go to Step 17.
    NO - Go to Step 11.
11. Turn the ignition switch to LOCK (0).
12. Jump the SCS line with the HDS.
13. Disconnect ECM connector C (49P).

---

14. Check for continuity between ECM connector terminal C41 and body ground.



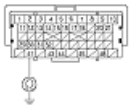
    Is there continuity?
    YES - Repair short in the wire between the ECM (C41) and the engine oil level sensor, then go to Step 19.
    NO - Go to Step 15.

---

15. Connect engine oil level sensor 3P connector terminal No. 1 to body ground with a jumper wire.

---

16. Check for continuity between ECM connector terminal C41 and body ground.



Is there continuity?
YES - Go to Step 24 .
NO - Repair open in the wire between the ECM (C41) and the engine oil level sensor, then go to Step 19 .

17. Turn the ignition switch to LOCK (0).
18. Replace the engine oil level sensor.
19. Reconnect all connectors.
20. Turn the ignition switch to ON (II).
21. Reset the ECM with the HDS.
22. Do the ECM idle learn procedure.
23. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P250A indicated?
YES - Check for poor connections or loose terminals at the engine oil level sensor and the ECM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

24. Reconnect all connectors.
25. Update the ECM if it does not have the latest software, or substitute a known-good ECM.
26. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P250A indicated?
YES - Check for poor connections or loose terminals at the engine oil level sensor and the ECM. If the ECM was updated, substitute a known-good ECM, then recheck. If the ECM was substituted, go to Step 1 .
NO - If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P250B

DTC P250B:
Engine Oil Level Sensor Range/Performance Problem
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.
- When you check this DTC troubleshooting, carry out in a flat place.
- Check the engine oil level and condition, before checking this DTC troubleshooting.

1. Start the engine. Hold the engine speed at 3,000 rpm (min^{-1}) without load (in neutral) until the radiator fan comes on, then let it idle.
2. Check the ENGINE OIL TEMPERATURE in the DATA LIST with the HDS.

   Is 50 °C (122 °F) or more indicated?
   YES - Go to Step 3.
   NO - Keep idling until the value of ENGINE OIL TEMPERATURE becomes 50 °C (122 °F) or more, then go to Step 3.
3. Check the ENGINE OIL LEVEL MONITOR CONDITION in the DATA LIST with the HDS.

   Is it OK?
   YES - Go to Step 4.
   NO - Keep idling until the screen indicates "OK", then go to Step 4.
4. Maintain idling for 2 minutes.
5. Note the value of ENGINE OIL LEVEL in the DATA LIST with the HDS.
6. Stop the engine, but stop the ignition switch with ON (II) position.
7. Wait 5 minutes.
8. Check the ENGINE OIL LEVEL in the DATA LIST with the HDS.
9. Compare the value of ENGINE OIL LEVEL and the recorded value of ENGINE OIL LEVEL.

   Does the value of ENGINE OIL LEVEL differ 2 mm (0.08 in.) or more?
   YES - Intermittent failure, the system is OK at this time. Check the engine oil level and condition.■
   NO - Go to Step 10.
10. Replace the engine oil level sensor.
11. Turn the ignition switch to ON (II).
12. Reset the ECM with the HDS.
13. Do the ECM idle learn procedure.
14. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P250B indicated?
    YES - Check for poor connections or loose terminals at the engine oil level sensor and the ECM, then go to Step 1.
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P250E

DTC P250E:
Engine Oil Level Sensor Intermittent Interruption
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle for 1 minute.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P250E indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the engine oil level sensor and the ECM.■
5. Turn the ignition switch to LOCK (0).
6. Check for poor or loose connections and terminals at these locations:
   - Oil level sensor
   - ECM
   - Engine ground (G101)
   - Body ground

   Are the connections and terminals OK?
   YES - Go to Step 7 .
   NO - Repair the connectors or terminals, then go to Step 12 .
7. Substitute a known-good engine oil level sensor.
8. Turn the ignition switch to ON (II).
9. Clear the DTC with the HDS.
10. Start the engine, and let it idle for 1 minute.
11. Check for Temporary DTCs or DTCs with the HDS.

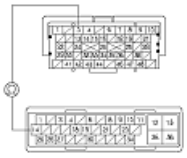
    Is DTC P250E indicated?
    YES - Go to Step 16 .
    NO - Replace the original engine oil level sensor, then go to Step 12 .
12. Turn the ignition switch to ON (II).
13. Reset the ECM with the HDS.
14. Do the ECM idle learn procedure.
15. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P250E indicated?
    YES - Check for poor connections or loose terminals at the engine oil level sensor and the ECM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
16. Update the ECM if it does not have the latest software, or substitute a known-good ECM.
17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P250E indicated?
    YES - Check for poor connections or loose terminals at the engine oil level sensor and the ECM. If the ECM was updated, substitute a known-good ECM, then recheck. If the ECM was substituted, go to Step 1 .
    NO - If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: U0122

DTC U0122:
F-CAN Malfunction (ECM-VSA Modulator-Control Unit)
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.



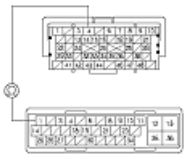
1. Turn the ignition switch to ON (II).
2. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC U0029 and U0122 indicated at the same time?
   YES - Go to troubleshooting for DTC U0029. ■
   NO - Go to Step 3 .
3. Clear the DTC with the HDS.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC U0122 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the gauge control module, the VSA modulator-control unit, and the ECM.■
5. Check for communication to the VSA system with the HDS.

   Does the HDS communicate with the VSA modulator-control unit?
   YES - Go to Step 6 .
   NO - Go to the DLC circuit troubleshooting. ■
6. Turn the ignition switch to LOCK (0).
7. Jump the SCS line with the HDS.
8. Disconnect the VSA modulator-control unit 36P connector.
9. Disconnect ECM connector A (49P).
10. Check for continuity between ECM connector terminal A3 and VSA modulator-control unit 36P connector terminal No. 14.

    Is there continuity?
    YES - Go to Step 11 .
    NO - Repair open in the wire between the ECM (A3) and the VSA modulator-control unit, then go to Step 12 .



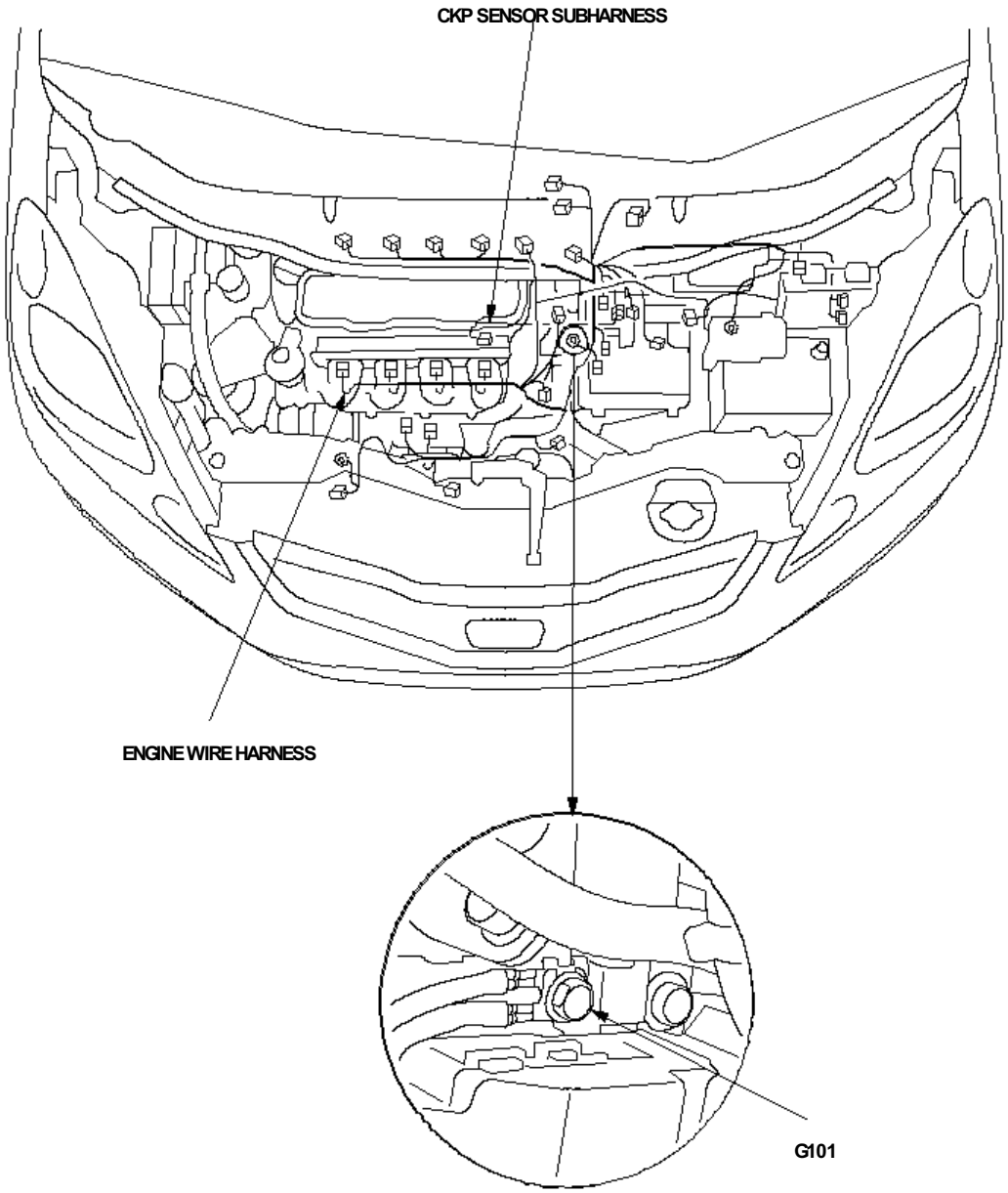
11. Check for continuity between ECM connector terminal A4 and VSA modulator-control unit 36P connector terminal No. 1.

    Is there continuity?
    YES - Update the VSA modulator-control unit if it does not have the latest software, or substitute a known-good VSA modulator-control unit, then go to Step 12 and recheck. If DTC U0122 is not indicated after substitution, replace the original VSA modulator-control unit, then go to Step 12 .
    NO - Repair open in the wire between the ECM (A4) and the VSA modulator-control unit, then go to Step 12 .
12. Reconnect all connectors.
13. Turn the ignition switch to ON (II).
14. Reset the ECM with the HDS.
15. Do the ECM idle learn procedure.
16. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC U0122 indicated?
    YES - Check for poor connections or loose terminals at the gauge control module, the VSA modulator unit, and the ECM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

Engine Wire Harness and CKP Sensor Subharness Locations

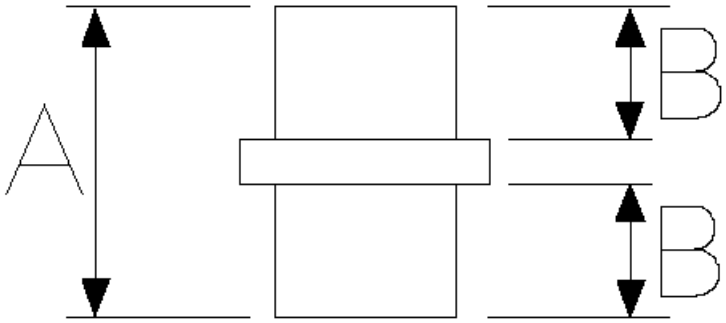
M/T



RHD model is shown, LHD model is similar.

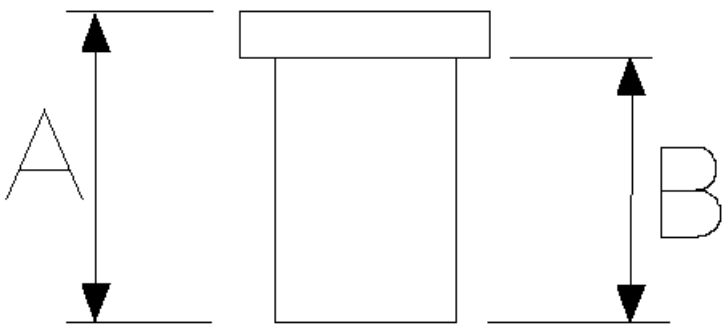
Manual Transmission and M/T Differential

Item	Measurement	Qualification	Standard or New	Service Limit
Manual transmission fluid	Capacity Use genuine Honda MTF	Fluid change	1.5 L (1.6 US qt, 1.3 Imp qt)	
		Overhaul	1.6 L (1.7 US qt, 1.4 Imp qt)	
Mainshaft	End play		0.11–0.18 mm (0.004–0.007 in.)	Adjust
	Diameter of ball bearing contact area (transmission housing side)		25.987–26.000 mm (1.0231–1.0236 in.)	25.93 mm (1.020 in.)
	Diameter of distance collar contact area		28.992–29.005 mm (1.1414–1.1419 in.)	28.93 mm (1.139 in.)
	Diameter of needle bearing contact area		34.984–35.000 mm (1.3773–1.3780 in.)	34.93 mm (1.375 in.)
	Diameter of ball bearing contact area (clutch housing side)		25.977–25.990 mm (1.0227–1.0232 in.)	25.92 mm (1.020 in.)
	Diameter of pilot bearing contact area		14.870–14.890 mm (0.5854–0.5862 in.)	———
	Runout		0.02 mm (0.001 in.) max.	0.05 mm (0.002 in.)
Mainshaft 3rd and 4th gear	I.D.		39.009–39.025 mm (1.5358–1.5364 in.)	39.07 mm (1.538 in.)
	Clearance	2nd-3rd	0.06–0.21 mm (0.002–0.008 in.)	0.33 mm (0.013 in.)
	Endplay	4th	0.06–0.19 mm (0.002–0.007 in.)	0.31 mm (0.012 in.)
	Thickness	3rd	27.92–27.97 mm (1.099–1.101 in.)	27.85 mm (1.096 in.)
		4th	27.02–27.07 mm (1.064–1.066 in.)	26.65 mm (1.049 in.)
Mainshaft 5th gear	I.D.		39.009–39.025 mm (1.5358–1.5364 in.)	39.07 mm (1.538 in.)
	End play		0.06–0.19 mm (0.002–0.007 in.)	0.31 mm (0.012 in.)
	Thickness		28.92–28.97 mm (1.139–1.141 in.)	28.85 mm (1.136 in.)
Mainshaft 4th and 5th gear distance collar	I.D.		29.014–29.024 mm (1.1423–1.1427 in.)	29.06 mm (1.144 in.)
	O.D.		34.989–35.000 mm (1.3775–1.3780 in.)	34.93 mm (1.375 in.)
	Length	A	51.97–52.03 mm (2.046–2.048 in.)	———
			.946–0.947 in.)	———
Mainshaft MBS distance collar			1.024–1.030 in.)	———
			.472–0.474 in.)	———



Manual Transn

Item			ard or New	Service Limit
Countershaft			(1.3386–1.3392 in.)	33.95 mm (1.337 in.)
			(0.9835–0.9840 in.)	24.93 mm (0.981 in.)
			(1.4365–1.4370 in.)	36.44 mm (1.4346 in.)
			max.	0.05 mm (0.002 in.)
Countershaft 1st gear			(1.9098–1.9104 in.)	48.580 mm (1.9126 in.)
			1–0.005 in.)	0.24 mm (0.009 in.)
			080–1.081 in.)	27.39 mm (1.078 in.)
Countershaft 2nd gear	I.D.		45.009–45.025 mm (1.7720–1.7726 in.)	45.07 mm (1.774 in.)
	End play		0.04–0.12 mm (0.002–0.005 in.)	0.24 mm (0.009 in.)
	Thickness		27.41–27.46 mm (1.079–1.081 in.)	27.36 mm (1.077 in.)
Countershaft 1st gear distance collar	I.D.		36.50–36.51 mm (1.4370–1.4373 in.)	36.52 mm (1.4378 in.)
	O.D.		44.489–45.000 mm (1.7515–1.7717 in.)	44.44 mm (1.7500 in.)
	Length	A	30.50–30.54 mm (1.2007–1.2023 in.)	———
			044–1.046 in.)	———
Countershaft 2nd gear distance collar			(1.3386–1.3390 in.)	34.04 mm (1.340 in.)
			(1.5744–1.5748 in.)	39.93 mm (1.572 in.)
			084–1.085 in.)	27.51 mm (1.083 in.)
Reverse idler gear			(0.5912–0.5922 in.)	15.08 mm (0.594 in.)
			0012–0.0030 in.)	0.14 mm (0.006 in.)
Synchro ring			3–0.043 in.)	0.4 mm (0.02 in.)
Shift fork			.30 in.)	———
			.27 in.)	———
			4–0.026 in.)	1.0 mm (0.04 in.)
Reverse shift fork			–0.54 in.)	———
			1–0.075 in.)	2.5 mm (0.098 in.)
Shift arm			(0.5501–0.5512 in.)	———
			8–0.512 in.)	———
			0.020 in.)	0.62 mm (0.024 in.)
Select lever	Finger width		12.80–12.95 mm (0.504–0.510 in.)	———
Change lever	Shaft-to-select lever clearance		0.05–0.35 mm (0.002–0.014 in.)	0.55 mm (0.022 in.)
	Groove width		13.00–13.15 mm (0.512–0.518 in.)	———



Item	Measurement	Qualification	Standard or New	Service Limit
	Shaft-to-shift arm clearance		0.013−0.070 mm (0.0005−0.0028 in.)	0.1 mm (0.004 in.)
M/T differential pinion gear	Backlash		0.05−0.15 mm (0.002−0.006 in.)	———
M/T differential 72 mm shim (L13Z1, L13Z3)	72 mm shim-to-bearing outer race clearance in transmission housing		0.01−0.1 mm (0.0004−0.004 in.)	Adjust
M/T differential 80 mm shim (L15A7, L15A8)	80 mm shim-to-bearing outer race clearance in transmission housing		0.01−0.1 mm (0.0004−0.004 in.)	Adjust

Manual transmission fluid

Item	Measurement	Qualification	Standard or New	Service Limit
Manual transmission fluid	Capacity Use genuine Honda MTF	Fluid change	1.5 L (1.6 US qt, 1.3 Imp qt)	
		Overhaul	1.6 L (1.7 US qt, 1.4 Imp qt)	

Clutch disc

Item	Measurement	Qualification	Standard or New	Service Limit
Clutch disc	Rivet head depth		1.00−1.50 mm (0.039−0.059 in.)	0.2 mm (0.008 in.)
	Thickness		7.25−7.95 mm (0.285−0.313 in.)	5.0 mm (0.20 in.)

Clutch pedal

Item	Measurement	Qualification	Standard or New	Service Limit
Clutch pedal	Height from the floor		150 mm (5.91 in.)	———
	Stroke		120−130 mm (4.72−5.12 in.)	———

Pressure plate

Item	Measurement	Qualification	Standard or New	Service Limit
Pressure plate	Warpage		0.03 mm (0.001 in.) max.	0.15 mm (0.006 in.)
	Height difference of diaphragm spring fingers measured with dial indicator		0.6 mm (0.02 in.) max.	1.0 mm (0.04 in.)

Flywheel

Item	Measurement	Qualification	Standard or New	Service Limit
Flywheel	Runout on clutch mating surface		0.05 mm (0.002 in.) max.	0.15 mm (0.006 in.)

Reverse idler gear

Item	Measurement	Qualification	Standard or New	Service Limit
Reverse idler gear	I.D.		15.016−15.043 mm (0.5912−0.5922 in.)	15.08 mm (0.594 in.)
	Gear-to-reverse gear shaft clearance		0.032−0.077 mm (0.0012−0.0030 in.)	0.14 mm (0.006 in.)

Countershaft

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft	Diameter of needle bearing contact area (transmission housing side)		34.000−34.015 mm (1.3386−1.3392 in.)	33.95 mm (1.337 in.)
	Diameter of ball bearing contact area (clutch housing side)		24.980−24.993 mm (0.9835−0.9840 in.)	24.93 mm (0.981 in.)
	Diameter of distance collar contact area		36.487−36.500 mm (1.4365−1.4370 in.)	36.44 mm (1.4346 in.)
	Runout		0.02 mm (0.001 in.) max.	0.05 mm (0.002 in.)

Countershaft 1st gear

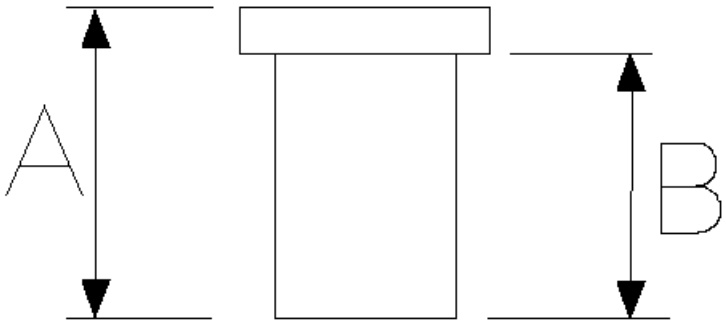
Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft 1st gear	I.D.		48.509−48.525 mm (1.9098−1.9104 in.)	48.580 mm (1.9126 in.)
	End play		0.03−0.12 mm (0.001−0.005 in.)	0.24 mm (0.009 in.)
	Thickness		27.42−27.47 mm (1.080−1.081 in.)	27.39 mm (1.078 in.)

Countershaft 2nd gear

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft 2nd gear	I.D.		45.009−45.025 mm (1.7720−1.7726 in.)	45.07 mm (1.774 in.)
	End play		0.04−0.12 mm (0.002−0.005 in.)	0.24 mm (0.009 in.)
	Thickness		27.41−27.46 mm (1.079−1.081 in.)	27.36 mm (1.077 in.)

Countershaft 1st gear distance collar

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft 1st gear distance collar	I.D.		36.50−36.51 mm (1.4370−1.4373 in.)	36.52 mm (1.4378 in.)
	O.D.		44.489−45.000 mm (1.7515−1.7717 in.)	44.44 mm (1.7500 in.)
	Length	A	30.50−30.54 mm (1.2007−1.2023 in.)	———
			044−1.046 in.)	———



Countershaft 2nd gear distance collar

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft 2nd gear distance collar	I.D.		34.000−34.010 mm (1.3386−1.3390 in.)	34.04 mm (1.340 in.)
	O.D.		39.989−40.000 mm (1.5744−1.5748 in.)	39.93 mm (1.572 in.)
	Length		27.53−27.56 mm (1.084−1.085 in.)	27.51 mm (1.083 in.)

Change lever

Item	Measurement	Qualification	Standard or New	Service Limit
Change lever	Shaft-to-select lever clearance		0.05−0.35 mm (0.002−0.014 in.)	0.55 mm (0.022 in.)
	Groove width		13.00−13.15 mm (0.512−0.518 in.)	———
	Shaft-to-shift arm clearance		0.013−0.070 mm (0.0005−0.0028 in.)	0.1 mm (0.004 in.)

Select lever

Item	Measurement	Qualification	Standard or New	Service Limit
Select lever	Finger width		12.80−12.95 mm (0.504−0.510 in.)	———

Reverse shift fork

Item	Measurement	Qualification	Standard or New	Service Limit
Reverse shift fork	Finger width		13.5−13.8 mm (0.53−0.54 in.)	———
	Fork-to-reverse idler gear clearance		1.30−1.90 mm (0.051−0.075 in.)	2.5 mm (0.098 in.)

Shift fork

Item	Measurement	Qualification	Standard or New	Service Limit
Shift fork	Finger thickness	1st-2nd and 3rd-4th forks	7.4−7.6 mm (0.29−0.30 in.)	———
		5th fork	6.7−6.9 mm (0.26−0.27 in.)	———
	Fork-to-synchro sleeve clearance		0.35−0.65 mm (0.014−0.026 in.)	1.0 mm (0.04 in.)

Shift arm

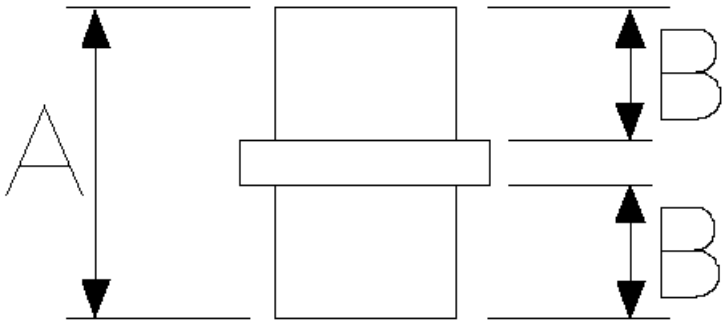
Item	Measurement	Qualification	Standard or New	Service Limit
Shift arm	I.D.		13.973−14.000 mm (0.5501−0.5512 in.)	———
	Finger width		12.9−13.0 mm (0.508−0.512 in.)	———
	Shift arm-to-shift fork clearance		0.2−0.5 mm (0.008−0.020 in.)	0.62 mm (0.024 in.)

Mainshaft

Item	Measurement	Qualification	Standard or New	Service Limit
Mainshaft	End play		0.11−0.18 mm (0.004−0.007 in.)	Adjust
	Diameter of ball bearing contact area (transmission housing side)		25.987−26.000 mm (1.0231−1.0236 in.)	25.93 mm (1.020 in.)
	Diameter of distance collar contact area		28.992−29.005 mm (1.1414−1.1419 in.)	28.93 mm (1.139 in.)
	Diameter of needle bearing contact area		34.984−35.000 mm (1.3773−1.3780 in.)	34.93 mm (1.375 in.)
	Diameter of ball bearing contact area (clutch housing side)		25.977−25.990 mm (1.0227−1.0232 in.)	25.92 mm (1.020 in.)
	Diameter of pilot bearing contact area		14.870−14.890 mm (0.5854−0.5862 in.)	———
	Runout		0.02 mm (0.001 in.) max.	0.05 mm (0.002 in.)

Mainshaft 4th and 5th gear distance collar

Item	Measurement	Qualification	Standard or New	Service Limit
Mainshaft 4th and 5th gear distance collar	I.D.		29.014−29.024 mm (1.1423−1.1427 in.)	29.06 mm (1.144 in.)
	O.D.		34.989−35.000 mm (1.3775−1.3780 in.)	34.93 mm (1.375 in.)
	Length	A	51.97−52.03 mm (2.046−2.048 in.)	———
			.946−0.947 in.)	———



Mainshaft MBS distance collar

Item	Measurement	Qualification	Standard or New	Service Limit
Mainshaft MBS distance collar	I.D.		26.02−26.17 mm (1.024−1.030 in.)	———
	Length		12.00−12.05 mm (0.472−0.474 in.)	———

Mainshaft 3rd and 4th gear

Item	Measurement	Qualification	Standard or New	Service Limit
Mainshaft 3rd and 4th gear	I.D.		39.009−39.025 mm (1.5358−1.5364 in.)	39.07 mm (1.538 in.)
	Clearance	2nd-3rd	0.06−0.21 mm (0.002−0.008 in.)	0.33 mm (0.013 in.)
	Endplay	4th	0.06−0.19 mm (0.002−0.007 in.)	0.31 mm (0.012 in.)
	Thickness	3rd	27.92−27.97 mm (1.099−1.101 in.)	27.85 mm (1.096 in.)
		4th	27.02−27.07 mm (1.064−1.066 in.)	26.65 mm (1.049 in.)

Mainshaft 5th gear

Item	Measurement	Qualification	Standard or New	Service Limit
Mainshaft 5th gear	I.D.		39.009−39.025 mm (1.5358−1.5364 in.)	39.07 mm (1.538 in.)
	End play		0.06−0.19 mm (0.002−0.007 in.)	0.31 mm (0.012 in.)
	Thickness		28.92−28.97 mm (1.139−1.141 in.)	28.85 mm (1.136 in.)

M/T differential pinion gear

Item	Measurement	Qualification	Standard or New	Service Limit
M/T differential pinion gear	Backlash		0.05−0.15 mm (0.002−0.006 in.)	———

Synchro ring

Item	Measurement	Qualification	Standard or New	Service Limit
Synchro ring	Ring-to-gear clearance	Ring pushed against gear	0.85−1.10 mm (0.033−0.043 in.)	0.4 mm (0.02 in.)

Fuel and Emissions System Description - ECM/PCM Inputs and Outputs

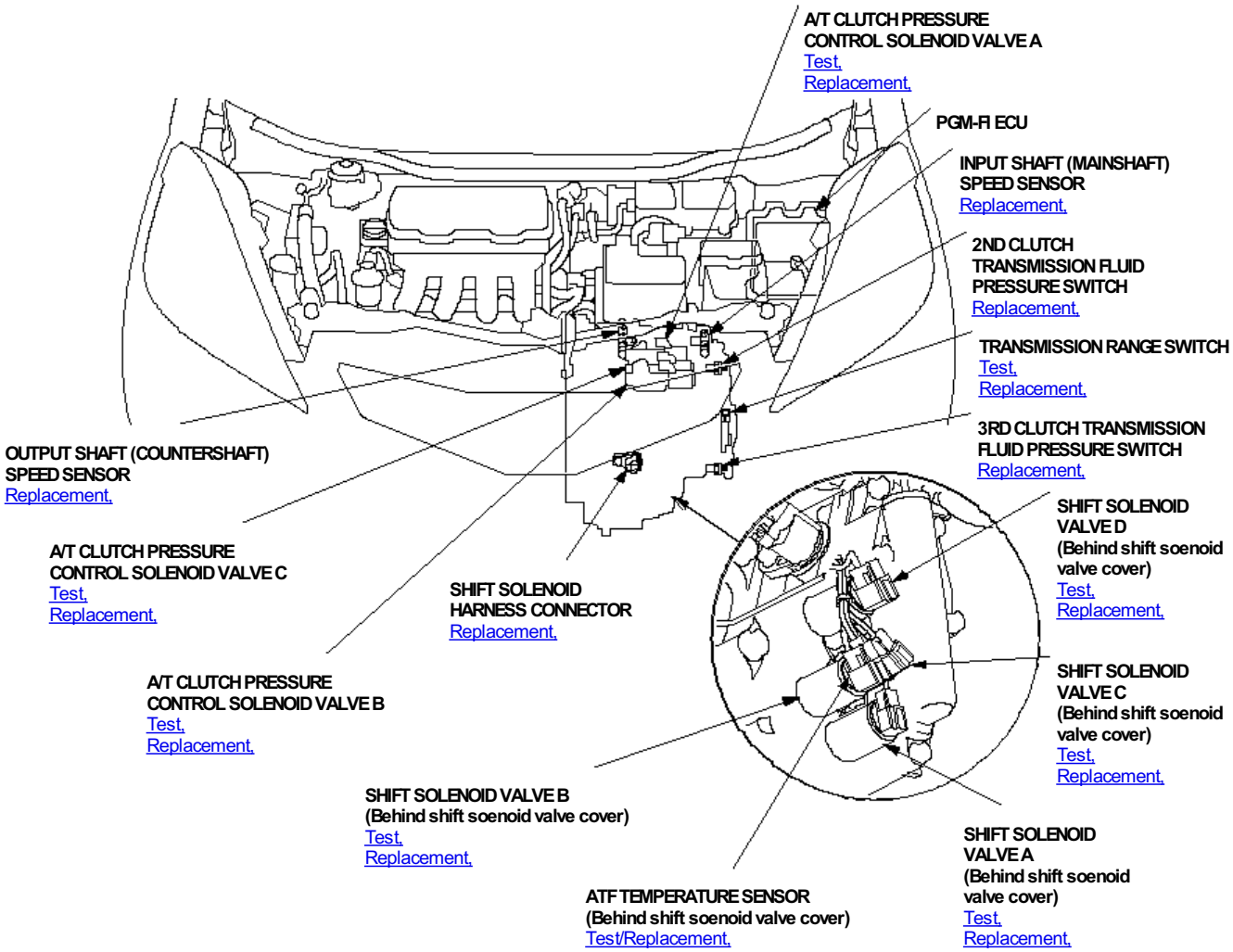
ECM/PCM Inputs and Outputs at Connector A (□) (49P)
ECM/PCM Inputs and Outputs at Connector A (□) (49P)
ECM/PCM Inputs and Outputs at Connector A (□) (49P)
ECM/PCM Inputs and Outputs at Connector B (△) (49P)
ECM/PCM Inputs and Outputs at Connector B (△) (49P)
ECM/PCM Inputs and Outputs at Connector B (△) (49P)
ECM/PCM Inputs and Outputs at Connector C (○) (49P)
ECM/PCM Inputs and Outputs at Connector C (○) (49P)

A/T System Description - General Operation

General Operation
General Operation (cont'd)

A/T System Component Location Index

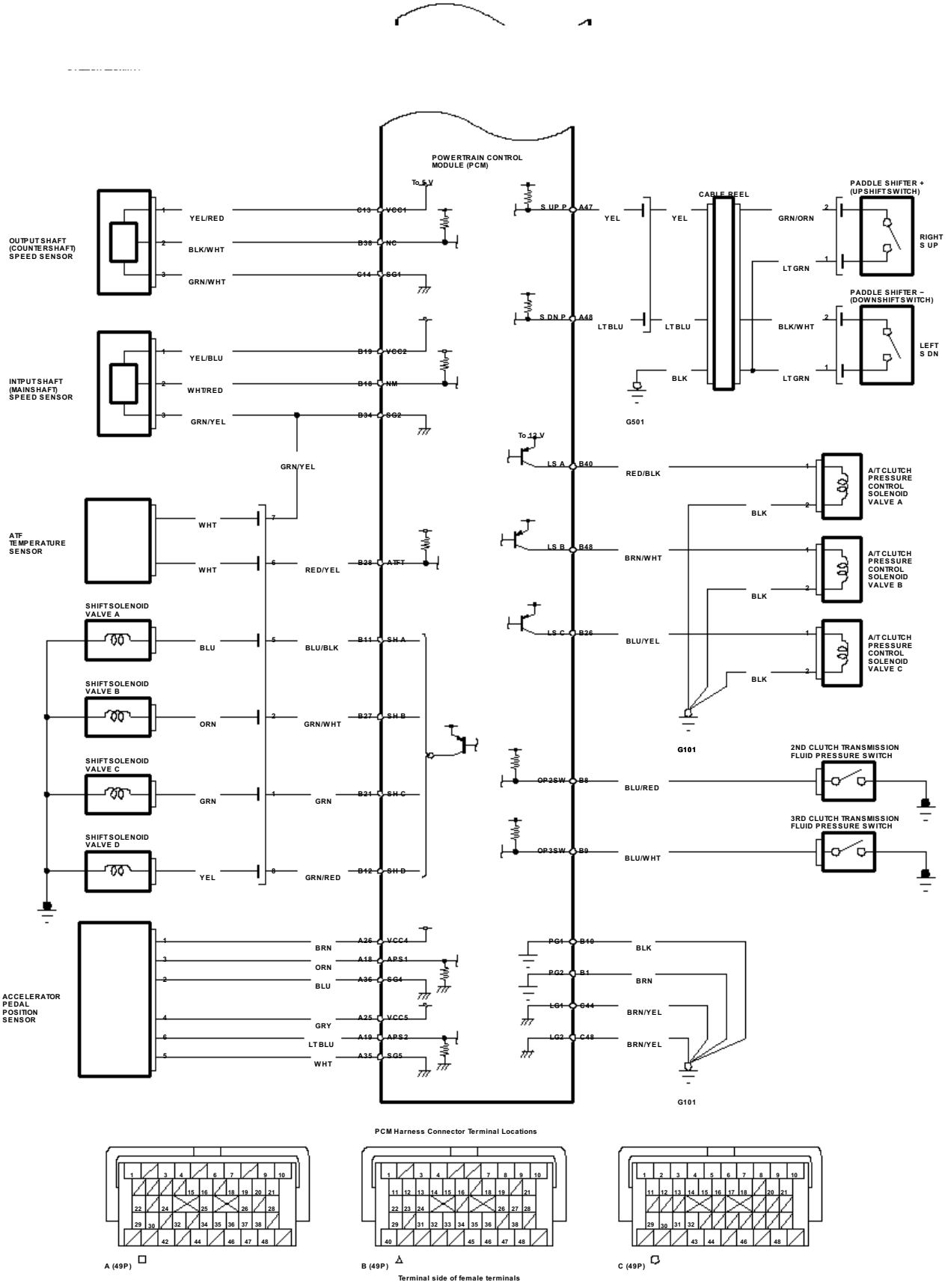
Seven-position Transmission



*: This illustration shows RHD model.

A/T System Circuit Diagram - PCM A/T Control System

Circuit Diagram - PCM A/T Control System - Seven-position Transmission



A/T Road Test

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Apply the parking brake, and block all four wheels.
3. Start the engine, then shift to D while pressing the brake pedal. Press the accelerator pedal, and release it suddenly. The engine should not stall.
4. Repeat step 3 in all shift lever positions.
5. Connect the HDS to the DLC (A), and go to the A/T data list. If the HDS does not communicate with the PCM, troubleshoot the DLC circuit.
6. Prepare the HDS to take a HIGH SPEED SNAPSHOT (refer to the HDS user's guide for more details if needed):
   - Select High Speed icon.
   - Select these parameters:
     - Vehicle Speed
     - Output Shaft (Countershaft) Speed (rpm)
     - Input Shaft (Mainshaft) Speed (rpm)
     - Engine Speed
     - TP Sensor (1)
     - APP Sensor A (V)
     - ATF Temp Sensor (V)
     - Battery Voltage
     - Shift Control
     - Brake Switch
   - Set the Trigger Type to Parameter.
   - Adjust the Parameter setting to APP Sensor A above 1.26 V.
   - Set the recording time to 60 seconds.
   - Set the trigger point to −30 seconds.
7. Find a suitable level road. When you are ready to do the test, press OK on the HDS.
8. Monitor the HDS, and accelerate quickly until the APP Sensor A reads 1.26 V. Maintain a steady throttle until the transmission shifts to 5th gear, then slow the vehicle and come to a stop.
9. Save the snapshot if the entire event was recorded, or increase the recording time setting as necessary and repeat Step 8 .
10. Adjust the parameter setting to 2.53 V. Test-drive the vehicle again. While monitoring the HDS, accelerate quickly until the APP Sensor A reads 2.53 V. Maintain a steady throttle until the transmission shifts to 5th gear (or reasonable speed), then slow the vehicle and come to a stop.
11. Save the snapshot if the entire event was recorded, or increase the recording time setting as necessary and repeat Step 10 .
12. Accelerate quickly until the accelerator pedal is to the floor. Maintain a steady pedal until the transmission shifts to 4th gear, then slow to a stop, and save the snapshot.
13. Review each snapshot individually, and compare the Shift Command, the APP Sensor A voltage, and the Vehicle Speed to the table below.

L13A1 Engine model: Upshifting in D

Accelerator pedal position sensor A voltage: 1.26 V	
1st → 2nd	13−15 km/h (8−9 mph)
2nd → 3rd	25−28 km/h (16−17 mph)
3rd → 4th	36−41 km/h (22−25 mph)
4th → 5th	45−51 km/h (28−32 mph)
Lock-up ON	42−46 km/h (26−29 mph)
Accelerator pedal position sensor A voltage: 2.53 V	
1st → 2nd	28−31 km/h (17−19 mph)
2nd → 3rd	52−58 km/h (32−36 mph)
3rd → 4th	84−90 km/h (52−56 mph)
4th → 5th	119−125 km/h (74−78 mph)
Lock-up ON	123−129 km/h (76−80 mph)
Fully-opened throttle **Accelerator pedal position sensor A voltage: 4.50 V**	
1st → 2nd	46−52 km/h (29−32 mph)
2nd → 3rd	84−90 km/h (52−56 mph)
3rd → 4th	141−147 km/h (88−91 mph)

Downshifting in D (Reference)

Accelerator pedal position sensor A voltage: 1.26 V	
Lock-up OFF	41−45 km/h (25−28 mph)

5th → 4th	39–45 km/h (24–28 mph)
4th → 3rd	32–36 km/h (20–22 mph)
3rd → 1st	8–12 km/h (5–7 mph)
Accelerator pedal position sensor A voltage: 2.53 V	
Lock-up OFF	116–122 km/h (72–76 mph)
Fully-opened throttle Accelerator pedal position sensor A voltage: 4.50 V	
Lock-up OFF	170–176 km/h (106–109 mph)
5th → 4th	178–184 km/h (111–114 mph)
4th → 3rd	118–124 km/h (73–77 mph)
3rd → 2nd	72–78 km/h (45–48 mph)
2nd → 1st	29–35 km/h (18–22 mph)

L15A1 Engine Model: Upshifting in D

Accelerator pedal position sensor A voltage: 1.26 V	
1st → 2nd	13–15 km/h (8–9 mph)
2nd → 3rd	25–28 km/h (16–17 mph)
3rd → 4th	36–41 km/h (22–25 mph)
4th → 5th	45–51 km/h (28–32 mph)
Lock-up ON	42–46 km/h (26–29 mph)
Accelerator pedal position sensor A voltage: 2.53 V	
1st → 2nd	28–31 km/h (17–19 mph)
2nd → 3rd	52–58 km/h (32–36 mph)
3rd → 4th	84–90 km/h (52–56 mph)
4th → 5th	119–125 km/h (74–78 mph)
Lock-up ON	123–129 km/h (76–80 mph)
Fully-opened throttle Accelerator pedal position sensor A voltage: 4.50 V	
1st → 2nd	48–54 km/h (30–34 mph)
2nd → 3rd	88–94 km/h (55–58 mph)
3rd → 4th	148–154 km/h (92–96 mph)

Downshifting in D (Reference)

Accelerator pedal position sensor A voltage: 1.26 V	
Lock-up OFF	41–45 km/h (25–28 mph)
5th → 4th	41–47 km/h (25–29 mph)
4th → 3rd	32–36 km/h (20–22 mph)
3rd → 1st	8–12 km/h (5–7 mph)
Accelerator pedal position sensor A voltage: 2.53 V	
Lock-up OFF	116–122 km/h (72–76 mph)
Fully-opened throttle Accelerator pedal position sensor A voltage: 4.50 V	
Lock-up OFF	170–176 km/h (106–109 mph)
5th → 4th	178–184 km/h (111–114 mph)
4th → 3rd	124–130 km/h (77–81 mph)
3rd → 2nd	79–85 km/h (49–53 mph)
2nd → 1st	36–42 km/h (22–26 mph)

14. Check for engine braking under these conditions:
    - Seven-position transmission: Drive the vehicle in 4th or 5th gear in D, then shift to 2. The vehicle should immediately begin to slow down from engine braking.
    - Five-position transmission: Drive the vehicle in 4th or 5th gear in S with sequential shift mode, then downshift to 2nd gear by pulling the paddle shifter − (downshift switch). The vehicle should immediately begin to slow down from engine braking.
15. For seven-position transmission: Shift to 1, accelerate from a stop at full throttle, and check for abnormal noise and clutch slippage. Upshifts should not occur in this position.
16. For seven-position transmission: Shift to 2, accelerate from a stop at full throttle, and check for abnormal noise and clutch slippage. Upshifts and downshifts should not occur in this position.
17. Shift to R. Then, from a full stop, accelerate at full throttle, and check for abnormal noise and clutch slippage.
18. Park the vehicle on a slope (about 16 degrees), apply the brake, and shift into P. Release the brake; the vehicle should not move.
    NOTE: Always use the brake to hold the vehicle, when stopped on an incline in gear. Depending on the grade of the incline, the vehicle could roll backwards if the brake is released.

When you turn the ignition switch to ON (II), the D indicator comes on and stays on in all shift lever positions, or it never comes on at all

Probable cause(s)

1. F-CAN communication line error
2. Gauge control module defective
3. PCM defective

Notes

- Check the F-CAN communication line for a DTC.
- Check the indicator drive circuit in the gauge control module by using the gauge control module self-diagnostic function.

A/T gear position indicator does not come on while the shift lever is in that position

Probable cause(s)

1. F-CAN communication line error
2. Gauge control module defective
3. PCM defective
4. Transmission range switch defective

Notes

- Check the F-CAN communication line for a DTC.
- Check the indicator drive circuit in the gauge control module by using the gauge control module self-diagnostic function.
- Inspect the transmission range switch.

Shift lever cannot be moved from P while you are pressing on the brake pedal

Probable cause(s)

1. Accelerator pedal position sensor circuit
2. Accelerator pedal position sensor defective
3. Brake pedal position switch circuit
4. Brake pedal position switch defective
5. Shift lock solenoid defective
6. Shift lock solenoid control circuit
7. Shift lock mechanism defective
8. Throttle body defective
9. Transmission range switch ATP P switch stuck OFF
10. Transmission range switch ATP P switch line opened

Notes

- Inspect the APP sensor signal.
- Troubleshoot the shift lock system circuit.
- Test the shift lock solenoid.
- Inspect the transmission range switch.

Ignition switch cannot be moved from ACCESSORY (I) to LOCK (0) (key is pushed in, the shift lever in P)

Probable cause(s)

1. Interlock control system circuit
2. Key interlock solenoid stuck ON
3. Park pin switch stuck ON
4. Transmission range switch

Notes

- Troubleshoot the key interlock system circuit.
- Inspect the transmission range switch.

HDS does not communicate with the PCM or the vehicle

Probable cause(s)

1. DLC circuit error

Notes

- Troubleshoot the DLC circuit.

Shift indicator does not work on five-position transmission

Probable cause(s)

1. F-CAN communication line error
2. Gauge control module defective
3. PCM defective
4. Transmission range switch defective

Notes

- Check the F-CAN communication line for a DTC.
- Check the F-CAN communication line by using the gauge control module self-diagnostic function.
- Check the indicator drive circuit in the gauge control module by gauge control module self-diagnostic function.

When you press the paddle shifter + (upshift switch) in D and S, the transmission does not upshift on five-position transmission

Probable cause(s)

1. A problem in the paddle shifter + (upshift switch) circuit

Notes

- Check the paddle shifter + (upshift switch) circuit.

When you press the paddle shifter − (downshift switch) in D and S, the transmission does not downshift on five-position transmission

Probable cause(s)

1. A problem in the paddle shifter − (downshift switch) circuit

Notes

- Check the paddle shifter − (downshift switch) circuit.

M indicator does not come on even though the paddle shifter + (upshift switch) or paddle shifter − (downshift switch) is operated in sequential shift mode on five-position transmission

Probable cause(s)

1. F-CAN communication line error
2. Gauge control module defective
3. PCM defective

Notes

- Check the F-CAN communication line for a DTC.
- Check the indicator drive circuit in the gauge control module by using the gauge control module self-diagnostic function.

Engine runs, but vehicle does not move in any gear

Probable cause(s)

1. Low ATF level
2. Shift cable broken or out of adjustment
3. Connection between shift cable and transmission or body is worn
4. ATF pump worn or binding
5. Regulator valve stuck or spring worn
6. ATF strainer clogged
7. Mainshaft worn or damaged
8. Final gears worn or damaged
9. Transmission-to-engine assembly error
10. Axle disengaged

Notes

- Check the ATF level, and check the ATF cooler lines for leakage and loose connections. If necessary, clean the ATF cooler lines.
- Check for a loose shift cable at the shift lever and the transmission control lever.
- Check the stall speed.
- Check the line pressure.
- Improper alignment of ATF pump and torque converter housing may cause the ATF pump to seize. The symptoms are mostly an rpm-related ticking noise or a high pitched squeak.
- Be careful not to damage the torque converter housing when replacing the main ball bearing. You may also damage the ATF pump when you torque down the main valve body. This will cause the ATF pump seize.
- Install the main seal flush with the torque converter housing when replacing the main seal. If you push it into the torque converter housing until it bottoms out, it will block the fluid return passage and result in damage.
- Check the regulator valve in the regulator valve body for free movement, and check the valve spring for wear and damage.
- Check the ATF strainer for debris. If the strainer is clogged, find the damaged components that caused the debris. If no cause for contamination is found, replace the torque converter.
- Inspect the differential pinion gears for wear. If the differential pinion gears are worn, replace the differential assembly, replace the ATF strainer, thoroughly clean the transmission, and clean the ATF cooler and cooler lines.
- Replace the torque converter.
- Inspect the countershaft and secondary shaft for wear and damage.
- Check for a misinstalled transmission.

Vehicle moves in 2 and R, but not in 1st in D, D3, S, or 1

Probable cause(s)

1. 1st accumulator defective
2. 1st gears worn or damaged
3. 1st clutch defective

Notes

- Check the 1st clutch pressure.
- Inspect the 1st accumulator piston, O-ring, and spring for wear and damage in the servo body.
- Inspect the countershaft, secondary shaft, and 1st clutch for wear and damage.
- Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate.

Vehicle moves in D, D3, S, 1, and R, but not in 2, or in 2nd in S

Probable cause(s)

1. 2nd accumulator defective
2. 2nd gears worn or damaged
3. 2nd clutch defective

Notes

- Check the 2nd clutch pressure.
- Inspect the 2nd accumulator piston, O-ring, and spring for wear and damaged in the servo body.
- Inspect the countershaft, secondary shaft, and 2nd clutch for wear and damage.
- Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate.
- Inspect the 2nd clutch feed pipe. If the 2nd clutch feed pipe is scored, replace the end cover.
- Replace the secondary shaft if the bushing for the 2nd clutch feed pipe is loose or damaged.

Vehicle moves in D, D3, S, 2, and 1, but not in R

Probable cause(s)

1. Shift solenoid valve D defective
2. Shift fork shaft stuck
3. Shift valve D defective
4. 5th/reverse accumulator defective
5. 5th clutch defective
6. Reverse gears worn or damaged

Notes

- Check for a stored DTC, and check for loose connections.
- Test the shift solenoid valve function with the HDS.
- Inspect the O-rings, and check the shift solenoid valve for seizure.
- Check the 5th clutch pressure.
- Check for a missing shift fork bolt on the shift fork shaft.
- Inspect the servo valve O-ring.
- Check the shift fork shaft detent for wear and damage.
- Inspect the 5th accumulator piston, O-ring, and spring for wear and damage in the servo body.
- Inspect the mainshaft and 5th clutch for wear and damage.
- Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate.
- Inspect the reverse selector gear teeth chamfers, and inspect the engagement teeth chamfers of the countershaft 5th gear and reverse gear. Replace the reverse gears and the reverse selector if they are worn or damaged. If the transmission makes a clicking, grinding, or whirring noise, also replace the mainshaft 5th gear, reverse idler gear, and countershaft 5th gear.

Poor acceleration; flares when starting off in D, D3, S, 2, 1, and R; stall speed high in D, D3, S, 2, and 1

Probable cause(s)

1. Low ATF level
2. Shift cable broken or out of adjustment
3. ATF pump worn or binding
4. Regulator valve stuck or spring worn
5. ATF strainer clogged
6. Torque converter check valve defective

Notes

- Check the line pressure.
- Check the ATF level and check the ATF lines for leakage and loose connections. If necessary, clean the ATF lines.
- Check for a loose shift cable at the shift lever and the transmission control lever.
- Improper alignment of ATF pump and torque converter housing may cause the ATF pump to seize. The symptoms are mostly an rpm-related ticking noise or a high pitched squeak.
- Check the ATF strainer for debris. If the strainer is clogged, find the damaged components that caused the debris. If no cause for contamination is found, replace the torque converter.
- Inspect the differential pinion gears for wear. If the differential pinion gears are worn, replace the differential assembly, replace the ATF strainer, thoroughly clean the transmission, and clean the ATF cooler and ATF lines.
- Check the torque converter check valve in the main valve body for free movement, and check the valve spring for wear and damage.

Poor acceleration; flares when starting off in D, D3, S, 2, and R; stall speed high

Probable cause(s)

1. 2nd clutch defective

Notes

- Check the 2nd clutch pressure.
- Inspect the secondary shaft and 2nd clutch for wear and damage.
- Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate.
- Inspect the 2nd clutch feed pipe. If the 2nd clutch feed pipe is scored, replace the end cover.
- Replace the secondary shaft if the bushing for the 2nd clutch feed pipe is loose or damaged.

Poor acceleration; flares when starting off in D, D3, S, 2, 1, and R; stall speed high in R

Probable cause(s)

1. Shift cable broken or out of adjustment
2. 5th clutch defective

Notes

- Check for a loose shift cable at the shift lever and the transmission control lever.
- Check the 5th clutch pressure.
- Inspect the mainshaft and 5th clutch for wear and damage.
- Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate.

Poor acceleration; flares when starting off in D, D3, S, 2, 1, and R; stall speed low in D, 2, and 1

Probable cause(s)

1. Shift solenoid valve D defective
2. Torque converter one-way clutch defective
3. Engine output low
4. Torque converter clutch piston defective
5. Lock-up shift valve defective

Notes

- Check for a stored DTC, and check for loose connections.
- Test the shift solenoid valve function with the HDS.
- Inspect the O-rings, and check the shift solenoid valve for seizure.
- Replace the torque converter assembly.
- Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage.
- Check the engine control system.

Poor acceleration; flares when starting off in D, D3, S, 2, 1, and R; stall speed low in R

Probable cause(s)

1. Torque converter one-way clutch defective
2. Engine output low
3. Torque converter clutch piston defective
4. Lock-up shift valve defective

Notes

- Check the engine control system.
- Replace the torque converter assembly.
- Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage.

Engine idle vibration

Probable cause(s)

1. Low ATF level
2. Shift solenoid valve D defective
3. Drive plate defective or transmission misassembled
4. Engine output low
5. Torque converter clutch piston defective
6. ATF pump worn or damaged
7. Lock-up shift valve defective
8. Misassembled engine or transmission mount

Notes

- Check the ATF level and check the ATF lines for leakage and loose connections. If necessary, clean the ATF lines.
- Check for a stored DTC, and check for loose connections.
- Test the shift solenoid valve function with the HDS.
- Inspect the O-rings, and check the shift solenoid valve for seizure.
- Check for a misinstalled/damaged drive plate, replace the drive plate if it is worn or damaged.
- Check the engine control system.
- Replace the torque converter assembly.
- Check the line pressure.
- Improper alignment of ATF pump and torque converter housing may cause the ATF pump to seize. The symptoms are mostly an rpm-related ticking noise or a high pitched squeak.
- Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage.
- Adjust the transmission and engine mounts.

Vehicle moves in N

Probable cause(s)

1. Excessive ATF
2. Foreign material in separator plate orifice
3. Relief valve defective
4. 1st clutch defective
5. 2nd clutch defective
6. 3rd clutch defective
7. 4th clutch defective
8. 5th clutch defective
9. Clearance between the clutch end-plate and the top disc is incorrect
10. Needle bearing seized, worn, or damaged
11. Thrust washer seized, worn, or damaged

Notes

- Check the ATF level, and drain the ATF if it is over-filled.
- Check the 1st, 2nd, 3rd, 4th, and 5th clutch pressures.
- Check for clogged orifice in the separator plate. If the orifice is clogged, remove it and clean the separator plate orifice.
- Check the ATF strainer for debris. If the strainer is clogged with particles of steel or aluminum, inspect the ATF pump. If the ATF pump is OK, find the damaged components that caused the debris. If no cause for contamination is found, replace the torque converter.
- Check the relief valve in the main valve body for free movement, and check the valve spring for wear and damage.
- Inspect the mainshaft, secondary shaft, 1st, 2nd, 3rd, 4th, and 5th clutches for wear and damage.
- Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate.
- Inspect the 2nd, 3rd, and 4th clutch feed pipes.
- If the 2nd clutch feed pipe is scored, replace the end cover.
- If the 3rd or 4th clutch feed pipe is scored, replace it and the O-rings under the feed pipe flange.
- Replace the secondary shaft if the bushing for the 2nd clutch feed pipe or 4th clutch feed pipe is loose or damaged.
- Replace the mainshaft if the bushing for the 3rd clutch feed pipe is loose or damaged.

Late shift after shifting from N to D, D3, and S, or excessive shock when shifted into D, D3, and S

Probable cause(s)

1. Shift solenoid valve D defective
2. A/T clutch pressure control solenoid valve A defective
3. A/T clutch pressure control solenoid valve B defective
4. A/T clutch pressure control solenoid valve C defective
5. Shift cable broken or out of adjustment
6. Connection between shift cable and transmission or body is worn
7. Input shaft (mainshaft) speed sensor defective
8. Output shaft (countershaft) speed sensor defective
9. ATF temperature sensor defective
10. Foreign material in separator plate orifice
11. Servo control valve defective
12. 1st accumulator defective
13. 1st check ball stuck
14. Lock-up shift valve defective
15. 1st clutch defective

Notes

- Check for a stored DTC, and check for loose connections.
- Test the solenoid valve function with the HDS.
- Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings, for wear and damage.
- Inspect the O-rings, and check the shift solenoid valve seizure.
- Check for a loose shift cable at the shift lever and the transmission control lever.
- Check the input shaft (mainshaft) speed sensor and output shaft (countershaft) speed sensor installation.
- Inspect the sensor O-ring for wear and damage.
- Check for clogged orifice in the separator plate. If the orifice is clogged, remove it and clean the separator plate orifice.
- Check the 1st clutch pressure.
- Check the servo control valve in the main valve body for free movement, and check the valve spring for wear and damage.
- Inspect the 1st accumulator piston, O-ring, and spring for wear and damage in the regulator valve body.
- Check the 1st check ball for stuck in the main valve body.
- Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage.
- Inspect the secondary shaft and 1st clutch for wear and damage.
- Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate.

Late shift after shifting from N to R, or excessive shock when shifted into R

Probable cause(s)

1. Shift solenoid valve D defective
2. A/T clutch pressure control solenoid valve A defective
3. Shift cable broken or out of adjustment
4. Connection between shift cable and transmission or body is worn
5. Input shaft (mainshaft) speed sensor defective
6. Output shaft (countershaft) speed sensor defective
7. ATF temperature sensor defective
8. Shift fork shaft stuck
9. Foreign material in separator plate orifice
10. Shift valve D defective
11. 5th/reverse accumulator defective
12. Lock-up shift valve defective
13. 5th clutch defective

Notes

- Check for a stored DTC, and check for loose connections.
- Test the solenoid valve function with the HDS.
- Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings, for wear and damage.
- Inspect the O-rings, and check the shift solenoid valve for seizure.
- Check for a loose shift cable at the shift lever and the transmission control lever.
- Check the input shaft (mainshaft) speed sensor and output shaft (countershaft) speed sensor installation.
- Inspect the sensor O-ring for wear and damage.
- Check for a missing shift fork bolt on the shift fork shaft.
- Inspect the servo valve O-ring.
- Check the shift fork shaft detent for wear and damage.
- Check for clogged orifice in the separator plate. If the orifice is clogged, remove it and clean the separator plate orifice.
- Check the 5th clutch pressure.
- Check the shift valve D in the main valve body for free movement, and check the valve spring for wear and damage.
- Inspect the 5th accumulator piston, O-ring, and spring for wear and damage in the servo body.
- Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage.
- Inspect the mainshaft and 5th clutch for wear and damage.
- Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate.

Transmission does not shift

Probable cause(s)

1. Input shaft (mainshaft) speed sensor defective
2. Output shaft (countershaft) speed sensor defective

Notes

- Check for a stored DTC, and check for loose connections.
- Check the input shaft (mainshaft) speed sensor and output shaft (countershaft) speed sensor installation.
- Inspect the sensor O-ring for wear and damage.

Excessive shock or flares on all upshifts and downshifts

Probable cause(s)

1. A/T clutch pressure control solenoid valve B defective
2. A/T clutch pressure control solenoid valve C defective
3. Input shaft (mainshaft) speed sensor defective
4. Output shaft (countershaft) speed sensor defective
5. ATF temperature sensor defective
6. Foreign material in separator plate orifice

Notes

- Check for a stored DTC, and check for loose connections.
- Test the solenoid valve function with the HDS.
- Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings for wear and damage.
- Check the input shaft (mainshaft) speed sensor and output shaft (countershaft) speed sensor installation.
- Inspect the sensor O-ring for wear and damage.
- Check for clogged orifice in the separator plate. If the orifice is clogged, remove it and clean the separator plate orifice.

Excessive shock or flares on 1-2 upshift or 2-1 downshift

Probable cause(s)

1. Shift solenoid valve D defective
2. A/T clutch pressure control solenoid valve A defective
3. A/T clutch pressure control solenoid valve B defective
4. A/T clutch pressure control solenoid valve C defective
5. 2nd clutch transmission fluid pressure switch defective
6. Foreign material in separator plate orifice
7. 1st accumulator defective
8. 2nd accumulator defective
9. 1st check ball stuck
10. 2nd check ball stuck
11. Lock-up shift valve defective
12. 1st clutch defective
13. 2nd clutch defective

Notes

- Check for a stored DTC, and check for loose connections.
- Test the solenoid valve function with the HDS.
- Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings for wear and damage.
- Inspect the O-rings, and check the shift solenoid valve for seizure.
- Check for clogged orifice in the transmission fluid pressure switch connector. If the orifice is clogged, remove it and clean the connector.
- Check for clogged orifice in the separator plate. If the orifice is clogged, remove it and clean the separator plate orifice.
- Check the 1st and 2nd clutch pressures.
- Inspect the 1st accumulator piston, O-ring, and spring for wear and damage in the servo body.
- Inspect the 2nd accumulator piston, O-ring, and spring for wear and damage in the servo body.
- Check the 1st check ball and 2nd check ball for stick in the main valve body.
- Inspect the secondary shaft, 1st clutch, and 2nd clutch for wear and damage.
- Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate.
- Inspect the 2nd clutch feed pipe. If the 2nd clutch feed pipe is scored, replace the end cover.
- Replace the secondary shaft if the bushing for the 2nd clutch feed pipe is loose or damaged.
- Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage.

Excessive shock or flares on 2-3 upshift or 3-2 downshift

Probable cause(s)

1. A/T clutch pressure control solenoid valve B defective
2. A/T clutch pressure control solenoid valve C defective
3. 3rd clutch transmission fluid pressure switch defective
4. Foreign material in separator plate orifice
5. 2nd accumulator defective
6. 3rd accumulator defective
7. 2nd check ball stuck
8. 2nd clutch defective
9. 3rd clutch defective

Notes

- Check for a stored DTC, and check for loose connections.
- Test the solenoid valve function with the HDS.
- Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings for wear and damage.
- Check for clogged orifice in the transmission fluid pressure switch connector. If the orifice is clogged, remove it and clean the connector.
- Check for clogged orifice in the separator plate. If the orifice is clogged, remove it and clean the separator plate orifice.
- Check the 2nd and 3rd clutch pressures.
- Inspect the 2nd and 3rd accumulator pistons, O-rings, and springs for wear and damage in the servo body.
- Check the 2nd check ball for stick in the main valve body.
- Inspect the secondary shaft, mainshaft, 2nd clutch, and 3rd clutch for wear and damage.
- Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate.
- Inspect the 2nd and 3rd clutch feed pipes.
- If the 2nd clutch feed pipe is scored, replace the end cover.
- If the 3rd clutch feed pipe is scored, replace it and the O-rings under the feed pipe flange.
- Replace the secondary shaft if the bushing for the 2nd clutch feed pipe is loose or damaged.
- Replace the mainshaft if the bushing for the 3rd clutch feed pipe is loose or damaged.

Excessive shock or flares on 3-4 upshift or 4-3 downshift

Probable cause(s)

1. A/T clutch pressure control solenoid valve B defective
2. A/T clutch pressure control solenoid valve C defective
3. Foreign material in separator plate orifice
4. 3rd accumulator defective
5. 4th accumulator defective
6. 3rd clutch defective
7. 4th clutch defective

Notes

- Check for a stored DTC, and check for loose connections.
- Test the solenoid valve function with the HDS.
- Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings for wear and damage.
- Check for clogged orifice in the separator plate. If the orifice is clogged, remove it and clean the separator plate orifice.
- Check the 3rd and 4th clutch pressures.
- Inspect the 3rd and 4th accumulator pistons, O-rings, and springs for wear and damage in the servo body.
- Inspect the mainshaft, secondary shaft, 3rd clutch, and 4th clutch for wear and damage.
- Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate.
- Inspect the 3rd and 4th clutch feed pipes.
- If the 3rd clutch feed pipe is scored, replace it and the O-rings under the feed pipe flange.
- If the 4th clutch feed pipe is scored, replace it and the O-rings under the feed pipe flange.
- Replace the secondary shaft if the bushing for the 4th clutch feed pipe is loose or damaged.
- Replace the mainshaft if the bushing for the 3rd clutch feed pipe is loose or damaged.

Excessive shock or flares on 4-5 upshift or 5-4 downshift

Probable cause(s)

1. A/T clutch pressure control solenoid valve B defective
2. A/T clutch pressure control solenoid valve C defective
3. Foreign material in separator plate orifice
4. 4th accumulator defective
5. 5th accumulator defective
6. 4th clutch defective
7. 5th clutch defective

Notes

- Check for a stored DTC, and check for loose connections.
- Test the solenoid valve function with the HDS.
- Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings for wear and damage.
- Check for clogged orifice in the separator plate. If the orifice is clogged, remove it and clean the separator plate orifice.
- Check the 4th and 5th clutch pressures.
- Inspect the 4th and 5th accumulator pistons, O-rings, and springs for wear and damage in the servo body.
- Inspect the mainshaft, secondary shaft, 4th clutch, and 5th clutch for wear and damage.
- Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate.
- Inspect the 4th clutch feed pipes. If the 4th clutch feed pipe is scored, replace it and the O-rings under the feed pipe flange.
- Replace the secondary shaft if the bushing for the 4th clutch feed pipe is loose or damaged.

Noise from transmission in all shift lever positions

Probable cause(s)

1. ATF pump worn or damaged
2. Mainshaft bearing, countershaft bearing, or secondary shaft bearing defective

Notes

- Check the line pressure.
- Improper alignment of ATF pump and torque converter housing may cause the ATF pump to seize. The symptoms are mostly an rpm-related ticking noise or a high pitched squeak.
- Be careful not to damage the torque converter housing when replacing the main ball bearing. Not torquing the valve body to specification could also damage the ATF pump. This could cause the pump to seize.
- Install the main seal flush with the torque converter housing when replacing the main seal. If you push it into the torque converter housing until it bottoms out, it will block the fluid return passage and result in damage.
- Inspect the mainshaft, countershaft, and secondary shaft bearing for wear and damage.

Vehicle does not accelerate above 50 km/h (31 mph)

Probable cause(s)

1. Torque converter one-way clutch defective

Notes

- Replace the torque converter assembly.

Vibration in all shift lever positions

Probable cause(s)

1. Drive plate defective or transmission misassembled

Notes

- Check for a misinstalled/damaged drive plate, replace the drive plate if it is worn or damaged.
- Check the engine control system.

Shift lever does not operate smoothly

Probable cause(s)

1. Transmission range switch defective or out of adjustment
2. Shift cable broken or out of adjustment
3. Connection between shift cable and transmission or body is worn

Notes

- Check for a stored DTC, and check for loose connections.
- Inspect the transmission range switch. If the transmission range switch is faulty, replace it. If the transmission range switch is out of adjustment, adjust it and shift cable.
- Check for a loose shift cable at the shift lever and the transmission control lever.

Transmission does not shift into P

Probable cause(s)

1. Shift cable broken or out of adjustment
2. Connection between shift cable and transmission or body is worn
3. Park mechanism defective

Notes

- Check for a loose shift cable at the shift lever and the transmission control lever.
- Check the park pawl spring installation and the park lever spring installation. If installation is incorrect, install the spring correctly. Make sure that the park lever stop is not installed upside down. Check the distance between the park pawl shaft and park lever pin. If the distance is out of tolerance, adjust the distance with the park lever stop.

Torque converter clutch does not disengage

Probable cause(s)

1. Shift solenoid valve D defective
2. A/T clutch pressure control solenoid valve A defective
3. Torque converter clutch piston defective
4. Lock-up shift valve defective
5. Lock-up control valve defective

Notes

- Check for a stored DTC, and check for loose connections.
- Test the solenoid valve function with the HDS.
- Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings for wear and damage.
- Inspect the O-rings, and check the shift solenoid valve for seizure.
- Replace the torque converter assembly.
- Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage.
- Check the lock-up control valve in the main valve body for free movement, and check the valve spring for wear and damage.

Torque converter clutch does not operate smoothly

Probable cause(s)

1. Shift solenoid valve D defective
2. A/T clutch pressure control solenoid valve A defective
3. Torque converter clutch piston defective
4. Torque converter check valve defective
5. Lock-up shift valve defective
6. Lock-up control valve defective

Notes

- Check for a stored DTC, and check for loose connections.
- Test the solenoid valve function with the HDS.
- Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings for wear and damage.
- Inspect the O-rings, and check the shift solenoid valve for seizure.
- Replace the torque converter assembly.
- Check the torque converter check valve in the regulator valve body for free movement, and check the valve spring for wear and damage.
- Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage.
- Check the lock-up control valve in the main valve body for free movement, and check the valve spring for wear and damage.

Torque converter clutch does not engage

Probable cause(s)

1. Shift solenoid valve D defective
2. A/T clutch pressure control solenoid valve A defective
3. Input shaft (mainshaft) speed sensor defective
4. Output shaft (countershaft) speed sensor defective
5. Torque converter clutch piston defective
6. Torque converter check valve defective
7. Lock-up shift valve defective
8. Lock-up control valve defective

Notes

- Check for a stored DTC, and check for loose connections.
- Test the solenoid valve function with the HDS.
- Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings for wear and damage.
- Inspect the O-rings, and check the shift solenoid valve for seizure.
- Check the input shaft (mainshaft) speed sensor and output shaft (countershaft) speed sensor installation.
- Inspect the sensor O-ring for wear and damage.
- Replace the torque converter assembly.
- Check the torque converter check valve in the regulator valve body for free movement, and check the valve spring for wear and damage.
- Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage.
- Check the lock-up control valve in the main valve body for free movement, and check the valve spring for wear and damage.

A/T gear position indicator does not indicate shift lever positions

Probable cause(s)

1. Transmission range switch defective or out of adjustment
2. Shift cable broken or out of adjustment
3. Connection between shift cable and transmission or body worn

Notes

- Check for a stored DTC, and check for loose connections.
- Inspect the transmission range switch. If the transmission range switch is faulty, replace it. If the transmission range switch is out of adjustment, adjust it and shift cable.
- Check for a loose shift cable at the shift lever and the transmission control lever.

Speedometer and odometer do not work

Probable cause(s)

1. Output shaft (countershaft) speed sensor defective

Notes

- Check for a stored DTC, and check for loose connections.
- Check the output shaft (countershaft) speed sensor installation.
- Inspect the sensor O-ring.

Engine does not rev to high rpm, and the transmission upshifts at low rpm (engine at normal operating temperature)

Probable cause(s)

1. Engine rocker arm defective

Notes

- Check the engine rocker arms.
- Check for a restricted or damaged exhaust system.

A/T System Symptom Troubleshooting Index

Symptom	Probable cause(s)	Notes
When you turn the ignition switch to ON (II), the D indicator comes on and stays on in all shift lever positions, or it never comes on at all	• F-CAN communication line error • Gauge control module defective • PCM defective	• Check the F-CAN communication line for a DTC. • Check the indicator drive circuit in the gauge control module by using the gauge control module self-diagnostic function.
A/T gear position indicator does not come on while the shift lever is in that position	• F-CAN communication line error • Gauge control module defective • PCM defective • Transmission range switch defective	• Check the F-CAN communication line for a DTC. • Check the indicator drive circuit in the gauge control module by using the gauge control module self-diagnostic function. • Inspect the transmission range switch.
Shift lever cannot be moved from P while you are pressing on the brake pedal	• Accelerator pedal position sensor circuit • Accelerator pedal position sensor defective • Brake pedal position switch circuit • Brake pedal position switch defective • Shift lock solenoid defective • Shift lock solenoid control circuit • Shift lock mechanism defective • Throttle body defective • Transmission range switch ATP P switch stuck OFF • Transmission range switch ATP P switch line opened	• Inspect the APP sensor signal. • Troubleshoot the shift lock system circuit. • Test the shift lock solenoid. • Inspect the transmission range switch.
Ignition switch cannot be moved from ACCESSORY (I) to LOCK (0) (key is pushed in, the shift lever in P)	• Interlock control system circuit • Key interlock solenoid stuck ON • Park pin switch stuck ON • Transmission range switch	• Troubleshoot the key interlock system circuit. • Inspect the transmission range switch.
HDS does not communicate with the PCM or the vehicle	DLC circuit error	Troubleshoot the DLC circuit.
Shift indicator does not work on five-position transmission	• F-CAN communication line error • Gauge control module defective • PCM defective • Transmission range switch defective	• Check the F-CAN communication line for a DTC. • Check the F-CAN communication line by using the gauge control module self-diagnostic function. • Check the indicator drive circuit in the gauge control module by gauge control module self-diagnostic function.
When you press the paddle shifter + (upshift switch) in D and S, the transmission does not upshift on five-position transmission	A problem in the paddle shifter + (upshift switch) circuit	Check the paddle shifter + (upshift switch) circuit.
When you press the paddle shifter − (downshift switch) in D and S, the transmission does not downshift on five-position transmission	A problem in the paddle shifter − (downshift switch) circuit	Check the paddle shifter − (downshift switch) circuit.
M indicator does not come on even though the paddle shifter + (upshift switch) or paddle shifter − (downshift switch) is operated in sequential shift mode on five-position transmission	• F-CAN communication line error • Gauge control module defective • PCM defective	• Check the F-CAN communication line for a DTC. • Check the indicator drive circuit in the gauge control module by using the gauge control module self-diagnostic function.

Symptom	Probable cause(s)	Notes
Engine runs, but vehicle does not move in any gear	1. Low ATF level 2. Shift cable broken or out of adjustment 3. Connection between shift cable and transmission or body is worn 4. ATF pump worn or binding 5. Regulator valve stuck or spring worn 6. ATF strainer clogged 7. Mainshaft worn or damaged 8. Final gears worn or damaged 9. Transmission-to-engine assembly error 10. Axle disengaged	• Check the ATF level, and check the ATF cooler lines for leakage and loose connections. If necessary, clean the ATF cooler lines. • Check for a loose shift cable at the shift lever and the transmission control lever. • Check the stall speed. • Check the line pressure. • Improper alignment of ATF pump and torque converter housing may cause the ATF pump to seize. The symptoms are mostly an rpm-related ticking noise or a high pitched squeak. • Be careful not to damage the torque converter housing when replacing the main ball bearing. You may also damage the ATF pump when you torque down the main valve body. This will cause the ATF pump seize. • Install the main seal flush with the torque converter housing when replacing the main seal. If you push it into the torque converter housing until it bottoms out, it will block the fluid return passage and result in damage. • Check the regulator valve in the regulator valve body for free movement, and check the valve spring for wear and damage. • Check the ATF strainer for debris. If the strainer is clogged, find the damaged components that caused the debris. If no cause for contamination is found, replace the torque converter. • Inspect the differential pinion gears for wear. If the differential pinion gears are worn, replace the differential assembly, replace the ATF strainer, thoroughly clean the transmission, and clean the ATF cooler and cooler lines. • Replace the torque converter. • Inspect the countershaft and secondary shaft for wear and damage. • Check for a misinstalled transmission.

Symptom	Probable cause(s)	Notes
Vehicle moves in 2 and R, but not in 1st in D, D3, S, or 1	1. 1st accumulator defective 2. 1st gears worn or damaged 3. 1st clutch defective	• Check the 1st clutch pressure. • Inspect the 1st accumulator piston, O-ring, and spring for wear and damage in the servo body. • Inspect the countershaft, secondary shaft, and 1st clutch for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate.
Vehicle moves in D, D3, S, 1, and R, but not in 2, or in 2nd in S	1. 2nd accumulator defective 2. 2nd gears worn or damaged 3. 2nd clutch defective	• Check the 2nd clutch pressure. • Inspect the 2nd accumulator piston, O-ring, and spring for wear and damaged in the servo body. • Inspect the countershaft, secondary shaft, and 2nd clutch for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate. • Inspect the 2nd clutch feed pipe. If the 2nd clutch feed pipe is scored, replace the end cover. • Replace the secondary shaft if the bushing for the 2nd clutch feed pipe is loose or damaged.

Symptom	Probable cause(s)	Notes
Vehicle moves in D, D3, S, 2, and 1, but not in R	1. Shift solenoid valve D defective 2. Shift fork shaft stuck 3. Shift valve D defective 4. 5th/reverse accumulator defective 5. 5th clutch defective 6. Reverse gears worn or damaged	• Check for a stored DTC, and check for loose connections. • Test the shift solenoid valve function with the HDS. • Inspect the O-rings, and check the shift solenoid valve for seizure. • Check the 5th clutch pressure. • Check for a missing shift fork bolt on the shift fork shaft. • Inspect the servo valve O-ring. • Check the shift fork shaft detent for wear and damage. • Inspect the 5th accumulator piston, O-ring, and spring for wear and damage in the servo body. • Inspect the mainshaft and 5th clutch for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate. • Inspect the reverse selector gear teeth chamfers, and inspect the engagement teeth chamfers of the countershaft 5th gear and reverse gear. Replace the reverse gears and the reverse selector if they are worn or damaged. If the transmission makes a clicking, grinding, or whirring noise, also replace the mainshaft 5th gear, reverse idler gear, and countershaft 5th gear.
Poor acceleration; flares when starting off in D, D3, S, 2, 1, and R; stall speed high in D, D3, S, 2, and 1	1. Low ATF level 2. Shift cable broken or out of adjustment 3. ATF pump worn or binding 4. Regulator valve stuck or spring worn 5. ATF strainer clogged 6. Torque converter check valve defective	• Check the line pressure. • Check the ATF level and check the ATF lines for leakage and loose connections. If necessary, clean the ATF lines. • Check for a loose shift cable at the shift lever and the transmission control lever. • Improper alignment of ATF pump and torque converter housing may cause the ATF pump to seize. The symptoms are mostly an rpm-related ticking noise or a high pitched squeak. • Check the ATF strainer for debris. If the strainer is clogged, find the damaged components that caused the debris. If no cause for contamination is found, replace the torque converter. • Inspect the differential pinion gears for wear. If the differential pinion gears are worn, replace the differential assembly, replace the ATF strainer, thoroughly clean the transmission, and clean the ATF cooler and ATF lines. • Check the torque converter check valve in the main valve body for free movement, and check the valve spring for wear and damage.
Poor acceleration; flares when starting off in D, D3, S, 2, and R; stall speed high	2nd clutch defective	• Check the 2nd clutch pressure. • Inspect the secondary shaft and 2nd clutch for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate. • Inspect the 2nd clutch feed pipe. If the 2nd clutch feed pipe is scored, replace the end cover. • Replace the secondary shaft if the bushing for the 2nd clutch feed pipe is loose or damaged.
Poor acceleration; flares when starting off in D, D3, S, 2, 1, and R; stall speed high in R	1. Shift cable broken or out of adjustment 2. 5th clutch defective	• Check for a loose shift cable at the shift lever and the transmission control lever. • Check the 5th clutch pressure. • Inspect the mainshaft and 5th clutch for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate.
Poor acceleration; flares when starting off in D, D3, S, 2, 1, and R; stall speed low in D, 2, and 1	1. Shift solenoid valve D defective 2. Torque converter one-way clutch defective 3. Engine output low 4. Torque converter clutch piston defective 5. Lock-up shift valve defective	• Check for a stored DTC, and check for loose connections. • Test the shift solenoid valve function with the HDS. • Inspect the O-rings, and check the shift solenoid valve for seizure. • Replace the torque converter assembly. • Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage. • Check the engine control system.

Symptom	Probable cause(s)	Notes
Poor acceleration; flares when starting off in D, D3, S, 2, 1, and R; stall speed low in R	1. Torque converter one-way clutch defective 2. Engine output low 3. Torque converter clutch piston defective 4. Lock-up shift valve defective	• Check the engine control system. • Replace the torque converter assembly. • Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage.
Engine idle vibration	1. Low ATF level 2. Shift solenoid valve D defective 3. Drive plate defective or transmission 4. misassembled 5. Engine output low 6. Torque converter clutch piston defective 7. ATF pump worn or damaged 8. Lock-up shift valve defective Misassembled engine or transmission mount	• Check the ATF level and check the ATF lines for leakage and loose connections. If necessary, clean the ATF lines. • Check for a stored DTC, and check for loose connections. • Test the shift solenoid valve function with the HDS. • Inspect the O-rings, and check the shift solenoid valve for seizure. • Check for a misinstalled/damaged drive plate, replace the drive plate if it is worn or damaged. • Check the engine control system. • Replace the torque converter assembly. • Check the line pressure. • Improper alignment of ATF pump and torque converter housing may cause the ATF pump to seize. The symptoms are mostly an rpm-related ticking noise or a high pitched squeak. • Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage. • Adjust the transmission and engine mounts.

Symptom	Probable cause(s)	Notes
Vehicle moves in N	1. Excessive ATF 2. Foreign material in separator plate orifice 3. Relief valve defective 4. 1st clutch defective 5. 2nd clutch defective 6. 3rd clutch defective 7. 4th clutch defective 8. 5th clutch defective 9. Clearance between the clutch end-plate and 10. the top disc is incorrect 11. Needle bearing seized, worn, or damaged Thrust washer seized, worn, or damaged	• Check the ATF level, and drain the ATF if it is over-filled. • Check the 1st, 2nd, 3rd, 4th, and 5th clutch pressures. • Check for clogged orifice in the separator plate. If the orifice is clogged, remove it and clean the separator plate orifice. • Check the ATF strainer for debris. If the strainer is clogged with particles of steel or aluminum, inspect the ATF pump. If the ATF pump is OK, find the damaged components that caused the debris. If no cause for contamination is found, replace the torque converter. • Check the relief valve in the main valve body for free movement, and check the valve spring for wear and damage. • Inspect the mainshaft, secondary shaft, 1st, 2nd, 3rd, 4th, and 5th clutches for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate. • Inspect the 2nd, 3rd, and 4th clutch feed pipes. • If the 2nd clutch feed pipe is scored, replace the end cover. • If the 3rd or 4th clutch feed pipe is scored, replace it and the O-rings under the feed pipe flange. • Replace the secondary shaft if the bushing for the 2nd clutch feed pipe or 4th clutch feed pipe is loose or damaged. • Replace the mainshaft if the bushing for the 3rd clutch feed pipe is loose or damaged.

Symptom	Probable cause(s)	Notes
Late shift after shifting from N to D, D3, and S, or excessive shock when shifted into D, D3, and S	1. Shift solenoid valve D defective 2. A/T clutch pressure control solenoid valve A 3. defective 4. A/T clutch pressure control solenoid valve B 5. defective 6. A/T clutch pressure control solenoid valve C 7. defective 8. Shift cable broken or out of adjustment 9. Connection between shift cable and 10. transmission or body is worn 11. Input shaft (mainshaft) speed sensor 12. defective 13. Output shaft (countershaft) speed sensor 14. defective 15. ATF temperature sensor defective Foreign material in separator plate orifice Servo control valve defective 1st accumulator defective 1st check ball stuck Lock-up shift valve defective 1st clutch defective	• Check for a stored DTC, and check for loose connections. • Test the solenoid valve function with the HDS. • Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings, for wear and damage. • Inspect the O-rings, and check the shift solenoid valve seizure. • Check for a loose shift cable at the shift lever and the transmission control lever. • Check the input shaft (mainshaft) speed sensor and output shaft (countershaft) speed sensor installation. • Inspect the sensor O-ring for wear and damage. • Check for clogged orifice in the separator plate. If the orifice is clogged, remove it and clean the separator plate orifice. • Check the 1st clutch pressure. • Check the servo control valve in the main valve body for free movement, and check the valve spring for wear and damage. • Inspect the 1st accumulator piston, O-ring, and spring for wear and damage in the regulator valve body. • Check the 1st check ball for stuck in the main valve body. • Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage. • Inspect the secondary shaft and 1st clutch for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate.
Late shift after shifting from N to R, or excessive shock when shifted into R	1. Shift solenoid valve D defective 2. A/T clutch pressure control solenoid valve A 3. defective 4. Shift cable broken or out of adjustment 5. Connection between shift cable and 6. transmission or body is worn 7. Input shaft (mainshaft) speed sensor 8. defective 9. Output shaft (countershaft) speed sensor 10. defective 11. ATF temperature sensor defective 12. Shift fork shaft stuck 13. Foreign material in separator plate orifice Shift valve D defective 5th/reverse accumulator defective Lock-up shift valve defective 5th clutch defective	• Check for a stored DTC, and check for loose connections. • Test the solenoid valve function with the HDS. • Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings, for wear and damage. • Inspect the O-rings, and check the shift solenoid valve for seizure. • Check for a loose shift cable at the shift lever and the transmission control lever. • Check the input shaft (mainshaft) speed sensor and output shaft (countershaft) speed sensor installation. • Inspect the sensor O-ring for wear and damage. • Check for a missing shift fork bolt on the shift fork shaft. • Inspect the servo valve O-ring. • Check the shift fork shaft detent for wear and damage. • Check for clogged orifice in the separator plate. If the orifice is clogged, remove it and clean the separator plate orifice. • Check the 5th clutch pressure. • Check the shift valve D in the main valve body for free movement, and check the valve spring for wear and damage. • Inspect the 5th accumulator piston, O-ring, and spring for wear and damage in the servo body. • Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage. • Inspect the mainshaft and 5th clutch for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate.

Symptom	Probable cause(s)	Notes
Transmission does not shift	1. Input shaft (mainshaft) speed sensor defective 2. Output shaft (countershaft) speed sensor defective	• Check for a stored DTC, and check for loose connections. • Check the input shaft (mainshaft) speed sensor and output shaft (countershaft) speed sensor installation. • Inspect the sensor O-ring for wear and damage.

Symptom	Probable cause(s)	Notes
Excessive shock or flares on all upshifts and downshifts	1. A/T clutch pressure control solenoid valve B 2. defective 3. A/T clutch pressure control solenoid valve C 4. defective 5. Input shaft (mainshaft) speed sensor defective 6. Output shaft (countershaft) speed sensor defective ATF temperature sensor defective Foreign material in separator plate orifice	• Check for a stored DTC, and check for loose connections. • Test the solenoid valve function with the HDS. • Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings for wear and damage. • Check the input shaft (mainshaft) speed sensor and output shaft (countershaft) speed sensor installation. • Inspect the sensor O-ring for wear and damage. • Check for clogged orifice in the separator plate. If the orifice is clogged, remove it and clean the separator plate orifice.

Symptom	Probable cause(s)	Notes
Excessive shock or flares on 1-2 upshift or 2-1 downshift	1. Shift solenoid valve D defective 2. A/T clutch pressure control solenoid valve A 3. defective 4. A/T clutch pressure control solenoid valve B 5. defective 6. A/T clutch pressure control solenoid valve C 7. defective 8. 2nd clutch transmission fluid pressure switch 9. defective 10. Foreign material in separator plate orifice 11. 1st accumulator defective 12. 2nd accumulator defective 13. 1st check ball stuck 2nd check ball stuck Lock-up shift valve defective 1st clutch defective 2nd clutch defective	• Check for a stored DTC, and check for loose connections. • Test the solenoid valve function with the HDS. • Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings for wear and damage. • Inspect the O-rings, and check the shift solenoid valve for seizure. • Check for clogged orifice in the transmission fluid pressure switch connector. If the orifice is clogged, remove it and clean the connector. • Check for clogged orifice in the separator plate. If the orifice is clogged, remove it and clean the separator plate orifice. • Check the 1st and 2nd clutch pressures. • Inspect the 1st accumulator piston, O-ring, and spring for wear and damage in the servo body. • Inspect the 2nd accumulator piston, O-ring, and spring for wear and damage in the servo body. • Check the 1st check ball and 2nd check ball for stick in the main valve body. • Inspect the secondary shaft, 1st clutch, and 2nd clutch for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate. • Inspect the 2nd clutch feed pipe. If the 2nd clutch feed pipe is scored, replace the end cover. • Replace the secondary shaft if the bushing for the 2nd clutch feed pipe is loose or damaged. • Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage.

Symptom	Probable cause(s)	Notes

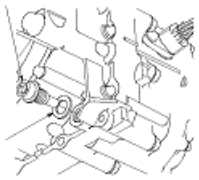
Symptom	Probable cause(s)	Notes
Excessive shock or flares on 2-3 upshift or 3-2 downshift	1. A/T clutch pressure control solenoid valve B 2. defective 3. A/T clutch pressure control solenoid valve C 4. defective 5. 3rd clutch transmission fluid pressure switch 6. defective 7. Foreign material in separator plate orifice 8. 2nd accumulator defective 9. 3rd accumulator defective 2nd check ball stuck 2nd clutch defective 3rd clutch defective	• Check for a stored DTC, and check for loose connections. • Test the solenoid valve function with the HDS. • Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings for wear and damage. • Check for clogged orifice in the transmission fluid pressure switch connector. If the orifice is clogged, remove it and clean the connector. • Check for clogged orifice in the separator plate. If the orifice is clogged, remove it and clean the separator plate orifice. • Check the 2nd and 3rd clutch pressures. • Inspect the 2nd and 3rd accumulator pistons, O-rings, and springs for wear and damage in the servo body. • Check the 2nd check ball for stick in the main valve body. • Inspect the secondary shaft, mainshaft, 2nd clutch, and 3rd clutch for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate. • Inspect the 2nd and 3rd clutch feed pipes. • If the 2nd clutch feed pipe is scored, replace the end cover. • If the 3rd clutch feed pipe is scored, replace it and the O-rings under the feed pipe flange. • Replace the secondary shaft if the bushing for the 2nd clutch feed pipe is loose or damaged. • Replace the mainshaft if the bushing for the 3rd clutch feed pipe is loose or damaged.
Excessive shock or flares on 3-4 upshift or 4-3 downshift	1. A/T clutch pressure control solenoid valve B 2. defective 3. A/T clutch pressure control solenoid valve C 4. defective 5. Foreign material in separator plate orifice 6. 3rd accumulator defective 7. 4th accumulator defective 3rd clutch defective 4th clutch defective	• Check for a stored DTC, and check for loose connections. • Test the solenoid valve function with the HDS. • Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings for wear and damage. • Check for clogged orifice in the separator plate. If the orifice is clogged, remove it and clean the separator plate orifice. • Check the 3rd and 4th clutch pressures. • Inspect the 3rd and 4th accumulator pistons, O-rings, and springs for wear and damage in the servo body. • Inspect the mainshaft, secondary shaft, 3rd clutch, and 4th clutch for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate. • Inspect the 3rd and 4th clutch feed pipes. • If the 3rd clutch feed pipe is scored, replace it and the O-rings under the feed pipe flange. • If the 4th clutch feed pipe is scored, replace it and the O-rings under the feed pipe flange. • Replace the secondary shaft if the bushing for the 4th clutch feed pipe is loose or damaged. • Replace the mainshaft if the bushing for the 3rd clutch feed pipe is loose or damaged.

Symptom	Probable cause(s)	Notes
Excessive shock or flares on 4-5 upshift or 5-4 downshift	1. A/T clutch pressure control solenoid valve B 2. defective 3. A/T clutch pressure control solenoid valve C 4. defective 5. Foreign material in separator plate orifice 6. 4th accumulator defective 7. 5th accumulator defective 4th clutch defective 5th clutch defective	• Check for a stored DTC, and check for loose connections. • Test the solenoid valve function with the HDS. • Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings for wear and damage. • Check for clogged orifice in the separator plate. If the orifice is clogged, remove it and clean the separator plate orifice. • Check the 4th and 5th clutch pressures. • Inspect the 4th and 5th accumulator pistons, O-rings, and springs for wear and damage in the servo body. • Inspect the mainshaft, secondary shaft, 4th clutch, and 5th clutch for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate. • Inspect the 4th clutch feed pipes. If the 4th clutch feed pipe is scored, replace it and the O-rings under the feed pipe flange. • Replace the secondary shaft if the bushing for the 4th clutch feed pipe is loose or damaged.
Noise from transmission in all shift lever positions	1. ATF pump worn or damaged 2. Mainshaft bearing, countershaft bearing, or secondary shaft bearing defective	• Check the line pressure. • Improper alignment of ATF pump and torque converter housing may cause the ATF pump to seize. The symptoms are mostly an rpm-related ticking noise or a high pitched squeak. • Be careful not to damage the torque converter housing when replacing the main ball bearing. Not torquing the valve body to specification could also damage the ATF pump. This could cause the pump to seize. • Install the main seal flush with the torque converter housing when replacing the main seal. If you push it into the torque converter housing until it bottoms out, it will block the fluid return passage and result in damage. • Inspect the mainshaft, countershaft, and secondary shaft bearing for wear and damage.
Vehicle does not accelerate above 50 km/h (31 mph)	Torque converter one-way clutch defective	Replace the torque converter assembly.
Vibration in all shift lever positions	Drive plate defective or transmission misassembled	• Check for a misinstalled/damaged drive plate, replace the drive plate if it is worn or damaged. • Check the engine control system.
Shift lever does not operate smoothly	1. Transmission range switch defective or out of 2. adjustment 3. Shift cable broken or out of adjustment Connection between shift cable and transmission or body is worn	• Check for a stored DTC, and check for loose connections. • Inspect the transmission range switch. If the transmission range switch is faulty, replace it. If the transmission range switch is out of adjustment, adjust it and shift cable. • Check for a loose shift cable at the shift lever and the transmission control lever.
Transmission does not shift into P	1. Shift cable broken or out of adjustment 2. Connection between shift cable and 3. transmission or body is worn Park mechanism defective	• Check for a loose shift cable at the shift lever and the transmission control lever. • Check the park pawl spring installation and the park lever spring installation. If installation is incorrect, install the spring correctly. Make sure that the park lever stop is not installed upside down. Check the distance between the park pawl shaft and park lever pin. If the distance is out of tolerance, adjust the distance with the park lever stop.
Torque converter clutch does not disengage	1. Shift solenoid valve D defective 2. A/T clutch pressure control solenoid valve A 3. defective 4. Torque converter clutch piston defective 5. Lock-up shift valve defective Lock-up control valve defective	• Check for a stored DTC, and check for loose connections. • Test the solenoid valve function with the HDS. • Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings for wear and damage. • Inspect the O-rings, and check the shift solenoid valve for seizure. • Replace the torque converter assembly. • Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage. • Check the lock-up control valve in the main valve body for free movement, and check the valve spring for wear and damage.

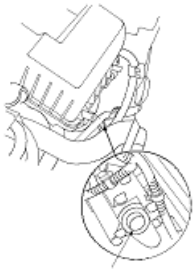
Symptom	Probable cause(s)	Notes
Torque converter clutch does not operate smoothly	1. Shift solenoid valve D defective 2. A/T clutch pressure control solenoid valve A 3. defective 4. Torque converter clutch piston defective 5. Torque converter check valve defective 6. Lock-up shift valve defective Lock-up control valve defective	• Check for a stored DTC, and check for loose connections. • Test the solenoid valve function with the HDS. • Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings for wear and damage. • Inspect the O-rings, and check the shift solenoid valve for seizure. • Replace the torque converter assembly. • Check the torque converter check valve in the regulator valve body for free movement, and check the valve spring for wear and damage. • Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage. • Check the lock-up control valve in the main valve body for free movement, and check the valve spring for wear and damage.
Torque converter clutch does not engage	1. Shift solenoid valve D defective 2. A/T clutch pressure control solenoid valve A 3. defective 4. Input shaft (mainshaft) speed sensor defective 5. Output shaft (countershaft) speed sensor 6. defective 7. Torque converter clutch piston defective 8. Torque converter check valve defective Lock-up shift valve defective Lock-up control valve defective	• Check for a stored DTC, and check for loose connections. • Test the solenoid valve function with the HDS. • Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings for wear and damage. • Inspect the O-rings, and check the shift solenoid valve for seizure. • Check the input shaft (mainshaft) speed sensor and output shaft (countershaft) speed sensor installation. • Inspect the sensor O-ring for wear and damage. • Replace the torque converter assembly. • Check the torque converter check valve in the regulator valve body for free movement, and check the valve spring for wear and damage. • Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage. • Check the lock-up control valve in the main valve body for free movement, and check the valve spring for wear and damage.
A/T gear position indicator does not indicate shift lever positions	1. Transmission range switch defective or out of 2. adjustment 3. Shift cable broken or out of adjustment Connection between shift cable and transmission or body worn	• Check for a stored DTC, and check for loose connections. • Inspect the transmission range switch. If the transmission range switch is faulty, replace it. If the transmission range switch is out of adjustment, adjust it and shift cable. • Check for a loose shift cable at the shift lever and the transmission control lever.
Speedometer and odometer do not work	Output shaft (countershaft) speed sensor defective	• Check for a stored DTC, and check for loose connections. • Check the output shaft (countershaft) speed sensor installation. • Inspect the sensor O-ring.
Engine does not rev to high rpm, and the transmission upshifts at low rpm (engine at normal operating temperature)	Engine rocker arm defective	• Check the engine rocker arms. • Check for a restricted or damaged exhaust system.

ATF Replacement

NOTE: Keep all foreign particles out of the transmission.



1. Warm up the engine to normal operating temperature (the radiator fan comes on), and turn the engine off.
2. Raise the vehicle on a lift, or apply the parking brake, block both rear wheels, and raise the front of the vehicle. Make sure it is securely supported.
3. Remove the splash shield.
4. Remove the drain plug (A), and drain the automatic transmission fluid (ATF).
5. Reinstall the drain plug with a new sealing washer (B).

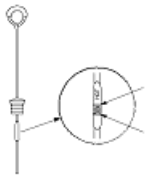


6. Remove the dipstick, and refill the transmission with the recommended fluid into the dipstick guide opening (A). Always use genuine Honda ATF-Z1 Automatic Transmission Fluid (ATF). Using a non-Honda ATF can affect shift quality.
   Automatic Transmission Fluid Capacity:
   2.5 L (2.6 US qt, 2.2 Imp qt) at change
   5.85 L (6.18 US qt, 5.15 Imp qt) at overhaul
7. Insert the dipstick back into the transmission.
8. Check the ATF level.
9. Install the splash shield.

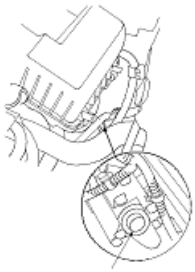
ATF Level Check

NOTE: Keep all foreign particles out of the transmission.

1. Park the vehicle on the level ground.
2. Warm up the engine to normal operating temperature (the radiator fan comes on), then turn the engine off. Do not allow the engine to warm up longer than the time it takes for the radiator fan to come on twice.
   NOTE: Check the fluid level within 60−90 seconds after turning the engine off. Higher fluid level may be indicated if the radiator fan comes on twice or more.
3. Remove the dipstick (yellow loop) (A), and wipe it with a clean cloth.
4. Insert the dipstick into the transmission.

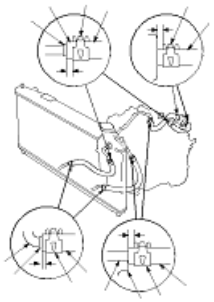


5. Remove the dipstick and check the fluid level. It should be between the upper mark (A) and lower mark (B).
6. If the level is below the lower mark, check for fluid leaks at the transmission, and hose and line joints. If a problem is found, fix it before filling the transmission.
   NOTE: If the vehicle is driven when the ATF level is below the lower mark, one or more of these symptoms may occur:
   - Transmission damage.
   - Vehicle does not move in any gear.
   - Vehicle accelerates poorly, and flares when starting off in the forward and reverse positions.
   - The engine vibrates at idle.
7. If the level is above the upper mark, drain the ATF to proper level.
   NOTE: If the vehicle is driven when the ATF level is above the upper mark, the vehicle may creep forward while in N, or have shifting problems.



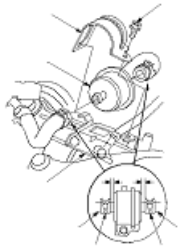
8. If necessary, fill the transmission with the ATF through the dipstick guide opening (A) to bring the fluid level midway between the upper mark and lower mark of the dipstick. Do not fill past the upper mark. Always use genuine Honda ATF-Z1 Automatic Transmission Fluid (ATF). Using a non-Honda ATF can affect shift quality.
9. Insert the dipstick back into the transmission.

ATF Cooler Hose Replacement



1. Slide the ATF cooler hose (A) on the ATF filter (B) until the hose end contacts the filter housing, and secure the hose with the clip (C) at 6−8 mm (0.24−0.31 in.) (D) from the filter housing. Install the cooler hose on the other side of the ATF filter in the same manner.
2. Slide the ATF cooler hoses (E) over the ATF lines (F) until the hose ends contact the bulge (G), and secure the hoses with the clip (H) at 6−8 mm (0.24−0.31 in.) (I) from the hose end.
3. Slide the ATF cooler hose (J) over the ATF line (K) until the hose end contacts the line bracket (L), and secure the hose with the clip (M) at 6−8 mm (0.24−0.31 in.) (N) from the hose end.
4. Slide the ATF cooler hose (O) over the ATF cooler line (P) until the hose end contacts the bulge (Q), and secure the hose with the clip (R) at 2−4 mm (0.08−0.16 in.) (S) from the hose end.

ATF Filter Replacement



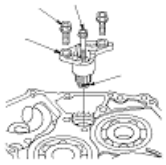
1. Remove the air cleaner assembly.
2. Disconnect the ATF cooler hoses (A) from the ATF filter (B).
3. Remove the ATF filter holder (C).
4. Remove the ATF filter, and replace it.
5. Install the new ATF filter on the filter mounting bracket (D), and secure it with its holder and bolt.
6. Slide the ATF cooler hose on the ATF filter until the hose end contacts the filter housing, and secure the hose with the clip (E) at 6−8 mm (0.24−0.31 in.) (F) from the filter housing. Install the cooler hose on the other side of the ATF filter in the same manner.
7. Install the air cleaner assembly.

A/T Drive Plate Removal and Installation

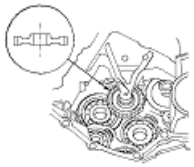
1. Remove the transmission assembly.
2. Remove the drive plate (A) and washer (B) from the engine crankshaft.
3. Install the drive plate and washer on the engine crankshaft, and tighten the six bolts in a crisscross pattern in at least two steps.
4. Install the transmission assembly.

A/T Housing Reverse Idler Gear Removal

1. Remove the bolts (A) securing the reverse idler gear shaft holder (B).
2. Install a 5 x 0.8 mm bolt (C) in the reverse gear shaft, and pull it to remove the reverse idler gear shaft (D) and the gear shaft holder together.

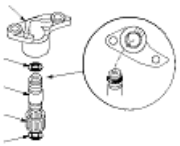


3. Remove the reverse idler gear.

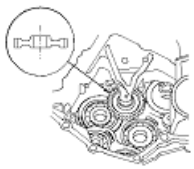


A/T Housing Reverse Idler Gear Installation

1. Lightly coat the reverse idler gear shaft (A), the needle bearing (B), and the new O-rings (C) with lithium grease.
2. Assemble the new O-rings and the needle bearing on the reverse idler gear shaft, then install the reverse idler gear shaft in the reverse idler gear shaft holder (E). Align the D-shaped cut out of the shaft with the D-shaped area of the holder.



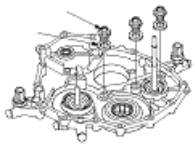
3. Install the reverse idler gear in the transmission housing in the direction shown.



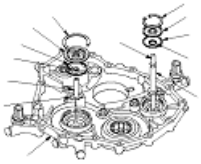
4. Install the reverse idler gear shaft/holder assembly in the reverse idler gear.
5. Secure the holder with the bolts.

A/T End Cover Air Check Valve Inspection and Replacement

1. Check the air check valve filter for clogging. If the filter is clogged, remove the air check valve (A), and clean the filter thoroughly by pouring clean ATF. Do not blow out the filter with compressed air. Replace the air check valve, if the filter or check valve (ball) is clogged or damaged.
2. Install the air check valve and a new sealing washer (B).



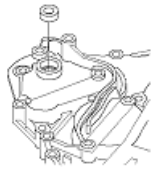
A/T End Cover ATF Feed Pipe Replacement



1. Remove the snap ring (A), 3rd clutch feed pipe (B), and feed pipe flange (C) from the end cover (D).
2. Install the new O-ring (E) over the 3rd clutch feed pipe.
3. Install the 3rd clutch feed pipe in the end cover by aligning the feed pipe tabs (F) with the indentations in the end cover.
4. Install the new O-ring (G) in the end cover, then install the feed pipe flange over the 3rd clutch feed pipe.
5. Secure the 3rd clutch feed pipe and feed pipe flange with the snap ring.
6. Remove the snap ring (H) and feed pipe flange (I).
7. Check the 4th clutch feed pipe (J) and 2nd clutch feed pipe (K) for scoring and damage. Replace the end cover, if the feed pipe is scored or damaged.
8. Install the new O-ring (L) over the 4th clutch feed pipe.
9. Install the new O-ring (M) in the end cover, then install the feed pipe flange over the 4th clutch feed pipe.
10. Secure the 4th clutch feed pipe and feed pipe flange with the snap ring.

A/T End Cover Selector Control Shaft Bearing Replacement

Special Tools Required



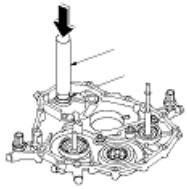
Driver handle 15 x 135L
07749-0010000

Driver attachment, 22 x 24 mm
07746-0010800

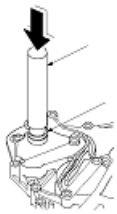
1. Remove the oil seal from the end cover.

2. Remove the control shaft bearing from the end cover.

3. Install the new bearing flush to the end cover with the special tools.

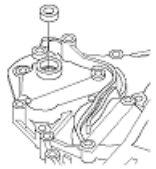


4. Install the new oil seal flush to the end cover with the special tools.



A/T End Cover Selector Control Shaft Oil Seal Replacement

Special Tools Required

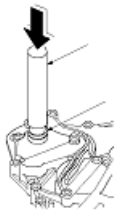


Driver handle 15 x 135L
07749-0010000

Driver attachment, 22 x 24 mm
07746-0010800

1. Remove the oil seal from the end cover.

2. Install the new oil seal flush to the end cover with the special tools.



Torque Converter Housing Selector Control Shaft Oil Seal Replacement

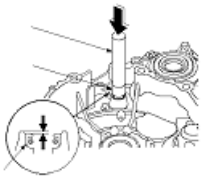
Special Tools Required

Driver handle 15 x 135L
07749-0010000

Oil seal driver attachment
07947-ZV00100

1. Remove the oil seal from the torque converter housing.

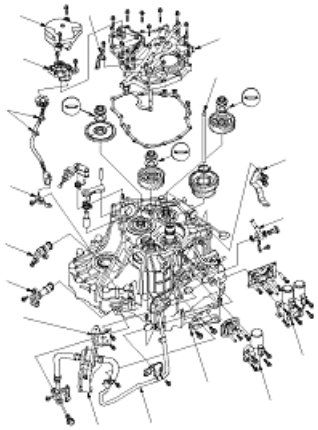
2. Install the new oil seal (A) in the torque converter housing in depth (B) of 0.5−1.5 mm (0.02−0.06 in.) below the housing surface with the special tools.



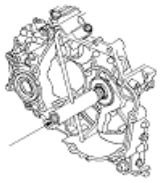
A/T End Cover Removal

Special Tools Required

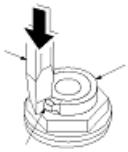
Mainshaft holder set
07PAB-0010001



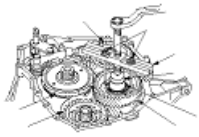
1. Remove the bolts securing the ATF inlet line (A) and ATF filter holder (B), line bolt and sealing washers, and remove the ATF inlet line, ATF hose, and ATF filter. Remove the ATF filter bracket (C).
2. Remove the ATF outlet line bolt, line mounting bolt, sealing washers, and ATF outlet line (D).
3. Remove the transmission hanger (E) and breather hose clamp bracket (F).
4. Remove the A/T clutch pressure control solenoid valve A (G), ATF joint pipes, O-rings, ATF pipe, and gasket.
5. Remove the A/T clutch pressure control solenoid valve B and C (H), O-rings, ATF pipe, ATF joint pipes, and gasket.
6. Remove the input shaft (mainshaft) speed sensor (I) and output shaft (countershaft) speed sensor (J).
7. Remove the transmission range switch cover (K).
8. Remove the transmission range switch harness clamps (L) from the clamp bracket (M), then remove the transmission range switch (N).
9. Remove the clamp bracket from the end cover (O).
10. Remove the connector bracket (P) from the transmission housing.
11. Remove the end cover, dowel pins, O-rings, and end cover gasket.
12. Remove the ATF lubrication pipe (Q) from the idler gear shaft.



13. Slip the special tool onto the mainshaft.
14. Engage the park pawl with the park gear.



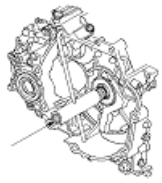
15. Cut the lock tab (A) of the each shaft locknut (B) using a chisel (C). Then remove the locknuts and conical spring washers from each shaft.
    NOTE:
    - Countershaft and secondary shaft locknuts have left-hand threads.
    - Keep all of the chiseled particles out of the transmission.
    - Clean the old locknuts; they are used to install the press fit idler gears and park gear.
16. Remove the snap ring securing the idler gear to the idler gear shaft.



17. Install 6 x 1.0 mm bolts (A) on the idler gear shaft idler gear (B). Set a puller (C) on the idler gear shaft (D) with putting a spacer (E) between the puller and idler gear shaft, then remove idler gear shaft idler gear.
18. Set the puller, 6 x 1.0 mm bolts, and spacer on the secondary shaft idler gear (F), and remove the secondary shaft idler gear from the secondary shaft in the same manner as the removal of idler gear shaft idler gear.
19. Set the puller, 6 x 1.0 mm bolts, and spacer on the mainshaft idler gear (G), and remove the mainshaft idler gear from the mainshaft in the same manner as the removal of idler gear shaft idler gear.
20. Set the puller, 6 x 1.0 mm bolts, and spacer on the park gear (H), and remove the park gear from the countershaft in the same manner as the removal of idler gear shaft idler gear.
21. Remove the park pawl, park pawl spring, park pawl shaft, and stop shaft.
22. Remove the park lever from the selector control shaft.

A/T End Cover Installation

Special Tools Required

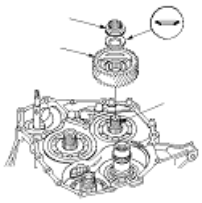


Mainshaft holder set
07PAB-0010001

Gear installer set
070AC-XFD0100

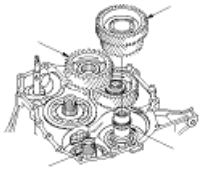
1. Install the special tool onto the mainshaft.
2. Lubricate the following parts with ATF:
   - Splines and threads of the mainshaft.
   - Splines of the mainshaft idler gear.
   - Old conical spring washer and old locknut.

3. Install the mainshaft idler gear (A), old conical spring washer (B), and old locknut (C) on the mainshaft (D), and tighten the locknut to 216 N·m (22.0 kgf·m, 159 lbf·ft).
   NOTE:
   - Do not tap the idler gear to install.
   - Use a torque wrench to tighten the locknut. Do not use an impact wrench.

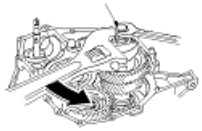


4. Lubricate the following parts with ATF:
   - Splines and threads of the secondary shaft and idler gear shaft.
   - Splines of the secondary shaft idler gear.
   - Old conical spring washer and old locknut.

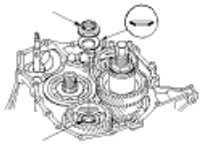
5. Install the secondary shaft idler gear (A) on the secondary shaft (B), and install the idler gear shaft idler gear (C) on the idler gear shaft (D).



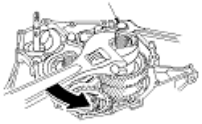
6. Set the special tool on the idler gear shaft and idler gear, and tighten the installer nut to install the idler gear part-way.
   NOTE: The installer nut has left-hand threads.



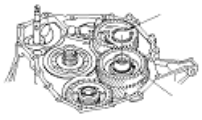
7. Install the old conical spring washer (A) and old locknut (B) on the secondary shaft (C), and tighten the locknut to 226 N·m (23.0 kgf·m, 166 lbf·ft).
   NOTE:
   - Do not tap the idler gear to install.
   - Use a torque wrench to tighten the locknut. Do not use an impact wrench.
   - Secondary shaft locknut has left-hand threads.



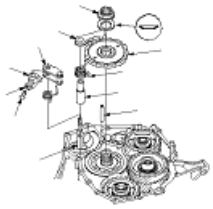
8. Retighten the installer nut to seat the idler gear in the idler gear shaft until it stops. Remove the special tool from the idler gear shaft.



9. Install the new snap ring (A) on the idler gear shaft (B), and verify that the snap ring is seated securely into the groove.



10. Install the park lever (A) and the park lever stop (B) on the selector control shaft (C), then install the lock bolt and the new lock washer (D). Do not bend the lock tab of the lock washer until Step 23 .



11. Install the park pawl shaft (E), the park pawl spring (F), the park pawl (G), and the stop shaft (H) on the transmission housing.
12. Lubricate the following parts with ATF:
    - Threads and splines of the countershaft.
    - Old conical spring washer and old locknut.
    - Areas where the park gear contacts the conical spring washer.
13. Install the park gear (I), the old conical spring washer (J), and the old locknut (K) on the countershaft.
14. Lift the park pawl up, and engage it with the park gear, then tighten the locknut to 226 N·m (23.0 kgf·m, 166 lbf·ft).
    NOTE:
    - Do not tap the park gear to install.
    - Use a torque wrench to tighten the locknut. Do not use an impact wrench.
    - Countershaft locknut has left-hand threads.
15. Remove the locknuts and the conical spring washers from the mainshaft, the countershaft, and the secondary shaft.
16. Lubricate the threads of the shafts, the new locknuts and the new conical spring washers with ATF.

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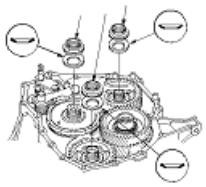
17. Install the new conical spring washers (A) (B) with facing stamped mark side up in the direction shown, and install the new mainshaft locknut (C), the new countershaft locknut (D), and the new secondary shaft locknut (E).



18. Tighten the countershaft locknut and the secondary shaft locknut to 167 N·m (17.0 kgf·m, 23 lbf·ft), and tighten the mainshaft locknut to 155 N·m (15.8 kgf·m, 114 lbf·ft).
    NOTE:
    - Be sure to install the conical spring washers in the direction shown.
    - Use a torque wrench to tighten the locknut. Do not use an impact wrench.
    - Countershaft and secondary shaft locknuts have left-hand threads.
19. Remove the special tool from the mainshaft.

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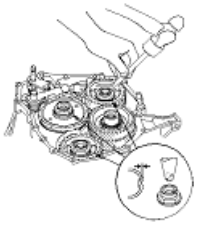
20. Stake the locknuts into the shafts in depth (A) of 0.7–1.3 mm (0.03–0.05 in.) using a 3.5 mm punch (B).



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21. Set the park pawl (A) in the P position, then verify that the park pawl engages with the park gear (B).
22. If the park pawl does not engage fully, check the distance (C) between the pawl shaft and the extension line connected centers of the park lever roller pin and the selector control shaft.
23. Tighten the lock bolt (D), and bend the lock tab of the lock washer (E) against the bolt head.

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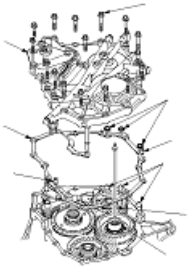
24. Install the ATF lubrication pipe (A) into the idler gear shaft (B).
25. Install the new gasket (C) on the transmission housing, and install the two dowel pins (D) and new O-rings (E) over the top of the ATF feed pipes (F).
26. Install the end cover (G), and tighten the 17 bolts.



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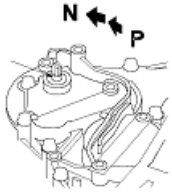
27. Using the selector control shaft end on the torque converter housing side, turn the control shaft (A) fully clockwise (view from end cover) to the P position. Turn the control shaft back two click-stopped positions so that it is in the N position.
    NOTE: Do not squeeze the end of the selector control shaft tips together when turning the shaft. If the control shaft tips are squeezed together it will cause a faulty signal or position due to play between the selector control shaft and the switch.



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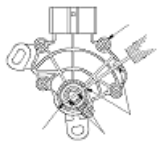
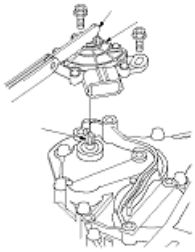
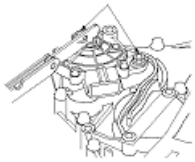
28. Align the cutouts (A) on the rotary-frame with the neutral positioning cutouts (B) on the transmission range switch (C), then put a 2.0 mm (0.08 in.) feeler gauge blade (D) in the cutouts to hold the switch in the N position.
NOTE: Be sure to use a 2.0 mm (0.08 in.) blade or equivalent to hold the switch in the N position.



29. Install the transmission range switch (A) gently on the selector control shaft (B) while holding it in the N position with the 2.0 mm (0.08 in.) blade (C).



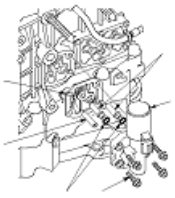
30. Tighten the bolts on the transmission range switch while you continue to hold it in the N position. Do not move the transmission range switch while tightening the bolts. Remove the feeler gauge.



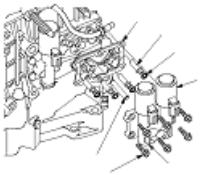
31. Install the harness clamp bracket (A) on the end cover (B).
32. Install the connector bracket (C) on the transmission housing.
33. Connect the transmission range switch connector (D) securely, then install the harness clamps (E) on the clamp bracket.
34. Install the transmission range switch cover (F).

35. Install the new O-ring (A) on the input shaft (mainshaft) speed sensor (B), then install the input shaft (mainshaft) speed sensor.
36. Install the new O-ring (C) on the output shaft (countershaft) speed sensor (D), then install the output shaft (countershaft) speed sensor.

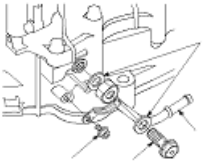
37. Install the new gasket (B) on the transmission housing, and install the ATF pipe (C) and the ATF joint pipes (D).
38. Install the new O-rings (E) over the ATF joint pipes, and install the A/T clutch pressure control solenoid valve A.



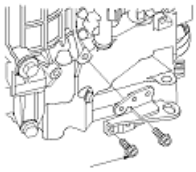
39. Install the new gasket (A) with the blue side facing the transmission housing and the white side facing the A/T clutch pressure control solenoid valve body.
40. Install the ATF pipe (D) and the ATF joint pipes (E), and install the new O-rings (F) over the ATF joint pipes.
41. Install A/T clutch pressure control solenoid valve B and C.



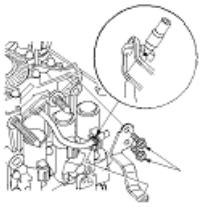
42. Install the ATF outlet line (A) on the torque converter housing, and secure it with the line bolt (B) and new sealing washers (C).
43. Secure the ATF outlet line with the bracket bolt.



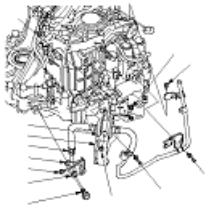
44. Install the transmission hanger.



45. Install the breather hose clamp bracket, and install the clamp on the bracket.

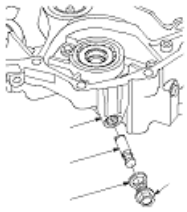


46. Install the ATF filter bracket (A).
47. Install the ATF inlet line and hose (B) on the torque converter housing, and secure it with the line bolt (C) and new sealing washers (D).
48. Put the ATF filter (E) on its bracket, and secure with the holder (F) and the bolt.
49. Secure the inlet line with the bolts (G) on the transmission.



Torque Converter Housing Lubrication Check Valve Replacement

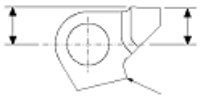
1. Remove the sealing bolt (A) and sealing washer (B).
2. Remove the lubrication check valve (C) from the torque converter housing (D).
3. Install the lubrication check valve, new sealing washer, and the sealing bolt.



A/T End Cover Park Lever Stop Inspection and Adjustment

1. Set the park lever in the P position.
2. Measure the distance (A) between the park pawl shaft center (B) and the extension line (C) connected centers of the park lever roller pin (D) and control shaft (E) in the vertical direction from the extension line.
   Standard: 46.8−47.8 mm (1.84−1.88 in.)

3. If the measurement is out of standard, select and install the appropriate park lever stop (A) from the table.

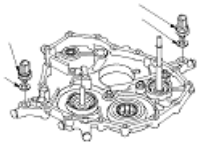


PARK LEVER STOP

Mark	Part Number	A	B
1	24537-PA9-003	11.00 mm (0.433 in.)	11.00 mm (0.433 in.)
2	24538-PA9-003	10.80 mm (0.425 in.)	10.65 mm (0.419 in.)
3	24539-PA9-003	10.60 mm (0.417 in.)	10.30 mm (0.406 in.)

4. After replacing the park lever stop, make sure the distance is within tolerance.

A/T End Cover Transmission Fluid Pressure Switch Replacement

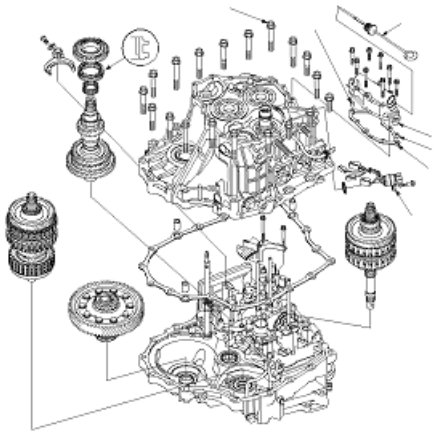


1. Remove the 2nd clutch transmission fluid pressure switch (A).
2. Make sure there is no water, oil, dust, or foreign particles inside the connector.
3. Install the new 2nd clutch transmission fluid pressure switch and a new sealing washer (B), and tighten the metal part of the switch.
4. Remove the 3rd clutch transmission fluid pressure switch (C).
5. Make sure there is no water, oil, dust, or foreign particles inside the connector.
6. Install the new 3rd clutch transmission fluid pressure switch and a new sealing washer (D), and tighten the metal part of the switch.

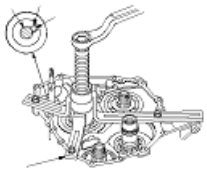
A/T Housing and Shaft Assembly Removal

Special Tools Required

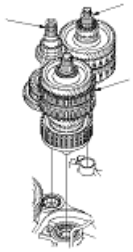
Housing puller
07HAC-PK40102



1. Remove the Dipstick (A).
2. Remove the shift solenoid valve cover (B), dowel pins (C), and gasket (D).
3. Disconnect the connectors from the shift solenoid valves, and remove the solenoid harness connector (E).
4. Remove the transmission housing mounting bolts (F) (19).



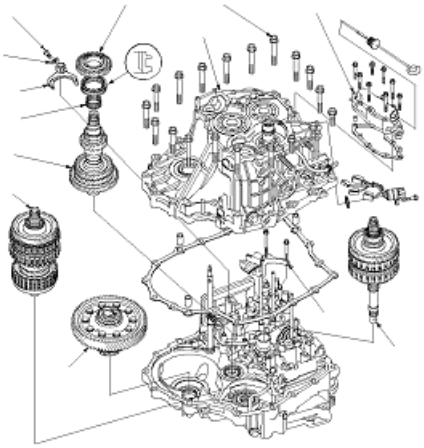
5. Align the spring pin (A) on the selector control shaft (B) with the transmission housing groove (C) by turning the control shaft with the detent plate.
   NOTE: Do not squeeze the end of the selector control shaft tips together when turning the control shaft.
6. Install the special tool over the mainshaft, then remove the transmission housing, dowel pins, and gasket.
   NOTE: If the top arm of your housing puller is too short, replace it with housing puller arm, 205 mm 07SAC-P0Z0101.
7. Remove the countershaft reverse gear and needle bearing.
8. Remove the lock bolt securing the shift fork, then remove the shift fork with the reverse selector together.



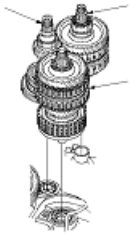
9. Remove the mainshaft subassembly (A), the countershaft subassembly (B), and the secondary shaft subassembly (C) together.
   If the reverse selector hub is removed by hand, remove the 4th-5th gear and needle bearings, and remove the mainshaft subassembly, then the countershaft subassembly and secondary shaft subassembly together.
10. Remove the baffle plate.
11. Remove the differential assembly.

A/T Shaft Assembly and Housing Installation

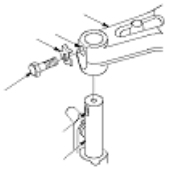
1. Install the differential assembly in the torque converter housing.
2. Install the baffle plate.
3. Assemble the mainshaft, countershaft, and secondary shaft.
   - Countershaft reverse selector hub is press-fitted type, go to Step 4 .
   - Countershaft reverse selector hub is not press-fitted type, go to Step 5 .



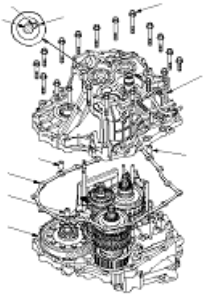
4. Join the mainshaft subassembly (A), countershaft subassembly (B), and secondary shaft subassembly (C) together, and install them in the torque converter housing.
5. Join the countershaft subassembly and secondary shaft subassembly together, then install them in the torque converter housing, and install the mainshaft subassembly. Install the needle bearings, 4th-5th gear, and reverse selector hub over the countershaft.



6. Turn the shift fork shaft (A) so the large chamfered hole (B) is facing the fork bolt hole (C) of the shift fork (D).
7. Install the shift fork and reverse selector together on the shift fork shaft and countershaft. Secure the shift fork to the shift fork shaft with the lock bolt and a new lock washer (E), then bend the lock tab of the lock washer against the bolt head.
8. Install the needle bearing and countershaft reverse gear on the countershaft.
9. Install the reverse idler gear in the transmission housing.

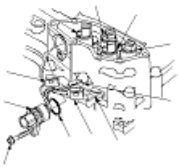


10. Install the three dowel pins (A) and a new gasket (B) on the torque converter housing (C).
11. Align the spring pin (D) of the control shaft (E) with the transmission housing groove (F) by turning the control shaft detent plate. Do not squeeze the end of the control shaft tips together when turning the shaft. If the tips are squeezed together, it will causes a faulty shift position signal or position due to the play between the control shaft and the switch.
12. Place the transmission housing (G) on the torque converter housing. Do not install the input shaft (mainshaft) speed sensor and output shaft (countershaft) speed sensor before installing the transmission housing on the torque converter housing.

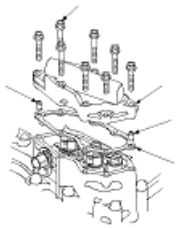


13. Wrap a screwdriver tip with tape to prevent damage to the reverse idler gear teeth. Engage the reverse idler gear with reverse gears by rotating the idler gear using the screwdriver.
14. Install the transmission housing mounting bolts, and tighten the bolts to 44 N·m (4.5 kgf·m, 33 lbf·ft) in at least two steps in a crisscross pattern.

15. Install the shift solenoid harness connector (E) in the transmission housing with the new O-ring (F).
16. Connect the WHT and ORN wires connector to shift solenoid valve B. The ATF temperature sensor is assembled in the WHT wires connector.
17. Connect the harness terminals to the solenoids:
    - BLU wire connector to shift solenoid valve A.
    - GRN wire connector to shift solenoid valve C.
    - YEL wire connector to shift solenoid valve D.



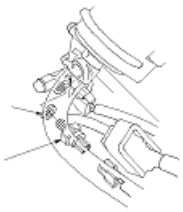
18. Install the shift solenoid valve cover (A), two dowel pins (B), and a new gasket (C).
19. Install the ATF dipstick.



A/T System Description - Electronic Control System

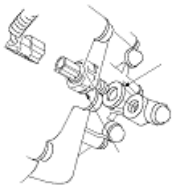
Electronic Control System
Electronic Control System (cont'd)
Electronic Control System (cont'd)
Electronic Control System (cont'd)
Electronic Control System (cont'd)
Electronic Control System (cont'd)
Electronic Control System (cont'd)
Electronic Control System (cont'd)

A/T 2nd Clutch Transmission Fluid Pressure Switch Replacement



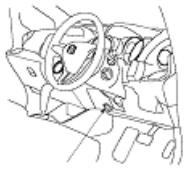
1. Remove the air cleaner assembly.
2. Disconnect the 2nd clutch transmission fluid pressure switch connector, and remove the 2nd clutch transmission fluid pressure switch (A).
3. Install the new 2nd clutch transmission fluid pressure switch with a new sealing washer (B), and tighten the metal part of the switch.
4. Make sure there is no water, oil, dust, or foreign particles inside the connectors.
5. Connect the connector securely.
6. Install the air cleaner assembly.

A/T 3rd Clutch Transmission Fluid Pressure Switch Replacement



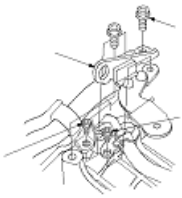
1. Raise the vehicle on a lift, or apply the parking brake, block rear wheels, and raise the front of the vehicle. Make sure it is securely supported.
2. Remove the splash shield.
3. Disconnect the 3rd clutch transmission fluid pressure switch connector, then remove the 3rd clutch transmission fluid pressure switch (A).
4. Install the new 3rd clutch transmission fluid pressure switch with a new sealing washer (B), and tighten the metal part of the switch.
5. Make sure there is no water, oil, dust, or foreign particles inside the connector.
6. Connect the connector securely.
7. Install the splash shield.

A/T Clutch Pressure Control Solenoid Valve A Test

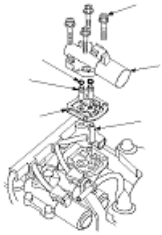


1. Connect the HDS to the DLC (A).
2. Select Clutch Pressure Control (Linear) Solenoid A in Miscellaneous Test Menu on the HDS.
   NOTE: If the HDS does not communicate with the PCM, troubleshoot the DLC circuit.
3. Test A/T clutch pressure control solenoid valve A with the HDS.
   - If the valve tests OK, the test is complete. Disconnect the HDS.
   - If the valve does not test OK, follow the instructions on the HDS.
   - If the valve does not test OK, and the HDS does not determine the cause, go to Step 4 .
4. Remove the air cleaner assembly.

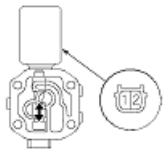
5. Disconnect the A/T clutch pressure control solenoid valve A connector.
6. Measure the A/T clutch pressure control solenoid valve A resistance at the connector terminals.
   Standard: 3–10 Ω
   - If the resistance is out of standard, replace A/T clutch pressure control solenoid valve A.
   - If the resistance is within the standard, go to Step 7 .
7. Connect a jumper wire from the negative battery terminal to the solenoid valve A connector terminal No. 2, and connect another jumper wire from the positive battery terminal to the connector terminal No. 1.
   - If a clicking sound is heard, the valve is OK. Reconnect the connector, and install all removed parts.
   - If no clicking sound is heard, go to Step 8 .



8. Remove the bolt (A) securing the harness cover.
9. Remove the bolt (B) securing the ATF cooler line/hose bracket.
10. Remove the transmission hanger/air cleaner housing bracket (C).

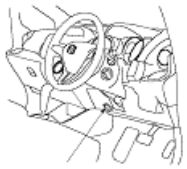


11. Remove the mounting bolts and A/T clutch pressure control solenoid valve A.
12. Remove the ATF pipe (B), ATF joint pipes (C), O-rings (D), and gasket (E).
13. Check the fluid passage of the solenoid valve for contamination.

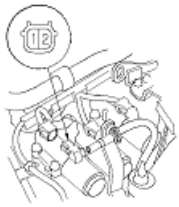


14. Connect a jumper wire from the negative battery terminal to A/T clutch pressure control solenoid valve A connector terminal No. 2, and connect another jumper wire from the positive battery terminal to the connector terminal No. 1. Make sure A/T clutch pressure control solenoid valve A moves.
15. Disconnect one of the jumper wires, and check valve movement at the fluid passage in the valve body mounting surface. If the valve binds or moves sluggishly, or if the solenoid valve does not operate, replace A/T clutch pressure control solenoid valve A.
16. Clean the mounting surfaces and fluid passages of the solenoid valve body and transmission housing.
17. Install the new gasket with blue side down; white side up on the transmission housing.
18. Install the ATF pipe and ATF joint pipes, and install the new O-rings over the ATF joint pipes.
19. Install A/T clutch pressure control solenoid valve A.
20. Install the transmission hanger/air cleaner housing bracket, and secure the ATF cooler line/hose bracket and harness cover with the bolts.
21. Check the connector for rust, dirt, or oil, clean or repair if necessary, then connect the connector securely.
22. Install the air cleaner assembly.

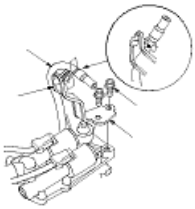
A/T Clutch Pressure Control Solenoid Valve B Test



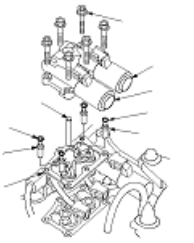
1. Connect the HDS to the DLC (A).
2. Select Clutch Pressure Control (Linear) Solenoid B in Miscellaneous Test Menu on the HDS.
   NOTE: If the HDS does not communicate with the PCM, troubleshoot the DLC circuit.
3. Test A/T clutch pressure control solenoid valve B with the HDS.
   - If the valve tests OK, the test is complete. Disconnect the HDS.
   - If the valve does not test OK, follow the instructions on the HDS.
   - If the valve does not test OK, and the HDS does not determine the cause, go to Step 4 .
4. Remove the air cleaner assembly.



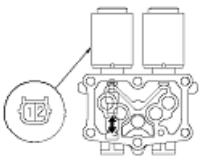
5. Disconnect the A/T clutch pressure control solenoid valve B connector.
6. Measure the A/T clutch pressure control solenoid valve B resistance at the connector terminals.
   Standard: 3−10 Ω
   - If the resistance is out of standard, replace A/T clutch pressure control solenoid valve B.
   - If the resistance is within the standard, go to Step 7 .
7. Connect a jumper wire from the negative battery terminal to the solenoid valve B connector terminal No. 2, and connect another jumper wire from the positive battery terminal to the connector terminal No. 1.
   - If a clicking sound is heard, the valve is OK. Reconnect the connector, and install all removed parts.
   - If no clicking sound is heard, go to Step 8 .



8. Remove the breather hose (A) from its clamp (B), and remove the breather hose clamp bracket (C).

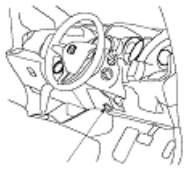


9. Remove A/T clutch pressure control solenoid valve B and C.
10. Remove the ATF pipe (A), ATF joint pipes (D), O-rings (E), and gasket (F).
11. Check the fluid passage of the solenoid valve for contamination.



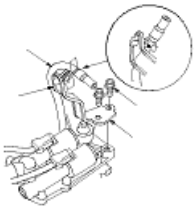
12. Connect a jumper wire from the negative battery terminal to A/T clutch pressure control solenoid valve B connector terminal No. 2, and connect another jumper wire from the positive battery terminal to the connector terminal No. 1. Make sure A/T clutch pressure control solenoid valve B moves.
13. Disconnect one of the jumper wires, and check valve movement at the fluid passage in the valve body mounting surface. If the valve binds or moves sluggishly, or if the solenoid valve does not operate, replace A/T clutch pressure control solenoid valve B and C.
14. Clean the mounting surfaces and fluid passages of the solenoid valve body and transmission housing.
15. Install the new gasket with blue side down; white side up on the transmission housing.
16. Install the ATF pipe and ATF joint pipes, and install the new O-rings over the ATF joint pipes.
17. Install A/T clutch pressure control solenoid valve B and C.
18. Check the connectors for rust, dirt, or oil, clean or repair if necessary, then connect the connectors securely.
19. Install the breather hose clamp bracket, and install the breather hose on its clamp at the dot.
20. Install the air cleaner assembly.

A/T Clutch Pressure Control Solenoid Valve C Test

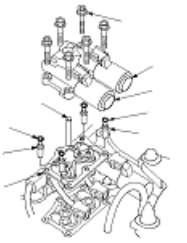


1. Connect the HDS to the DLC (A).
2. Select Clutch Pressure Control (Linear) Solenoid valve C in Miscellaneous Test Menu on the HDS.
   NOTE: If the HDS does not communicate with the PCM, troubleshoot the DLC circuit.
3. Test A/T clutch pressure control solenoid valve C with the HDS.
   - If the valve tests OK, the test is complete. Disconnect the HDS.
   - If the valve does not test OK, follow the instructions on the HDS.
   - If the valve does not test OK, and the HDS does not determine the cause, go to Step 4 .
4. Remove the air cleaner assembly.

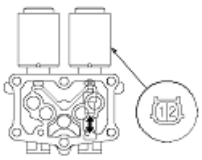
5. Disconnect the A/T clutch pressure control solenoid valve C connector.
6. Measure the A/T clutch pressure control solenoid valve C resistance at the connector terminals.
   Standard: 3−10 Ω
   - If the resistance is out of standard, replace A/T clutch pressure control solenoid valve C.
   - If the resistance is within the standard, go to Step 7 .
7. Connect a jumper wire from the negative battery terminal to the solenoid valve C connector terminal No. 2, and connect another jumper wire from the positive battery terminal to the connector terminal No. 1.
   - If a clicking sound is heard, the valve is OK. Reconnect the connector, and install all removed parts.
   - If no clicking sound is heard, go to Step 8 .



8. Remove the breather hose (A) from its clamp (B), and remove the breather hose clamp bracket (C).



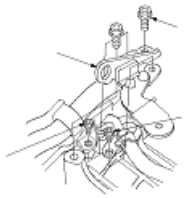
9. Remove A/T clutch pressure control solenoid valve B and C.
10. Remove the ATF pipe (A), ATF joint pipes (D), O-rings (E), and gasket (F).
11. Check the fluid passage of the solenoid valve for contamination.



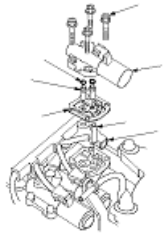
12. Connect a jumper wire from the negative battery terminal to A/T clutch pressure control solenoid valve C connector terminal No. 2, and connect another jumper wire from the positive battery terminal to the connector terminal No. 1. Make sure A/T clutch pressure control solenoid valve C moves.
13. Disconnect one of the jumper wires, and check valve movement at the fluid passage in the valve body mounting surface. If the valve binds or moves sluggishly, or if the solenoid valve does not operate, replace A/T clutch pressure control solenoid valve B and C.
14. Clean the mounting surfaces and fluid passages of the solenoid valve body and transmission housing.
15. Install the new gasket with blue side down; white side up on the transmission housing.
16. Install the ATF pipe and ATF joint pipes, and install the new O-rings over the ATF joint pipes.
17. Install A/T clutch pressure control solenoid valve B and C.
18. Check the connectors for rust, dirt, or oil, clean or repair if necessary, then connect the connectors securely.
19. Install the breather hose clamp bracket, and install the breather hose on its clamp at the dot.
20. Install the air cleaner assembly.

A/T Clutch Pressure Control Solenoid Valve A Replacement

1. Remove the air cleaner assembly.
2. Remove the bolt (A) securing the harness cover.
3. Remove the bolt (B) securing the ATF cooler line/hose bracket.
4. Remove the transmission hanger/air cleaner housing bracket (C).

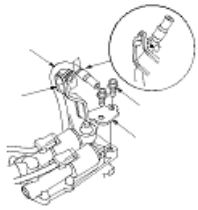


5. Disconnect A/T clutch pressure control solenoid valve connector (A).
6. Remove the mounting bolts and A/T clutch pressure control solenoid valve A (B).
7. Remove the ATF pipe (C), ATF joint pipes (D), O-rings (E), and gasket (F).
8. Clean the mounting surface and fluid passages of the transmission housing.
9. Install the new gasket with blue side down; white side up on the transmission housing.
10. Install the ATF pipe and ATF joint pipes, and install the new O-rings over the ATF joint pipes.
11. Install A/T clutch pressure control solenoid valve A.
12. Install the transmission hanger/air cleaner housing bracket, and secure the ATF cooler line/hose bracket and harness cover with the bolts.
13. Check the connector for rust, dirt, or oil, clean or repair if necessary, then connect the connector securely.
14. Install the air cleaner assembly.

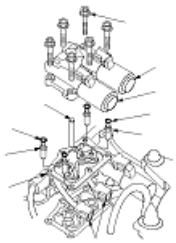


A/T Clutch Pressure Control Solenoid Valve B and C Replacement

1. Remove the air cleaner assembly.
2. Remove the breather hose (A) from its clamp (B), and remove the breather hose clamp bracket (C).

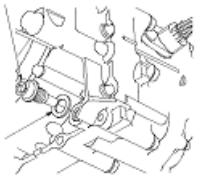


3. Disconnect the connectors (A) from A/T clutch pressure control solenoid valve B and C.
4. Remove A/T clutch pressure control solenoid valve B and C.
5. Remove the ATF pipe (D), ATF joint pipes (E), O-rings (F), and gasket (G).
6. Clean the mounting surface and fluid passages of the transmission housing.
7. Install the new gasket with blue side down; white side up on the transmission housing.
8. Install the ATF pipe and ATF joint pipes, and install the new O-rings over the ATF joint pipes.
9. Install A/T clutch pressure control solenoid valve B and C.
10. Check the connectors for rust, dirt, or oil, clean or repair if necessary, then connect the connectors securely.
11. Install the breather hose clamp bracket, and install the breather hose on its clamp at the dot.
12. Install the air cleaner assembly.

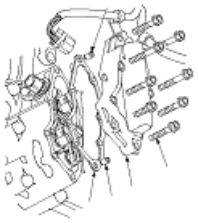


ATF Temperature Sensor Test/Replacement

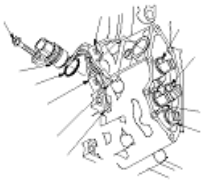
1. Raise the vehicle on a lift, or apply the parking brake, block both rear wheels, and raise the front of the vehicle. Make sure it is securely supported.
2. Remove the splash shield.
3. Disconnect the shift solenoid harness connector.
4. Measure the ATF temperature sensor resistance between shift solenoid harness connector terminals No. 6 and No. 7.
   Standard: **50 Ω−25 kΩ**
5. If the resistance is out of standard, replace the ATF temperature sensor and the solenoid harness; go to Step 6 . The ATF temperature sensor is not available separately from the shift solenoid harness. If the resistance is within the standard, connect the connector securely, and install the splash shield.



6. Remove the drain plug (A), and drain the automatic transmission fluid (ATF).
7. Reinstall the drain plug with a new sealing washer (B).

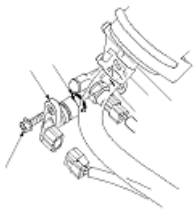


8. Remove the shift solenoid valve cover (A), dowel pins (B), and gasket (C).



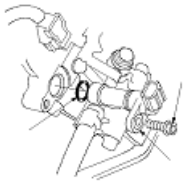
9. Disconnect the connectors, remove the shift solenoid harness connector (E), and replace it.
10. Install the new O-ring (F) on the new shift solenoid harness connector, and install the connector in the transmission housing.
11. Connect the WHT and ORN wires connector to shift solenoid valve B. The ATF temperature sensor is assembled in the WHT wires connector.
12. Connect the harness terminals to the solenoids:
    - BLU wire connector to shift solenoid valve A.
    - GRN wire connector to shift solenoid valve C.
    - YEL wire connector to shift solenoid valve D.
13. Install the shift solenoid valve cover, dowel pins, and a new gasket.
14. Check the connector for rust, dirt, or oil, then connect it securely.
15. Refill the transmission with ATF.
16. Install the splash shield.

A/T Input Shaft (Mainshaft) Speed Sensor Replacement



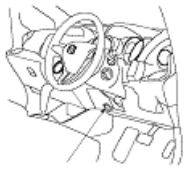
1. Remove the air cleaner assembly.
2. Disconnect the input shaft (mainshaft) speed sensor connector, and remove the input shaft (mainshaft) speed sensor (A).
3. Install the new O-ring (B) on the new input shaft (mainshaft) speed sensor, then install the input shaft (mainshaft) speed sensor.
4. Check the connector for rust, dirt, or oil, then connect the connector securely.
5. Install the air cleaner assembly.

A/T Output Shaft (Countershaft) Speed Sensor Replacement



1. Remove the air cleaner assembly.
2. Disconnect the output shaft (countershaft) speed sensor connector, and remove the output shaft (countershaft) speed sensor (A).
3. Install the new O-ring (B) on the new output shaft (countershaft) speed sensor, then install the output shaft (countershaft) speed sensor.
4. Check the connector for rust, dirt, or oil, then connect the connector securely.
5. Install the air cleaner assembly.

A/T Shift Solenoid Valve Test

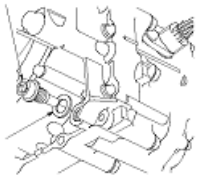


1. Connect the HDS to the DLC (A).
2. Select Shift Solenoid A, B, C, and D Test in Miscellaneous Test Menu on the HDS.
   NOTE: If the HDS does not communicate with the PCM, troubleshoot the DLC circuit.
3. Check that the shift solenoid valve A, B, C, and D operate with the HDS. A clicking sound should be heard.
   - If a clicking sound is heard, the valves are OK. The test is complete, disconnect the HDS.
   - If no clicking sound is heard, go to Step 4 , and test the solenoid valve.
4. Raise the vehicle on a lift, or apply the parking brake, block both rear wheels, and raise the front of the vehicle. Make sure it is securely supported.
5. Remove the splash shield.

6. Disconnect the shift solenoid harness connector.
7. Measure shift solenoid valve resistance between shift solenoid harness connector terminals below and body ground:
   - No. 1: Shift solenoid valve C
   - No. 2: Shift solenoid valve B
   - No. 5: Shift solenoid valve A
   - No. 8: Shift solenoid valve D

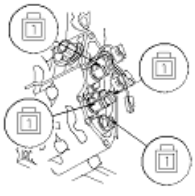
   Standard: 12−25 Ω

   - If the resistance is within the standard, go to Step 8 and check solenoid valve for a clicking sound.
   - If the resistance is out of standard, go to Step 9 .
8. Connect a jumper wire from the negative battery terminal to the body ground, and connect another jumper wire from the positive battery terminal to each shift solenoid harness connector terminal individually. A clicking sound should be heard.
   - If a clicking sound is heard, the valves are OK. The test is complete, connect the connector.
   - If no clicking sound is heard, go to Step 9 and test shift solenoid valves.



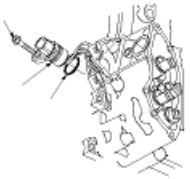
9. Remove the drain plug (A), and drain the automatic transmission fluid (ATF).
10. Reinstall the drain plug with a new sealing washer (B).

11. Remove the shift solenoid valve cover (A), dowel pins (B), and gasket (C).



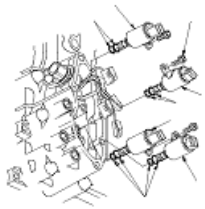
12. Disconnect the connectors from shift solenoid valve A, shift solenoid valve B, shift solenoid valve C, and shift solenoid valve D.
13. Measure the resistance of each solenoid valve between the connector terminal and body ground.
    Standard: 12−25 Ω

    - If the resistance is out of standard, go to Step 16 and replace shift solenoid valve.
    - If the resistance is within the standard, go to Step 14 and check solenoid valve for a clicking sound.
14. Connect a jumper wire from the negative battery terminal to the body ground, and connect another jumper wire from the positive battery terminal to each solenoid valve terminal individually.
    - If a clicking sound is heard, go to Step 15 and replace the shift solenoid harness.
    - If no clicking sound is heard, go to Step 16 and replace shift solenoid valve.



15. Remove the shift solenoid harness connector (A), and replace it. Install the new O-ring (B) on the shift solenoid harness connector, and install the connector in the transmission housing, then go to Step 21 .

16. Remove the mounting bolts, then hold the solenoid valve body and remove the solenoid valves. Do not hold the connector to remove the solenoid valve.



17. Install new O-rings (two O-rings per solenoid valve) (E) on the reused solenoid valve.
    NOTE: A new solenoid valve comes with new O-rings. If you install a new solenoid valve, use the O-rings provided on it.

18. Install shift solenoid valve D (black connector) and shift solenoid valve C (brown connector) by holding the shift solenoid valve body; make sure the mounting bracket contacts the servo body.
    NOTE: Do not hold the solenoid valve connector to install the solenoid valve. Be sure to hold the solenoid valve body.

19. Install shift solenoid valve B (black connector) by holding the solenoid valve body; make sure the mounting bracket contacts the servo body.

20. Install shift solenoid valve A (brown connector) by holding the shift solenoid valve body; make sure the mounting bracket contacts the bracket of shift solenoid valve B.
    NOTE: Do not install shift solenoid valve A before installing shift solenoid valve B. If shift solenoid valve A is installed before installing shift solenoid valve B, it may damage to hydraulic control system.

21. Connect the harness terminals to the solenoids:
    - BLU wire connector to shift solenoid valve A.
    - ORN wire connector to shift solenoid valve B.
    - GRN wire connector to shift solenoid valve C.
    - YEL wire connector to shift solenoid valve D.

22. Install the shift solenoid valve cover, dowel pins, and a new gasket.

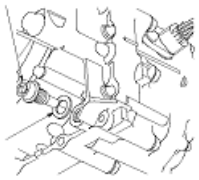
23. Check the connector for rust, dirt, or oil, then connect the connector securely.

24. Refill the transmission with ATF.

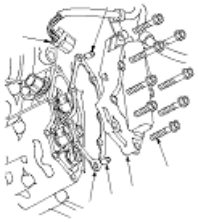
25. Install the splash shield.

A/T Shift Solenoid Valve Replacement, and Shift Solenoid Harness Replacement

1. Raise the vehicle on a lift, or apply the parking brake, block rear wheels, and raise the front of the vehicle. Make sure it is securely supported.
2. Remove the splash shield.
3. Remove the drain plug (A), and drain the automatic transmission fluid (ATF).
4. Reinstall the drain plug with a new sealing washer (B).

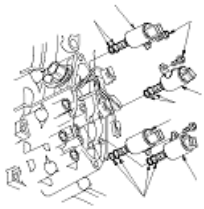


5. Disconnect the shift solenoid harness connector (A).
6. Remove the shift solenoid valve cover (B), dowel pins (C), and gasket (D).



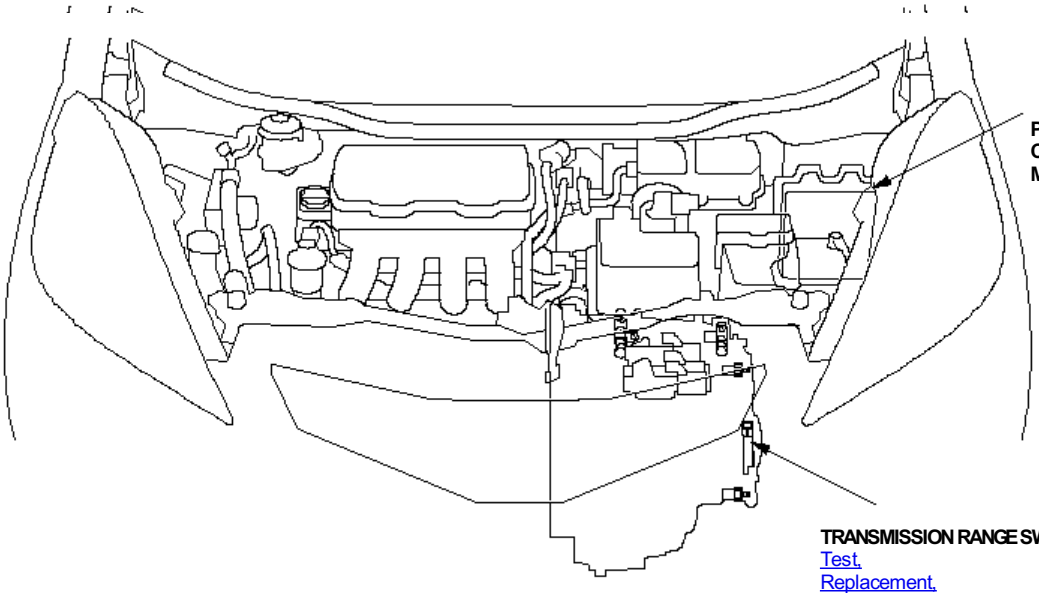
7. Disconnect the shift solenoid valve connectors.
   - If replacing shift solenoid valve(s), go to Step 8 .
   - If replacing the shift solenoid harness, remove the shift solenoid harness connector (A), and replace it. Install the new O-ring (B) on the new shift solenoid harness connector, and install it in the transmission housing, then go to Step 13 .

8. Remove the mounting bolts, then hold the solenoid valve body and remove the solenoid valves. Do not hold the connector to remove the solenoid valve.
9. Install new O-rings (two O-rings per solenoid valve) (E) on the reused solenoid valve.
   NOTE: A new solenoid valve comes with new O-rings. If you install a new solenoid valve, use the O-rings provided on it.
10. Install shift solenoid valve D (black connector) and shift solenoid valve C (brown connector) by holding the shift solenoid valve body; make sure the mounting bracket contacts the servo body.
    NOTE: Do not hold the solenoid valve connector to install the solenoid valve. Be sure to hold the solenoid valve body.
11. Install shift solenoid valve B (black connector) by holding the solenoid valve body; make sure the mounting bracket contacts the servo body.
12. Install shift solenoid valve A (brown connector) by holding the shift solenoid valve body; make sure the mounting bracket contacts the bracket of shift solenoid valve B.
    NOTE: Do not install shift solenoid valve A before installing shift solenoid valve B. If shift solenoid valve A is installed before installing shift solenoid valve B, it may damage to hydraulic control system.
13. Connect the harness terminals to the solenoids:
    - BLU wire connector to shift solenoid valve A.
    - ORN wire connector to shift solenoid valve B.
    - GRN wire connector to shift solenoid valve C.
    - YEL wire connector to shift solenoid valve D.
14. Install the shift solenoid valve cover, dowel pins, and a new gasket.
15. Check the connector for rust, dirt, or oil, then connect the connector
16. Refill the transmission with ATF.
17. Install the splash shield.



A/T Gear Position Indicator Component Location Index

Seven-position Transmission

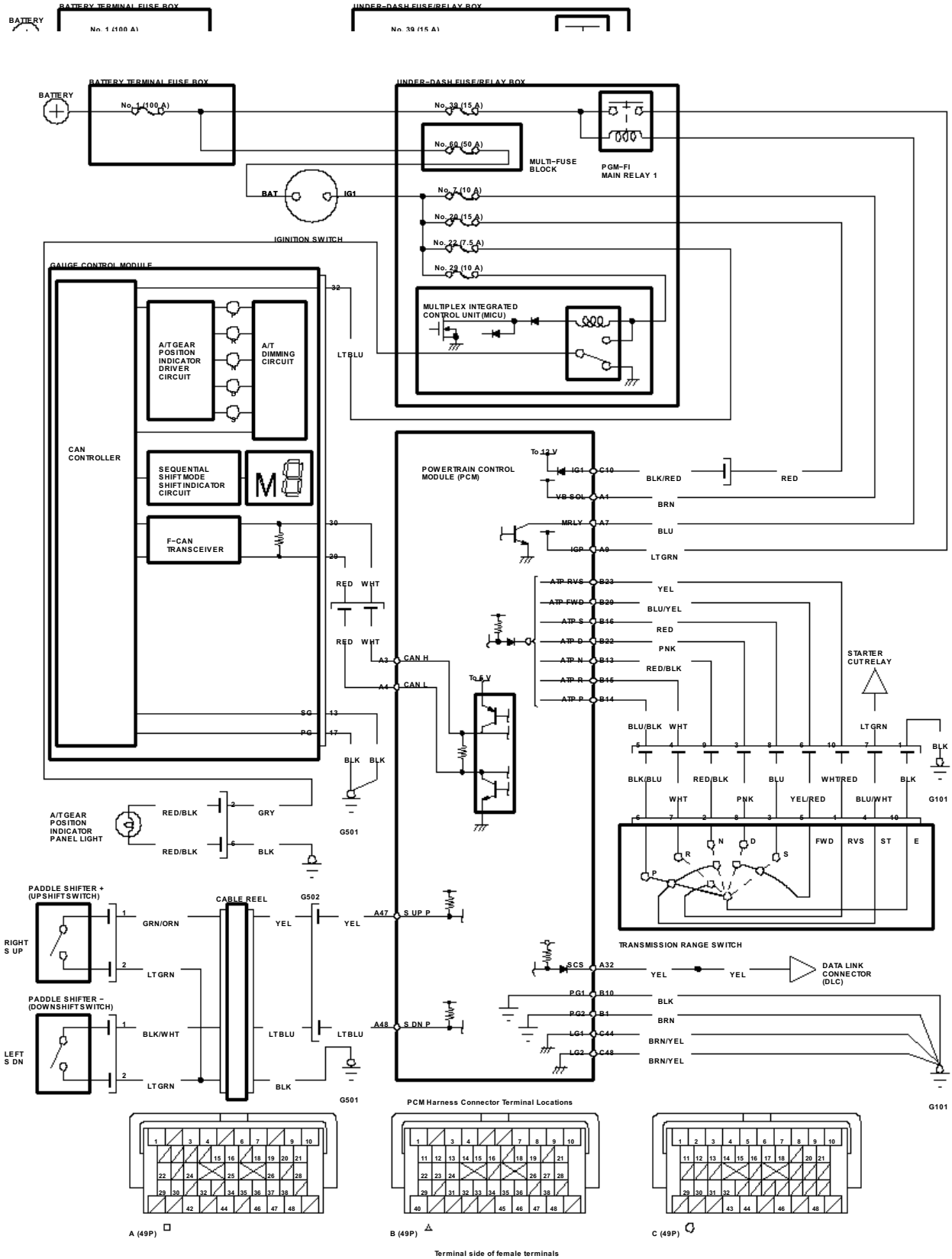


*: This illustration shows RHD model.

*: This illustration shows RHD model.

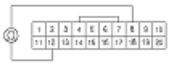
A/T Gear Position Indicator Circuit Diagram

Seven-position Transmission



Paddle Shifter - (Downshift Switch) Circuit Troubleshooting

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.



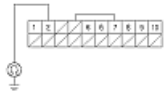
1. Remove the steering wheel.
2. Check for continuity between steering switch harness 20P connector terminals No. 8 and No. 12 while pressing the paddle shifter − (downshift switch) and when the paddle shifter − is released.

   Is there continuity while pressing the paddle shifter − and no continuity when the paddle shifter − is released?
   YES - Go to Step 5 .
   NO - Go to Step 3 .
3. Disconnect the paddle shifter − (downshift switch) connector.

---

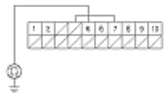
4. Check for continuity between paddle shifter − (downshift switch) connector terminals while pressing the paddle shifter − and when the paddle shifter − is released.

   Is there continuity while pressing the paddle shifter − and no continuity when the paddle shifter − is released?
   YES - Replace the steering switch harness.■
   NO - Replace the paddle shifter −. ■
5. Remove the cable reel.



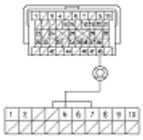
6. Check for continuity between cable reel 20P connector terminal No. 2 and body ground.

   Is there continuity?
   YES - Go to Step 7 .
   NO - Repair open in the wire between cable reel 20P connector terminal No. 2 and ground (G501), or repair poor ground (G501).■
7. Jump the SCS line with the HDS.
8. Disconnect PCM connector A (49P).



9. Check for continuity between cable reel 20P connector terminal No. 5 and body ground.

   Is there continuity?
   YES - Repair short in the wire between cable reel 20P connector terminal No. 5 and PCM connector terminal A48.■
   NO - Go to Step 10 .

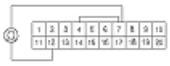


10. Check for continuity between PCM connector terminal A48 and cable reel 20P connector terminal No. 5.

    Is there continuity?
    YES - Replace the cable reel. ■
    NO - Repair open in the wire between PCM connector terminal A48 and the cable reel 20P connector.■

Paddle Shifter + (Upshift Switch) Circuit Troubleshooting

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.



1. Remove the steering wheel.
2. Check for continuity between steering switch harness 20P connector terminals No. 7 and No. 12 while pressing the paddle shifter + (upshift switch) and when the paddle shifter + is released.

   Is there continuity while pressing the paddle shifter + and no continuity when the paddle shifter + is released?
   YES - Go to Step 5 .
   NO - Go to Step 3 .
3. Disconnect the paddle shifter + (upshift switch) connector.

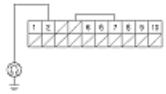
---

4. Check for continuity between paddle shifter + (upshift switch) connector terminals while pressing the paddle shifter + and when the paddle shifter + is released.

   Is there continuity while pressing the paddle shifter + and no continuity when the paddle shifter + is released?
   YES - Replace the steering switch harness.■
   NO - Replace the paddle shifter +. ■
5. Remove the cable reel.

---

6. Check for continuity between cable reel 20P connector terminal No. 2 and body ground.



   Is there continuity?
   YES - Go to Step 7 .
   NO - Repair open in the wire between cable reel 20P connector terminal No. 2 and ground (G501), or repair poor ground (G501).■
7. Jump the SCS line with the HDS.
8. Disconnect PCM connector A (49P).

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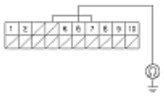
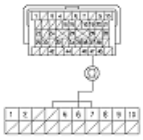
9. Check for continuity between cable reel 20P connector terminal No. 6 and body ground.



   Is there continuity?
   YES - Repair short in the wire between cable reel 20P connector terminal No. 6 and PCM connector terminal A47.■
   NO - Go to Step 10 .

---

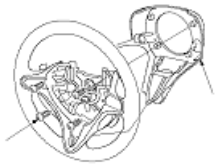
10. Check for continuity between PCM connector terminal A47 and cable reel 20P connector terminal No. 6.



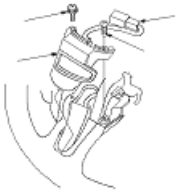
    Is there continuity?
    YES - Replace the cable reel. ■
    NO - Repair open in the wire between PCM connector terminal A47 and the cable reel 20P connector.■

Paddle Shifter - (Downshift Switch) Replacement

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.



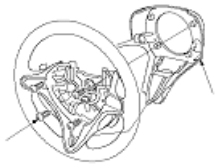
1. Remove the steering wheel.
2. Remove the four screws (A) securing the steering wheel rear cover (B), then remove the steering wheel rear cover.



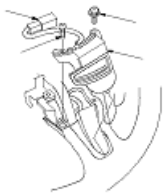
3. Remove the paddle shifter − (downshift switch) connector (A) from its holder, and disconnect the connector.
4. Remove the screws (B) securing the paddle shifter − (C), remove the paddle shifter −, and replace it with a new one.
5. Install the new paddle shifter − on the steering wheel, and secure it with the screws.
6. Connect the paddle shifter − connector securely, and install the connector in the connector holder.
7. Install the steering wheel rear cover, and secure the rear cover with the four screws.
8. Install the steering wheel.

Paddle Shifter + (Upshift Switch) Replacement

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.



1. Remove the steering wheel.
2. Remove the four screws (A) securing the steering wheel rear cover (B), then remove the steering wheel rear cover.



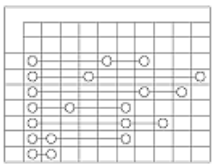
3. Remove the paddle shifter + (upshift switch) connector (A) from its holder, and disconnect the connector.
4. Remove the screws (B) securing the paddle shifter + (C), remove the paddle shifter +, and replace it with a new one.
5. Install the new paddle shifter + on the steering wheel, and secure it with the screws.
6. Connect the paddle shifter + connector securely, and install the connector in the connector holder.
7. Install the steering wheel rear cover, and secure the rear cover with the four screws.
8. Install the steering wheel.

Transmission Range Switch Test

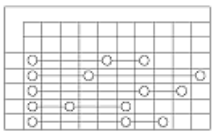
1. Remove the air cleaner assembly.
2. Disconnect the transmission range switch harness connector (A).

3. Check for continuity between terminals at the harness connector. There should be continuity between the terminals in the following table for each switch position.
4. Transmission range switch test has finished if the test results are OK.
   If there is no continuity between any terminals, go to Step 5 .
5. Raise the vehicle on a lift, or apply the parking brake, block rear wheels, and raise the front of the vehicle. Make sure it is securely supported.

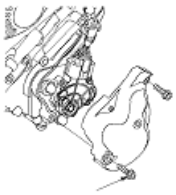
Transmission Range Switch Harness Connector Seven-position Transmission



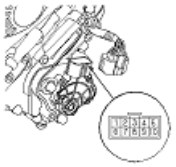
Transmission Range Switch Harness Connector Five-position Transmission



6. Remove the transmission range switch cover.

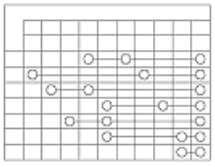


7. Disconnect the transmission range switch connector.

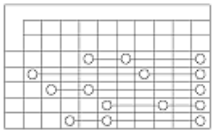


8. Check for continuity between terminals at the switch connector. There should be continuity between the terminals in the following table for each switch position.

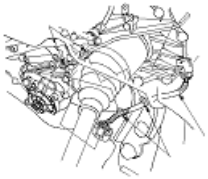
Transmission Range Switch Connector Seven-position Transmission



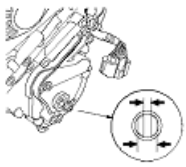
Transmission Range Switch Connector Five-position Transmission



9. If the transmission range switch continuity check is OK, replace the faulty transmission range switch harness; remove the harness clamps (A) from the clamp bracket (B), remove the transmission range switch harness (C).



10. If there is no continuity between any terminals, remove the transmission range switch, and check the end of the selector control shaft (A).
    Selector Control Shaft Specifications:
    Width (B): 6.1−6.2 mm (0.240−0.244 in.)
    End Gap (C): 1.8−2.0 mm (0.07−0.08 in.)

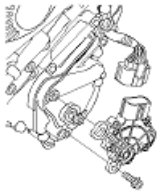


11. The measurement of the selector control shaft end is within the standard, replace the transmission range switch. If the measurement is out of the standard, repair the selector control shaft end, and recheck the transmission range switch continuity.

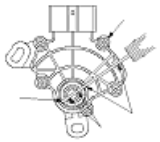
Transmission Range Switch Replacement

1. Raise the vehicle on a lift, or apply the parking brake, block the rear wheels, and raise the front of the vehicle. Make sure it is securely supported.
2. Shift to N.
3. Remove the transmission range switch cover.

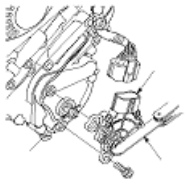
4. Remove the transmission range switch.
5. Make sure the shift position is in N. If necessary, put the shift lever into N.
   NOTE: Do not use the selector control shaft to adjust the shift position. If the control shaft tips are squeezed together it will cause a faulty signal or position due to play between the selector control shaft and switch.



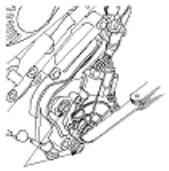
6. Align the cutouts (A) on the rotary-frame with the neutral positioning cutouts (B) on the transmission range switch (C), then put a 2.0 mm (0.08 in.) feeler gauge blade (D) in the cutouts to hold the switch in the N position.
   NOTE: Be sure to use a 2.0 mm (0.08 in.) blade or equivalent to hold the switch in the N position.



7. Install the transmission range switch (A) gently on the selector control shaft (B) while holding it in the N position with the 2.0 mm (0.08 in.) blade (C).



8. Tighten the bolts on the transmission range switch while you continue to hold the N position. Do not move the transmission range switch when tightening the bolts. Remove the feeler gauge.
9. Check the connectors for rust, dirt, or oil, clean or repair if necessary, then connect the connector securely.
10. Turn the ignition switch to ON (II). Move the shift lever through all positions, and check the transmission range switch synchronization with the A/T gear position indicator.
11. Check that the engine starts in P and N, and does not start in any other shift lever position.
12. Check that the back-up lights come on when the shift lever is in R.
13. Allow the front wheels to rotate freely, then start the engine, and check the shift lever operation.



14. Install the transmission range switch cover.

A/T System Description - Hydraulic Controls

Hydraulic Controls
Hydraulic Controls (cont'd)
Hydraulic Controls (cont'd)

A/T System Description - Hydraulic Flow

Hydraulic Flow
Hydraulic Flow (cont'd)
Hydraulic Flow (cont'd)
Hydraulic Flow (cont'd)
Hydraulic Flow (cont'd)
Hydraulic Flow (cont'd)
Hydraulic Flow (cont'd)
Hydraulic Flow (cont'd)
Hydraulic Flow (cont'd)

A/T Pressure Test

Special Tools Required

A/T oil pressure gauge set
07406-0020005

1. Make sure the transmission fluid is filled to the proper level.
2. Raise the vehicle on a lift, or apply the parking brake, block both rear wheels, and raise the front of the vehicle. Make sure it is securely supported.
3. Allow the front wheels to rotate freely.
4. Remove the splash shield.
5. Connect the HDS to the DLC (A), and go to the A/T data list. If the HDS does not communicate with the PCM, troubleshoot the DLC circuit.

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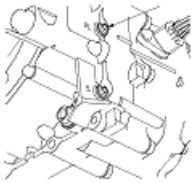
6. Connect the oil pressure gauge to the line pressure inspection port (A). Do not allow dust or other foreign particles to enter the hole while connecting the gauge.

7. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).
8. Measure the line pressure at the line pressure inspection port in P or N while holding the engine speed at 2,000 rpm (min $^{-1}$).
   NOTE: Higher pressure may be indicated if measurements are made in the shift lever position other than P or N.



Pressure	Fluid Pressure	
	Standard	Service Limit
Line (A)	900–960 kPa (9.2–9.8 kgf/cm ^{2} , 130–140 psi)	850 kPa (8.7 kgf/cm ^{2} , 120 psi)

9. Turn the engine off, then disconnect the oil pressure gauge from the line pressure inspection port.
10. Install the sealing bolt to the line pressure inspection port with a new sealing washer, and tighten the bolt to 18 N·m (1.8 kgf·m, 13 lbf·ft). Do not reuse the old sealing washer.
11. Remove the air cleaner assembly.

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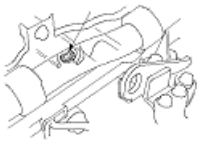
12. Connect the oil pressure gauge to the 1st clutch pressure inspection port (B), then temporarily install the air cleaner assembly.



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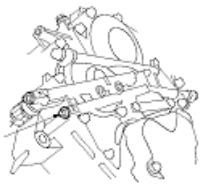
13. Connect the oil pressure gauge to the 2nd clutch pressure inspection port (C).



14. For seven-position transmission: Measure the 1st and 2nd clutch pressure.
    -1. Start the engine, and shift to 1.
    -2. Measure the 1st clutch pressure at the 1st clutch pressure inspection port while holding the engine speed at 2,000 rpm (min $^{-1}$).
    -3. Shift to 2, and measure the 2nd clutch pressure at the 2nd clutch pressure inspection port while holding the engine speed at 2,000 rpm (min $^{-1}$).
15. For five-position transmission: Measure the 1st and 2nd clutch pressure.
    -1. Start the engine, and shift to S.
    -2. Pull the paddle shifter + (upshift switch), make sure the transmission is in 1st gear, and measure the 1st clutch pressure at the 1st clutch pressure inspection port while holding the engine speed at 2,000 rpm (min $^{-1}$).
    -3. Upshift to 2nd gear by pulling the paddle shifter +, and measure the 2nd clutch pressure at the 2nd clutch pressure inspection port while holding the engine speed at 2,000 rpm (min $^{-1}$).

Pressure	Fluid Pressure	
	Standard	Service Limit
1st clutch (B) 2nd clutch (C)	890–970 kPa (9.1–9.9 kgf/cm ^{2} , 130–140 psi)	840 kPa (8.6 kgf/cm ^{2} , 120 psi)

16. Turn the engine off, remove the air cleaner assembly, then disconnect the oil pressure gauges from the 1st clutch pressure and 2nd clutch pressure inspection ports.
17. Install the sealing bolts to the 1st clutch pressure and 2nd clutch pressure inspection ports with the new sealing washers, and tighten the bolts to 18 N·m (1.8 kgf·m, 13 lbf·ft). Do not reuse old sealing washer.
18. Install the air cleaner assembly.

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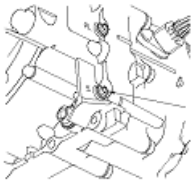
19. Connect the oil pressure gauge to the 3rd clutch pressure inspection port (D) and the 4th clutch pressure inspection port (E).

20. Connect the oil pressure gauge to the 5th clutch pressure inspection port (F).



21. For seven-position transmission: Measure the 3rd, 4th, and 5th clutch pressures.
    -1. Start the engine, and shift to D3, then press the accelerator pedal slowly until reaching 3rd gear.
    -2. Measure the 3rd clutch pressure at the 3rd clutch pressure inspection port while holding the engine speed at 2,000 rpm (min^{-1}).
    -3. Shift to D, and measure the 4th clutch pressure at the 4th clutch pressure inspection port.
    -4. Measure the 5th clutch pressure at the 5th clutch pressure inspection port while holding the engine speed at 2,000 rpm (min^{-1}).

22. For five-position transmission: Measure the 3rd, 4th, and 5th clutch pressures.
    -1. Start the engine, and shift to S.
    -2. Upshift to 3rd gear by pulling the paddle shifter +, and measure the 3rd clutch pressure at the 3rd clutch pressure inspection port while holding the engine speed at 2,000 rpm (min^{-1}).
    -3. Upshift to 4th gear by pulling the paddle shifter +, and measure the 4th clutch pressure at the 4th clutch pressure inspection port while holding the engine speed at 2,000 rpm (min^{-1}).
    -4. Upshift to 5th gear by pulling the paddle shifter +, and measure the 5th clutch pressure at the 5th clutch pressure inspection port while holding the engine speed at 2,000 rpm (min^{-1}).

Pressure	Fluid Pressure	
	Standard	Service Limit
3rd clutch (D) 4th clutch (E) 5th clutch (F)	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)

23. Bring the engine back to an idle, then press the brake pedal to stop the wheels from rotating.

24. Shift to R, then release the brake pedal. Raise the engine speed to 2,000 rpm (min^{-1}), and measure the 5th clutch pressure at the 5th clutch pressure inspection port.

Pressure	Fluid Pressure	
	Standard	Service Limit
5th clutch (F) in R	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)

25. Turn the engine off, then disconnect the oil pressure gauges from the 3rd, 4th, and 5th clutch pressure inspection ports.

26. Install the sealing bolts in the 3rd, 4th, and 5th clutch pressure inspection ports with the new sealing washers, and tighten the bolts to 18 N·m (1.8 kgf·m, 13 lbf·ft). Do not reuse the old sealing washer.

27. If any of the pressures are out of the service limit, refer to the problems and probable causes listed in the table.

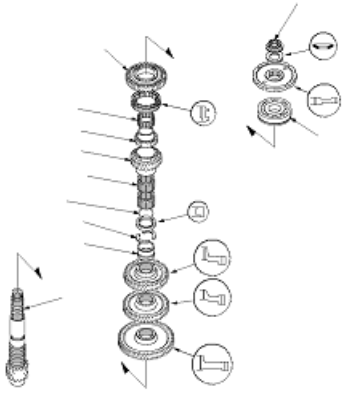
Problem	Probable causes
No or low line pressure	• Torque converter • ATF pump • Regulator valve • Torque converter check valve • Clogged ATF strainer
No or low 1st clutch pressure	• 1st clutch • O-rings
No or low 2nd clutch pressure	• 2nd clutch • O-rings
No or low 3rd clutch pressure	• 3rd clutch • O-rings
No or low 4th clutch pressure	• 4th clutch • O-rings
No or low 5th clutch pressure	• 5th clutch • O-rings
No or low 5th clutch pressure in R	• Servo valve • 5th clutch • O-rings

28. Install the splash shield.

29. Retrieve an ABS DTC with the HDS. If there is an ABS DTC, clear the DTC with the HDS.
    NOTE: When rotating the front wheels off the ground by the engine, it may cause an ABS system problem.

A/T Countershaft Disassembly, Inspection, and Reassembly

1. Inspect the thrust needle bearing and the needle bearing for galling and rough movement.
2. Inspect the splines for excessive wear and damage.
3. Check the shaft bearing surface for scoring and excessive wear.
4. Lubricate all parts with ATF during assembly.
5. Install the conical spring washer, the park gear, the reverse selector, the 33 x 45 x 7.8 mm collar, and the gears in the direction shown.
6. Replace the locknut and the conical spring washer with new ones when assembling the transmission. The countershaft locknut has left-hand threads.
7. Some reverse selector hubs are press-fitted to the countershaft; remove the hubs with a press, and install them with the special tool and a press.



Torque Converter Housing Countershaft Bearing and Oil Seal Replacement

Special Tools Required

Adjustable bearing remover set
07JAC-PH80000

Driver handle 15 x 135L
07749-0010000

Oil seal driver attachment, 58 mm
07JAD-PH80101

1. Remove the countershaft bearing with the special tool.

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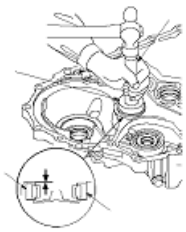
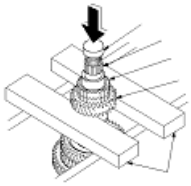
2. Install the ATF guide plate (A).
3. Install the new countershaft bearing (B) in the housing with the special tools; install the bearing outer race surface in height (C) of 0−0.03 mm (0−0.001 in.) above the housing surface (D). Do not install the bearing exceeding 0.03 mm (0.001 in.) high from housing surface.



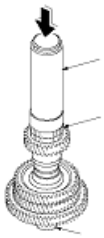
A/T Countershaft Reverse Selector Hub Removal



1. Remove the reverse selector hub from the countershaft by hand. If the reverse selector hub (A) cannot be removed by hand, it is press-fitted to the countershaft (B), and removed from the countershaft with a press. Place the 4th-5th gear (C) on press bases (D), and place a shaft protector (E) between the countershaft and press to prevent damaging the countershaft.
   NOTE: Some reverse selector hubs are not press-fitted, and can be removed without using a press.
2. Press the countershaft out of the press-fitted reverse selector hub, and remove the countershaft while holding the underside the countershaft. The countershaft falls down when pressing the countershaft out of the press-fitted reverse selector hub.
3. Remove the remaining parts from the countershaft, if necessary.

A/T Countershaft Reverse Selector Hub Installation

Special Tools Required



Driver, 40 mm I.D.
07746-0030100

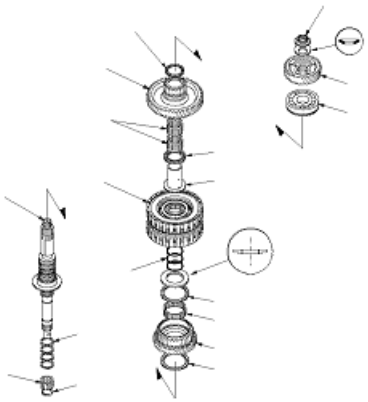
1. Install the 1st gear, the 2nd gear, the 3rd gear, the 33.2 x 40 x 26 mm collar, the 29 mm cotters, and the 33 x 45 x 7.8 mm collar on the countershaft, and secure them with the snap ring.
2. Install the needle bearings and the 4th-5th gear.
3. Slide the reverse selector hub (A) over the countershaft (B), then press it in place using the driver (40 mm I.D.) and a press.
   NOTE: Some reverse selector hubs are not press-fitted, and can be installed without using the a press.

A/T System Description - Power Flow

Power Flow
Power Flow (cont'd)
Power Flow (cont'd)
Power Flow (cont'd)

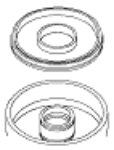
A/T Mainshaft Disassembly, Inspection, and Reassembly

1. Inspect the thrust needle bearing and the needle bearing for galling and rough movement.
2. Inspect the splines for excessive wear and damage.
3. Check the shaft bearing surface for scoring and excessive wear.
4. Before installing the O-rings, wrap the shaft splines with tape to prevent O-ring damage.
5. Lubricate all parts with ATF during assembly.
6. Install the conical spring washer, the 40 x 63 mm thrust washer in the direction shown.
7. Replace the locknut and the conical spring washer with new ones when assembling the transmission.
8. Check the axial clearance of the 3rd gear.



A/T Clutch Clearance Inspection

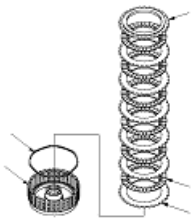
Special Tools Required



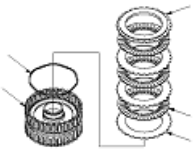
Clutch compressor attachment
07ZAE-PRP0100

1. Inspect the clutch piston, the discs, the plates, and the end-plate for wear and damage, and inspect the clutch wave-plate phase difference, if necessary.
2. Install the clutch piston in the clutch drum. Do not install the O-rings on the clutch piston during inspection.

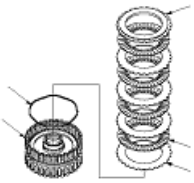
3. Install the wave spring (A) in the 1st clutch drum (B). Starting with the clutch wave-plate, alternately install the wave-plates (C) (6) and discs (D) (6). Install the clutch end-plate (E) with the flat side down on the top disc.



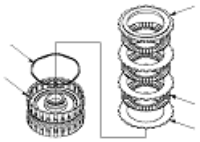
4. Install the wave spring (A) in the 2nd clutch drum (B). Starting with the clutch flat-plate, alternately install the flat-plates (C) (3) and the discs (D) (3). Install the clutch end-plate (E) with the flat side down on the top disc.



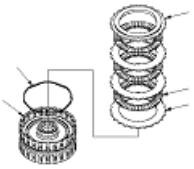
5. Install the wave spring (A) in the 4th clutch drum (B). Starting with the clutch flat-plate, alternately install the flat-plates (C) (4) and the discs (D) (4). Install the clutch end-plate (E) with the flat side down on the top disc.



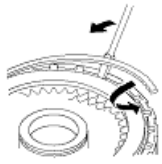
6. Install the wave spring (A) in the 3rd clutch drum (B). Starting with the clutch wave-plate, alternately install the wave-plates (C) (3) and the discs (D) (3). Install the clutch end-plate (E) with the flat side down on the top disc.



7. Install the wave spring (A) in the 5th clutch drum (B). Starting with the clutch wave-plate, alternately install the wave-plates (C) (3) and the discs (D) (3). Install the clutch end-plate (E) with the flat side down on the top disc.

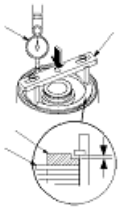


8. Install the snap ring with a screwdriver to secure the clutch end-plate.



9. Set a dial indicator (A) on the clutch end-plate (B).
10. Zero the dial indicator with the clutch end-plate lifted up to the snap ring (C).

11. Release the clutch end-plate to lower it, then put the clutch compressor attachment on the end-plate (A).



12. For the 1st, 3rd, and 5th clutches:
    Press the clutch compressor attachment down with 150−160 N (15−16 kgf, 33−35 lbf) (B) using a force gauge, and read the dial indicator (C). The dial indicator reads the clearance (D) between the clutch end-plate and top disc (E). Take measurements in at least three places, and use the average as the actual clearance.

13. For 2nd and 4th clutches:
    Press the clutch compressor attachment down with 39 N (4 kgf, 9 lbf) (B) using a force gauge, and read the dial indicator (C). The dial indicator reads the clearance (D) between the clutch end-plate and top disc (E). Take measurements in at least three places, and use the average as the actual clearance.
    Clearance between Clutch End-Plate and Top Disc
    Service Limit

1st clutch:	**1.62−1.82 mm (0.064−0.072 in.)**
2nd clutch:	**0.5−0.7 mm (0.020−0.028 in.)**
3rd clutch:	**0.73−0.93 mm (0.029−0.037 in.)**
4th clutch:	**0.7−0.9 mm (0.028−0.035 in.)**
5th clutch:	**0.73−0.93 mm (0.029−0.037 in.)**

14. If the clearance of the 1st, 3rd, or 5th clutch is out of the service limit, select a new clutch end-plate from the following table.

1ST CLUTCH END-PLATES

Mark	Part Number	Thickness
1	22551-RPC-003	2.1 mm (0.083 in.)
2	22552-RPC-003	2.2 mm (0.087 in.)
3	22553-RPC-003	2.3 mm (0.091 in.)
4	22554-RPC-003	2.4 mm (0.094 in.)
5	22555-RPC-003	2.5 mm (0.098 in.)
6	22556-RPC-003	2.6 mm (0.102 in.)
7	22557-RPC-003	2.7 mm (0.106 in.)
8	22558-RPC-003	2.8 mm (0.110 in.)
9	22559-RPC-003	2.9 mm (0.114 in.)

3RD and 5TH CLUTCH END-PLATES

Mark	Part Number	Thickness
1	22561-RPC-003	2.1 mm (0.083 in.)
2	22562-RPC-003	2.2 mm (0.087 in.)
3	22563-RPC-003	2.3 mm (0.091 in.)
4	22564-RPC-003	2.4 mm (0.094 in.)
5	22565-RPC-003	2.5 mm (0.098 in.)
6	22566-RPC-003	2.6 mm (0.102 in.)
7	22567-RPC-003	2.7 mm (0.106 in.)
8	22568-RPC-003	2.8 mm (0.110 in.)
9	22569-RPC-003	2.9 mm (0.114 in.)

15. If the clearance of the 2nd or 4th clutch is out of the service limit, remove the clutch end-plate and check the clutch end-plate mark. Select a new clutch end-plate from the following tables by the mark on the old clutch end-plate. Use the AC-AL Plates table when the old clutch end-plate is marked with between AC and AL. Use the AM-AV Plates table when the old clutch end-plate is marked with between AM and AV.

2ND and 4TH CLUTCH END-PLATES AC-AL Plates

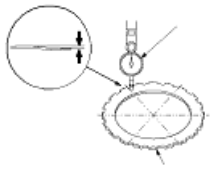
Mark	Part Number	Thickness
AC	22551-RPC-004	2.1 mm (0.083 in.)
AD	22552-RPC-004	2.2 mm (0.087 in.)
AE	22553-RPC-004	2.3 mm (0.091 in.)
AF	22554-RPC-004	2.4 mm (0.094 in.)
AG	22555-RPC-004	2.5 mm (0.098 in.)
AH	22556-RPC-004	2.6 mm (0.102 in.)
AJ	22557-RPC-004	2.7 mm (0.106 in.)
AK	22558-RPC-004	2.8 mm (0.110 in.)
AL	22559-RPC-004	2.9 mm (0.114 in.)

AM-AV Plates

Mark	Part Number	Thickness
AM	22561-RPC-004	2.1 mm (0.083 in.)
AN	22562-RPC-004	2.2 mm (0.087 in.)
AP	22563-RPC-004	2.3 mm (0.091 in.)
AQ	22564-RPC-004	2.4 mm (0.094 in.)
AR	22565-RPC-004	2.5 mm (0.098 in.)
AS	22566-RPC-004	2.6 mm (0.102 in.)
AT	22567-RPC-004	2.7 mm (0.106 in.)
AU	22568-RPC-004	2.8 mm (0.110 in.)
AV	22569-RPC-004	2.9 mm (0.114 in.)

16. Install the new clutch end-plate and recheck the clearance. If the thickest clutch end-plate is installed but the clearance is still over the service limit, replace the clutch discs and plates.

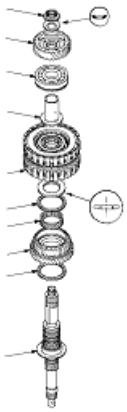
A/T Clutch Wave-plate Phase Difference Inspection



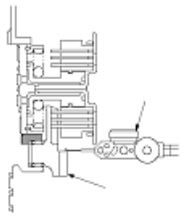
1. Place the clutch wave-plate (A) on a surface plate, and set a dial indicator (B) on the wave-plate.
2. Find the bottom (C) of a phase difference of the wave-plate, zero the dial indicator, and make a reference mark on the bottom of the wave-plate.
3. Rotate the 1st clutch wave-plate 5 or 6 tooth of angles apart from the bottom while holding the wave-plate by its circumference, and rotate the 3rd and 5th clutch wave-plate about 60-degrees apart from the bottom while holding the wave-plate by its circumference. The dial indicator should be at the top (D) of a phase difference. Do not rotate the wave-plate while holding its surface, always rotate it by holding its circumference.
4. Read the dial indicator. The dial indicator reads the phase difference (E) of the wave-plate between the bottom and top.
   Standard: 0.07−0.20 mm (0.003−0.008 in.)
5. Rotate the 1st clutch wave-plate 5 or 6 tooth of angles from the top, and rotate the 3rd and 5th clutch wave-plate about 60-degrees. The dial indicator should be at the bottom of a phase difference (F and G). Zero the dial indicator.
6. Measure the phase difference at the other two tops (H and I) of the wave-plate by following Step 3 thru 5.
7. If two of the three measurements are within the standard, the wave-plate is OK. If two of the three measurements are out of the standard, replace the wave-plate.

A/T Mainshaft 3rd Gear Axial Clearance Inspection

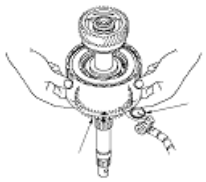
1. Remove the mainshaft transmission housing bearing.
2. Install the thrust needle bearing (A), the 3rd gear (B), the needle bearing (C), the thrust needle bearing (D), the 40 x 63 mm thrust washer (E), the 3rd/5th clutch (F), the 5th gear collar (G), and the transmission housing bearing (H) on the mainshaft (I). Do not install the O-rings during inspection.
3. Install the idler gear (J) on the mainshaft by a press, then install the conical spring washer (K) and the locknut (L).
4. Tighten the locknut to 29 N·m (3.0 kgf·m, 22 lbf·ft).



5. Set the dial indicator (A) on the 3rd gear (B).



6. Lift 3rd gear (A) up while holding the mainshaft, and use the dial indicator (B) to read the 3rd gear axial clearance.
7. Measure the 3rd gear axial clearance in at least three places while moving 3rd gear. Use the average as the actual clearance.
   Standard: **0.04–0.10 mm (0.002–0.004 in.)**



8. If the clearance is out of standard, remove the 40 x 63 mm thrust washer and measure its thickness (A).
9. Select and install a new thrust washer, then recheck.

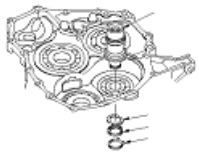
THRUST WASHER, 40 x 63 mm

No.	Part Number	Thickness
1	90414-RPC-000	3.750 mm (0.1476 in.)
2	90415-RPC-000	3.775 mm (0.1486 in.)
3	90416-RPC-000	3.800 mm (0.1496 in.)
4	90417-RPC-000	3.825 mm (0.1506 in.)
5	90418-RPC-000	3.850 mm (0.1516 in.)
6	90419-RPC-000	3.875 mm (0.1526 in.)
7	90420-RPC-000	3.900 mm (0.1535 in.)
8	90421-RPC-000	3.925 mm (0.1545 in.)
9	90422-RPC-000	3.950 mm (0.1555 in.)
10	90423-RPC-000	3.975 mm (0.1565 in.)
11	90424-RPC-000	4.000 mm (0.1575 in.)

10. After replacing the thrust washer, make sure the clearance is within standard.
11. Disassemble the installed parts from the mainshaft.
12. Reinstall the bearing in the transmission housing.

A/T Housing Bearing Removal

Special Tools Required



Driver attachment, 72 x 75 mm
07746-0010600

Driver attachment, 78 x 80 mm
07NAD-PX40100

Driver attachment, 62 x 68 mm
07746-0010500

Driver handle 15 x 135L
07749-0010000

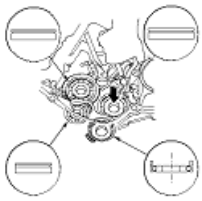
Snap ring pliers
07LGC-0010100

1. Remove the snap ring (A), cotter retainer (B), and cotters (C) from the idler gear shaft (D), then remove the idler gear shaft. Do not distort the snap ring.
   NOTE: If you are not removing the idler gear shaft bearing, idler gear shaft removal is not needed.

2. To remove the mainshaft bearing (A), countershaft bearing (B), secondary shaft bearing (C), and idler gear shaft bearing (D) from the transmission housing, expand each snap ring with the snap ring pliers, then push the bearing out.
   NOTE: Do not remove the snap ring unless it's necessary to clean the grooves in the housing.

A/T Housing Bearing Installation

Special Tools Required



Driver attachment, 72 x 75 mm
07746-0010600

Driver attachment, 78 x 80 mm
07NAD-PX40100

Driver attachment, 62 x 68 mm
07746-0010500

Driver handle 15 x 135L
07749-0010000

Snap ring pliers
07LGC-0010100

1. Install the mainshaft bearing (A), countershaft bearing (B), secondary shaft bearing (C), and idler gear shaft bearing (D) in the transmission housing in the direction shown.
2. Expand each snap ring with the snap ring pliers, and install the bearing part-way into the housing.
3. Release the pliers, then push the bearing down into the housing until the snap ring snaps in place around it.

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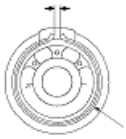
4. After installing the bearings verify that the snap rings (A) are seated in the bearing and housing grooves, and that the ring end gaps (B) are 0−7 mm (0−0.28 in.)



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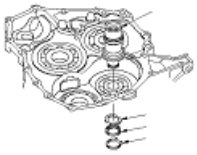
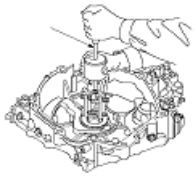
5. Install the idler gear shaft (A) in the idler gear shaft bearing.
6. Install the cotters (B) and cotter retainer (C), and secure the idler gear shaft with the snap ring (D).



Torque Converter Housing Mainshaft Bearing and Oil Seal Replacement

Special Tools Required



Adjustable bearing remover set
07JAC-PH80000

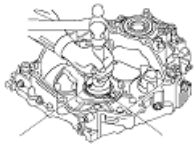
Driver handle 15 x 135L
07749-0010000

Driver attachment, 62 x 68 mm
07746-0010500

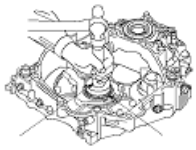
Driver attachment, 72 x 75 mm
07746-0010600

1. Remove the mainshaft bearing and oil seal with the special tool.

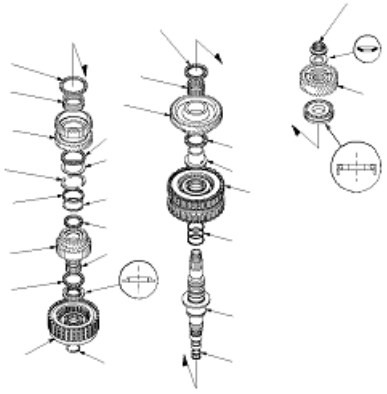
2. Install the new mainshaft bearing until it bottoms in the torque converter housing with the special tools.



3. Install the new oil seal flush with the housing with the special tools.



A/T Secondary Shaft Disassembly, Inspection, and Reassembly



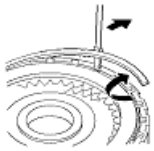
1. Inspect the thrust needle bearing and the needle bearing for galling and rough movement.
2. Inspect the splines for excessive wear and damage.
3. Check the shaft bearing surface for scoring and excessive wear.
4. Before installing the O-rings, wrap the shaft splines with tape to prevent O-ring damage.
5. Lubricate all parts with ATF during assembly.
6. Install the conical spring washer, idler gear, and 31 x 50 mm thrust washer in the direction shown.
7. Replace the locknut and conical spring washer with new ones when assembling the transmission. The locknut has left-hand threads.
8. Check the axial clearance of the 1st gear and 2nd gear.
9. Inspect the condition of the sealing rings. If the sealing rings are worn, distorted, or damaged, replace them.

A/T System Description - Clutches and Gears

Clutches and Gears
Clutches and Gears (cont'd)

A/T Clutch Disassembly

Special Tools Required



Clutch spring compressor set
07LAE-PX40000

Clutch spring compressor attachment
07LAE-PX40100

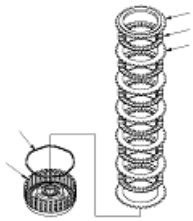
Clutch spring compressor attachment
07HAE-PL50100

Clutch spring compressor bolt assembly
07GAE-PG40200

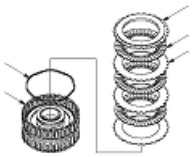
Snap ring pliers
07LGC-0010100

1. Remove the snap ring with a screwdriver.

2. Remove the clutch end-plate (A), the clutch discs (B) (6), the clutch wave-plates (C) (6), and the wave spring (D) from the 1st clutch drum (E).

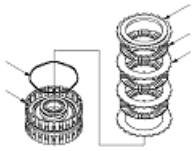


3. Remove the clutch end-plate (A), the clutch discs (B) (3), the clutch flat-plates (C) (3), and the wave spring (D) from the 2nd clutch drum (E).

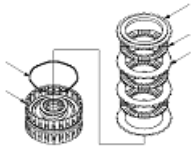


4. Remove the clutch end-plate (A), the clutch discs (B) (4), the clutch flat-plates (C) (4), and the wave spring (D) from the 4th clutch drum (E).

5. Remove the clutch end-plate (A), the clutch discs (B) (3), the clutch wave-plates (C) (3), and the wave spring (D) from the 3rd clutch drum (E).



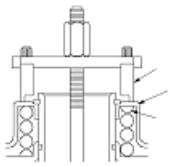
6. Remove the clutch end-plate (A), the clutch discs (B) (3), the clutch wave-plates (C) (3), and the wave spring (D) from the 5th clutch drum (E).



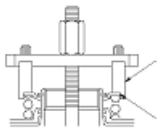
7. Install the clutch spring compressor attachments and the clutch spring compressor bolt assembly.

8. Set the clutch spring compressor attachment (A) on the 1st clutch spring retainer (B) so the clutch spring compressor attachment works on the clutch return spring (C).

9. If either end of the clutch spring compressor attachment is not set over the clutch return spring end, the spring retainer may be tilted and damaged. If the retainer is tilted when compressing the return spring, reset the clutch spring compressor attachment on the retainer at another angle.

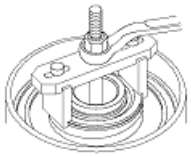


10. Be sure the clutch spring compressor attachment (A) is adjusted to have full contact with the spring retainer (B) on the 2nd, 3rd, 4th, and 5th clutches.

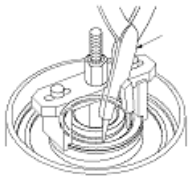


11. If either end of the clutch spring compressor attachment is set over an area of the spring retainer that is unsupported by the return spring, reset the clutch spring compressor attachment over the proper position.

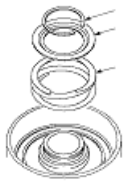
12. Compress the return spring until the snap ring can be removed.



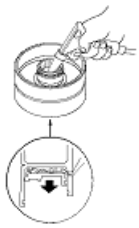
13. Remove the snap ring with snap ring pliers.
14. Remove the clutch spring compressor attachments and the clutch spring compressor bolt assembly.



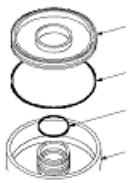
15. Remove the snap ring (A), the spring retainer (B), and the return spring (C).



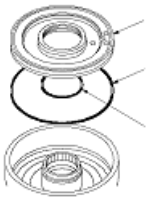
16. Wrap a shop rag around the clutch drum, and apply air pressure to the fluid passage to remove the piston. Place a finger tip on the other passage while applying air pressure.



17. Remove the clutch piston (A) from the clutch drum (B) of the 1st, 2nd, and 4th clutches. Remove the O-ring (C) from the clutch piston, and O-ring (D) from the drum.

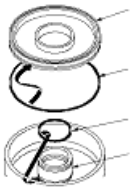


18. Remove the clutch piston (A) from the clutch drum of the 3rd and 5th clutches, and remove the outer O-ring (B) and inner O-ring (C) from the piston.



A/T 1st Clutch Reassembly

Special Tools Required



Clutch spring compressor set
07LAE-PX40000

Clutch spring compressor attachment
07LAE-PX40100

Clutch spring compressor attachment
07HAE-PL50100

Clutch spring compressor bolt assembly
07GAE-PG40200

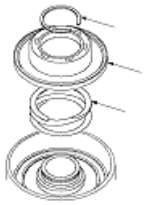
Snap ring pliers
07LGC-0010100

NOTE: Coat all parts with ATF during reassembly.

1. Soak the clutch discs thoroughly in ATF for a minimum of 30 minutes.
2. Install the new O-ring (A) on the clutch piston (B), and install the O-ring (C) on the clutch drum (D).

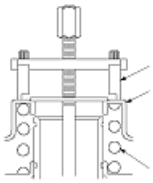
3. Coat the piston O-ring with ATF, and install the clutch piston (A) in the clutch drum (B) while applying pressure and rotating to ensure proper seating. Do not pinch the O-ring.

4. Install the return spring (A), and install the spring retainer (B) can be adjusted (center of tolerance) to prevent damaging the retainer oil seal.
5. Position the snap ring (C) on the spring retainer.

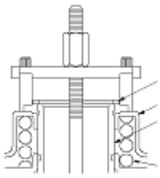


6. Install the clutch spring compressor attachments and the clutch spring compressor bolt assembly.

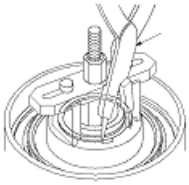
7. Set the clutch spring compressor attachment (A) on the spring retainer (B), and over the clutch return spring end, so the clutch spring compressor attachment works on the clutch return spring (C).
8. If either end of the clutch spring compressor attachment is not set over the clutch return spring end, reset the clutch spring compressor attachment over the return spring end.



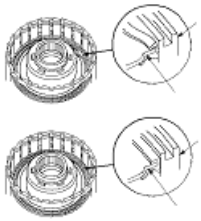
9. Coat between the mating areas of the spring retainer oil seal and the clutch piston with ATF. Compress the return spring (A) carefully until the snap ring (B) can be installed, and install the spring retainer (C) to ensure proper seating in the clutch piston, and over the clutch hub (D). Do not pinch the spring retainer oil seal.



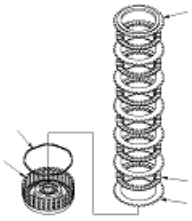
10. Install the snap ring with the snap ring pliers.
11. Remove the clutch spring compressor attachments and the clutch spring compressor bolt assembly.



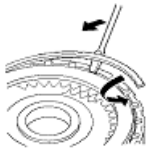
12. Check that the spring retainer oil seal (A) is properly seated in the clutch piston (B).
13. If improperly seated, remove the spring retainer, and check the oil seal. If the oil seal is worn, damaged, or peeling, replace the spring retainer, and reinstall the new retainer in the clutch piston.



14. Install the wave spring (A) in the 1st clutch drum (B). Starting with the clutch wave-plate, alternately install the wave-plates (C) (6) and discs (D) (6). Install the clutch end-plate (E) with the flat side down on the top disc.



15. Install the snap ring with a screwdriver to secure the clutch end-plate.
16. Check that the clutch piston moves by applying air pressure into the fluid passage.



A/T Clutch Inspection

1. Inspect the clutch pistons and the clutch piston check valves (A).
2. If the clutch piston check valve is loose or damaged, replace the clutch piston.
3. Check the spring retainer for wear and damage.
4. If the spring retainer is worn or damaged, replace it.
5. Check the oil seal (A) on the 1st clutch spring retainer for wear, damage, and peeling.

6. If the oil seal is worn, damaged, or peeling, replace the spring retainer.
7. Inspect the clutch discs, the clutch plates, and the clutch end-plate for wear, damage, and discoloration.

Clutch Discs Standard Thickness

1st clutch:	**1.94 mm (0.076 in.)**
2nd clutch:	**1.96 mm (0.077 in.)**
3rd clutch:	**1.94 mm (0.076 in.)**
4th clutch:	**1.96 mm (0.077 in.)**
5th clutch:	**1.94 mm (0.076 in.)**

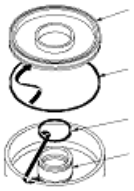
Clutch Plates Standard Thickness

1st clutch	**(wave-plates):**	**1.6 mm (0.063 in.)**
2nd clutch	**(flat-plates):**	**2.3 mm (0.091 in.)**
3rd clutch	**(wave-plates):**	**2.0 mm (0.079 in.)**
4th clutch	**(flat-plates):**	**1.6 mm (0.063 in.)**
5th clutch	**(wave-plate):**	**2.0 mm (0.079 in.)**

8. If the clutch discs are worn or damaged, replace them as a set. If the clutch discs are replaced, inspect the clearance between the clutch end-plate and the top disc.
9. If any flat-plate is worn, damaged, or discolored, replace them as a set. If the clutch flat-plates are replaced, inspect the clearance between the clutch end-plate and the top disc.
10. If any wave-plate is worn, damaged, or discolored, replace the damaged plate with a new plate, and inspect the other wave-plates for a phase difference. If the clutch wave-plate is replaced, inspect the clearance between the clutch end-plate and the top disc.
11. If the clutch end-plate is worn, damaged, or discolored, inspect the clearance between the clutch end-plate and the top disc, then replace the clutch end-plate.

A/T 2nd, 3rd, 4th, and 5th Clutch Reassembly

Special Tools Required



Clutch spring compressor set
07LAE-PX40000

Clutch spring compressor attachment
07LAE-PX40100

Clutch spring compressor attachment
07HAE-PL50100

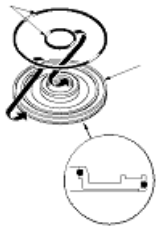
Clutch spring compressor bolt assembly
07GAE-PG40200

Snap ring pliers
07LGC-0010100

NOTE: Coat all parts with ATF during reassembly.

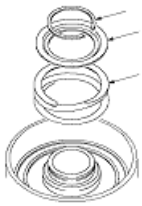
1. Soak the clutch discs thoroughly in ATF for a minimum of 30 minutes.
2. Install the new O-ring (A) on the clutch piston (B) of the 2nd, and 4th clutches, and install the O-ring (C) on each clutch drum (D).

3. Install the new O-rings (A) on the piston (B) of the 3rd and 5th clutches.



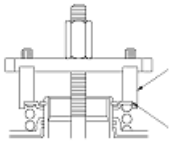
4. Install the clutch piston (A) in the clutch drum (B) while applying pressure and rotating to ensure proper seating. Do not pinch the O-ring.

5. Install the return spring (A) and the spring retainer (B), and position the snap ring (C) on the spring retainer.



6. Install the clutch spring compressor attachments and the clutch spring compressor bolt assembly.

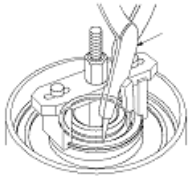
7. Be sure the clutch spring compressor attachment (A) is adjusted to have full contact with the spring retainer (B).



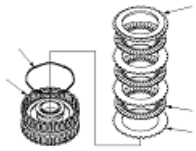
8. If either end of the clutch spring compressor attachment is set over an area of the spring retainer that is unsupported by the return spring, reset the clutch spring compressor attachment over the proper position.

9. Compress the return spring until the snap ring can be installed.

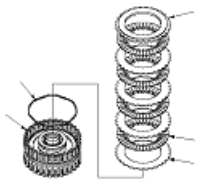
10. Install the snap ring with the snap ring pliers.
11. Remove the clutch spring compressor attachments and the clutch spring compressor bolt assembly.



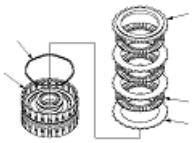
12. Install the wave spring (A) in the 2nd clutch drum (B). Starting with the clutch flat-plate, alternately install the flat-plates (C) (3) and the discs (D) (3). Install the clutch end-plate (E) with the flat side down on the top disc.



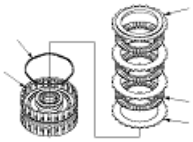
13. Install the wave spring (A) in the 4th clutch drum (B). Starting with the clutch flat-plate, alternately install the flat-plates (C) (4) and the discs (D) (4). Install the clutch end-plate (E) with the flat side down on the top disc.



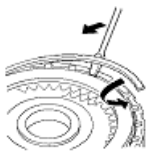
14. Install the wave spring (A) in the 3rd clutch drum (B). Starting with the clutch wave-plate, alternately install the wave-plates (C) (3) and the discs (D) (3). Install the clutch end-plate (E) with the flat side down on the top disc.



15. Install the wave spring (A) in the 5th clutch drum (B). Starting with the clutch wave-plate, alternately install the wave-plates (C) (3) and the discs (D) (3). Install the clutch end-plate (E) with the flat side down on the top disc.

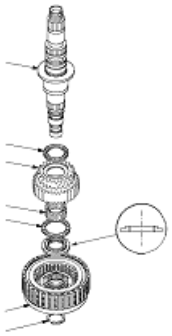


16. Install the snap ring with a screwdriver to secure the clutch end-plate.
17. Check that the clutch piston moves by applying air pressure into the fluid passage.

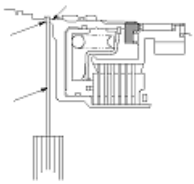


A/T Secondary Shaft 1st Gear Axial Clearance Inspection

1. Install the thrust needle bearing (A), 1st gear (B), needle bearing (C), thrust needle bearing (D), 31 x 50 mm thrust washer (E), and 1st clutch (F) on the secondary shaft (G), then secure them with the snap ring (H).



2. Measure the clearance between the snap ring (A) and the 1st clutch guide (B) with a feeler gauge (C), in at least three places. Use the average as the actual clearance.
   Standard: 0.04−0.12 mm (0.002−0.005 in.)



3. If the clearance is out of standard, remove the 31 x 50 mm thrust washer and measure its thickness (A).
4. Select and install a new thrust washer, then recheck.

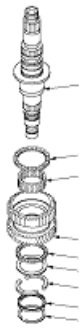
THRUST WASHER, 31 x 50 mm

No.	Part Number	Thickness
1	90521-RG5-000	3.925 mm (0.1545 in.)
2	90522-RG5-000	3.950 mm (0.1555 in.)
3	90523-RG5-000	3.975 mm (0.1565 in.)
4	90524-RG5-000	4.000 mm (0.1575 in.)
5	90525-RG5-000	4.025 mm (0.1585 in.)
6	90526-RG5-000	4.050 mm (0.1594 in.)
7	90527-RG5-000	4.075 mm (0.1604 in.)
8	90528-RG5-000	4.100 mm (0.1614 in.)
9	90529-RG5-000	4.125 mm (0.1624 in.)
10	90530-RG5-000	4.150 mm (0.1634 in.)
11	90531-RG5-000	4.175 mm (0.1644 in.)
12	90532-RG5-000	4.200 mm (0.1654 in.)
13	90533-RG5-000	4.225 mm (0.1663 in.)
14	90534-RG5-000	4.250 mm (0.1673 in.)
15	90535-RG5-000	4.275 mm (0.1683 in.)
16	90536-RG5-000	4.300 mm (0.1693 in.)
17	90537-RG5-000	4.325 mm (0.1703 in.)

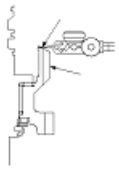
5. After replacing the thrust washer, make sure the clearance is within standard.
6. Disassemble the installed parts from the secondary shaft.

A/T Secondary Shaft 2nd Gear Axial Clearance Inspection

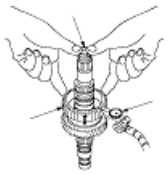
1. Install the thrust needle bearing (A), the needle bearing (B), the 2nd gear (C), the thrust needle bearing (D), the 43 x 54.5 mm thrust washer (E), the 39 mm cotters (F), and the cotter retainer (G) on the secondary shaft (H), then secure them with the snap ring (I).



2. Set the dial indicator (A) on the 2nd gear (B).



3. Lift the 2nd gear (A) up while holding the secondary shaft (B), and use the dial indicator (C) to read the 2nd gear axial clearance.
4. Measure the 2nd gear axial clearance in at least three places while moving the 2nd gear. Use the average as the actual clearance.
   Standard: 0.04−0.12 mm (0.002−0.005 in.)



5. If the clearance is out of standard, remove the 43 x 54.5 mm thrust washer and measure its thickness.
6. Select and install a new thrust washer, then recheck.

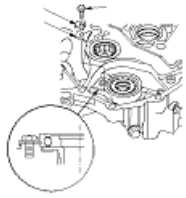
THRUST WASHER, 43 x 54.5 mm

No.	Part Number	Thickness
1	90502-RPC-000	2.900 mm (0.114 in.)
2	90503-RPC-000	2.925 mm (0.115 in.)
3	90504-RPC-000	2.950 mm (0.116 in.)
4	90505-RPC-000	2.975 mm (0.117 in.)
5	90506-RPC-000	3.000 mm (0.118 in.)
6	90507-RPC-000	3.025 mm (0.119 in.)
7	90508-RPC-000	3.050 mm (0.120 in.)
8	90509-RPC-000	3.075 mm (0.121 in.)
9	90510-RPC-000	3.100 mm (0.122 in.)
10	90511-RPC-000	3.125 mm (0.123 in.)
11	90512-RPC-000	3.150 mm (0.124 in.)
12	90513-RPC-000	3.175 mm (0.125 in.)
13	90514-RPC-000	3.200 mm (0.126 in.)

7. After replacing the thrust washer, make sure the clearance is within standard.
8. Disassemble the installed parts from the secondary shaft.

Torque Converter Housing Secondary Shaft Bearing Replacement

Special Tools Required

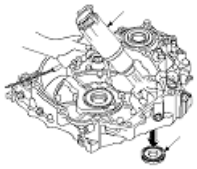


Driver handle 15 x 135L
07749-0010000

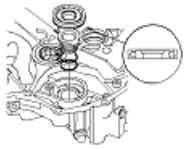
Driver attachment, 62 x 68 mm
07746-0010500

1. Remove the bolt, then remove the lock washer (A) and bearing set plate (B).

2. Remove the secondary shaft bearing (A) by heating the housing to about 100 °C (212 °F) with a heat gun (B). Do not heat the housing in excess 100 °C (212 °F).
   NOTE: Let the housing cool to normal temperature before installing the bearing.



3. Install the new O-rings (A) on the ATF guide collar (B), then install the ATF guide collar in the housing.
4. Install the new secondary shaft bearing (C) in the direction shown.



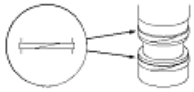
5. Drive the secondary shaft bearing with the special tools, and install it securely in the housing.
6. Check that the bearing groove aligns with the housing surface, then install the bearing set plate with aligning the bearing groove.
7. Install the new lock washer and bolt, then bend the lock tab of the lock washer against the bolt head.

A/T Secondary Shaft Sealing Ring Replacement

The sealing rings are synthetic resin with chamfered ends. Check the condition of the sealing rings, and replace them only if they are worn, distorted, or damaged.

1. For a better fit, squeeze sealing rings together slightly before installing them.

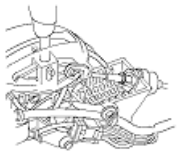
2. Apply ATF to the new sealing rings, then install them on the mainshaft.



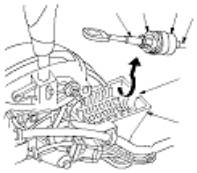
3. After installing the sealing rings, verify the following:
   - The rings are fully seated in the groove.
   - The rings are not twisted.
   - The chamfered ends of the rings are properly joined.

A/T Shift Cable Adjustment

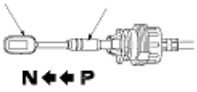
1. Remove the center console.
2. Shift the transmission to N.
3. Remove the nut securing the shift cable end.



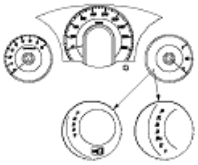
4. Rotate the socket holder (A) on the shift cable (B) a quarter turn; the corner (C) on the socket holder will be in the opening (D) of the shift lever bracket base (E). Then slide the holder to remove the shift cable from the bracket. Do not remove the shift cable by twisting the shift cable guide (F).



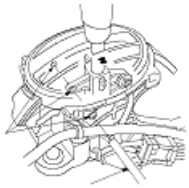
5. Push the shift cable (A) until it stops, then release it. Pull the shift cable back two steps so that the shift position is in N. Do not hold the shift cable guide (B) to adjust the shift cable.



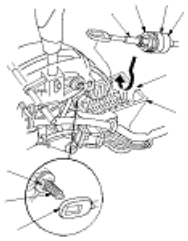
6. Turn the ignition switch to ON (II), and check that the N indicator comes on.
7. Turn the ignition switch to LOCK (0).



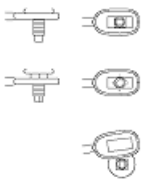
8. Insert a 6.0 mm (0.24 in.) pin (A) through the positioning holes (B) on the shift lever bracket base and into the positioning hole on the shift lever. Use only the 6.0 mm pin.
9. Check that the shift lever is secured in N.



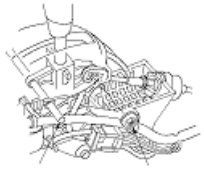
10. Rotate the socket holder (A) on the shift cable (B) to place the corner (C) on the holder opposite the opening (D) in the shift lever bracket base (E). Align the holder with the opening in the bracket, then slide the holder into the bracket. Install the shift cable end (F) over the mounting stud (G) by aligning its square hole with the square fitting (H) at the bottom of the stud. Rotate the holder a quarter turn until the holder stops to secure the shift cable. Do not install the shift cable by twisting the shift cable guide (I).



11. Check that the shift cable end is properly installed on the mounting stud.
12. If the cable end is out of position on the mounting stud, remove the shift cable from the bracket, and reinstall the shift cable. Do not install the shift cable end on the mounting stud while the shift cable in on the bracket. If the cable end rides on the bottom of the mounting stud, rotate the stud and align the square fitting with the hole.

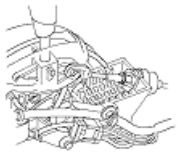


13. Secure the shift cable end with the nut (A).
14. Remove the 6.0 mm (0.24 in.) pin (B) that was installed to hold the shift lever.
15. Turn the ignition switch to ON (II). Move the shift lever to each position, and check that the A/T gear position indicator follows the transmission range switch.
16. Shift to P, and check that the shift lock works properly. Push the shift lock release, and check that the shift lever releases, and also check that the shift lever locks when it is shifted back into P.
17. Reinstall the center console.

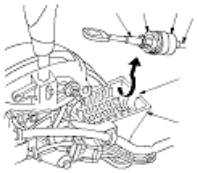


A/T Shift Lever Removal

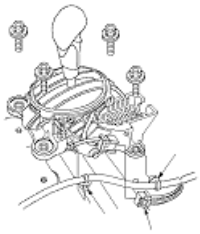
1. Remove the center console.
2. Shift the transmission to N.
3. Remove the nut securing the shift cable end.



4. Rotate the socket holder (A) on the shift cable (B) a quarter turn; the corner (C) on the socket holder will be in the opening (D) of the shift lever bracket base (E). Then slide the holder to remove the shift cable from the bracket. Do not remove the shift cable by twisting the shift cable guide (F).

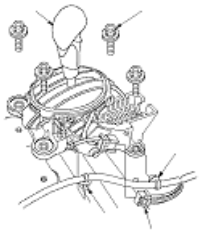


5. Disconnect the shift lock solenoid/park pin switch/A/T gear position indicator panel light connector (A), and remove the harness clamps (B) from the shift lever bracket base.
6. Remove the mounting bolts, then remove the shift lever assembly.

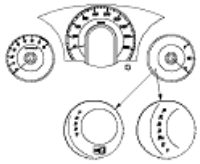


A/T Shift Lever Installation

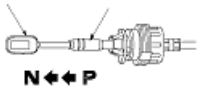
1. Install the shift lever assembly (A).
2. Connect the shift lock solenoid/park pin switch/A/T gear position indicator panel light connector (B), and install the harness clamps (C) on the shift lever bracket base.



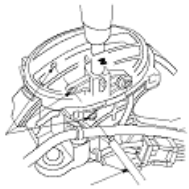
3. Turn the ignition switch to ON (II), and check that the N indicator comes on.



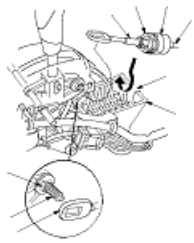
4. If necessary, push the shift cable (A) until it stops, then release it. Pull the shift cable back two steps so that the shift position is in N. Do not hold the shift cable guide (B) to adjust the shift cable.
5. Turn the ignition switch to LOCK (0).



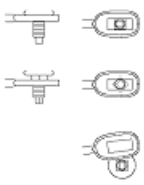
6. Insert a 6.0 mm (0.24 in.) pin (A) through the positioning holes (B) on the shift lever bracket base and into the positioning hole on the shift lever. Use only the 6.0 mm pin.
7. Check that the shift lever is secured in N.



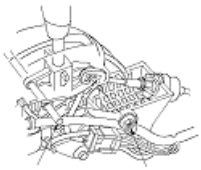
8. Rotate the socket holder (A) on the shift cable (B) to place the corner (C) on the holder opposite the opening (D) in the shift lever bracket base (E). Align the holder with the opening in the bracket, then slide the holder into the bracket. Install the shift cable end (F) over the mounting stud (G) by aligning its square hole with the square fitting (H) at the bottom of the stud. Rotate the holder a quarter turn until the holder stops to secure the shift cable. Do not install the shift cable by twisting the shift cable guide (I).



9. Check that the shift cable end is properly installed on the mounting stud.
10. If the cable end is out of position on the mounting stud, remove the shift cable from the bracket, and reinstall the shift cable. Do not install the shift cable end on the mounting stud while the shift cable in on the bracket. If the cable end rides on the bottom of the mounting stud, rotate the stud and align the square fitting with the hole.

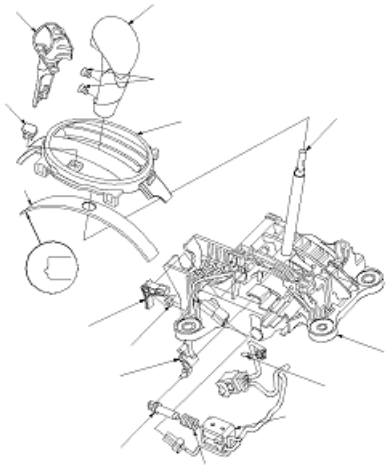


11. Secure the shift cable end with the nut (A).
12. Remove the 6.0 mm (0.24 in.) pin (B) that was installed to hold the shift lever.
13. Turn the ignition switch to ON (II). Move the shift lever to each position, and check that the A/T gear position indicator follows the transmission range switch.
14. Shift to P, and check that the shift lock works properly. Push the shift lock release, and check that the shift lever releases, and also check that the shift lever locks when it is shifted back into P.
15. Reinstall the center console.

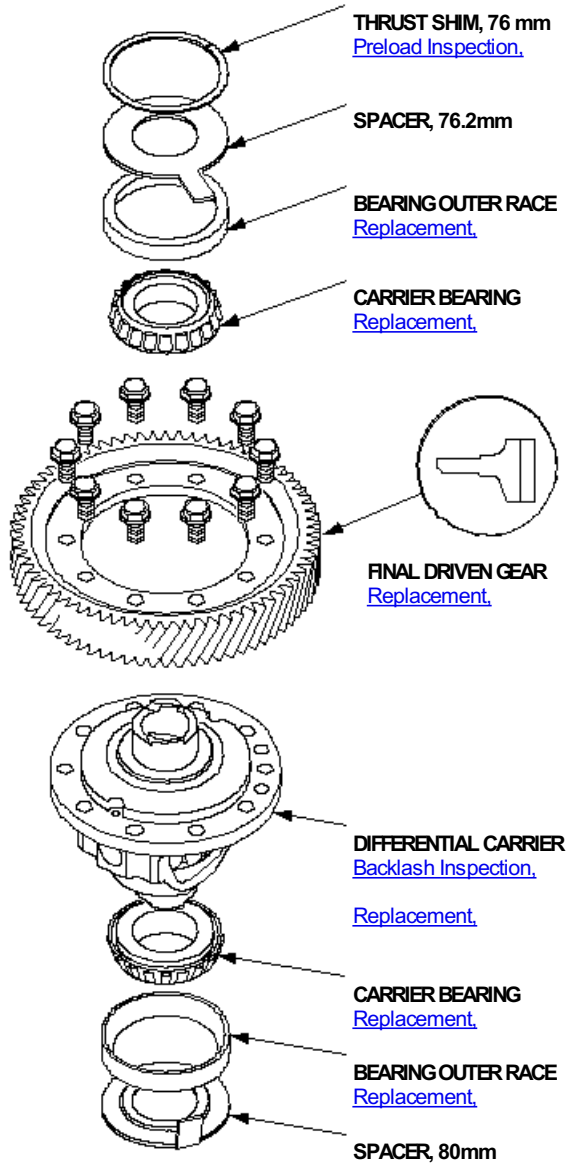


A/T Shift Lever Disassembly/Reassembly

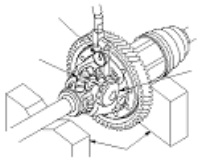
Apply silicone grease to movable joints of the shift lock mechanism, shift lever, and lock pin rod. Keep the connector terminals free of silicone grease.



A/T Differential Component Location Index



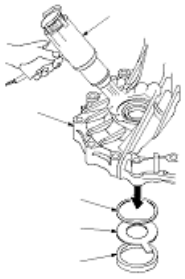
A/T Differential Backlash Inspection



1. Install the driveshaft and intermediate shaft into the differential assembly, and place the axles on V-blocks (A).
2. Measure the backlash of the pinion gears (B) with a dial indicator (C).
   Standard: 0.05−0.15 mm (0.002−0.006 in.)
3. If the backlash is out of standard, replace the differential carrier.

A/T Differential Carrier Bearing Outer Race Replacement

Special Tools Required



Driver handle 15 x 135L
07749-0010000

Driver attachment, 78 x 90 mm
07GAD-SD40101

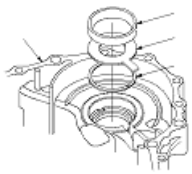
Driver attachment, 72 x 75 mm
07746-0010600

NOTE:

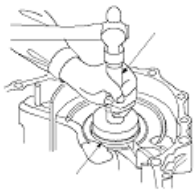
- Replace the bearing with a new one whenever the outer race is replaced.
- Do not use shim(s) on the toque converter housing side.
- Adjust the preload after replacing the bearing and the outer race.
- Coat all parts with ATF during installation.

1. Remove the bearing outer race (A), 76.2 mm spacer (B), and 76 mm thrust shim (C) from the transmission housing (D) by heating the housing to about 100 °C (212 °F) with a heat gun (E). Do not heat the housing more than 100 °C (212 °F).

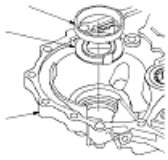
2. Install the 76 mm thrust shim (A), 76.2 mm spacer (B), and outer race (C) in the transmission housing (D).



3. Using the special tools, drive the outer race securely in the housing so there is no clearance between the outer race, spacer, shim, and housing.



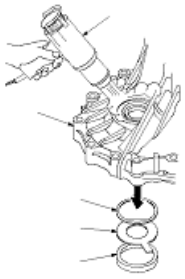
4. Remove the bearing outer race (A) and 80 mm spacer (B) from the torque converter housing (C).
5. Install the spacer and the new outer race in the torque converter housing.



6. Drive the bearing outer race securely in the housing with the special tools.

A/T Differential Carrier Bearing Preload Inspection

Special Tools Required



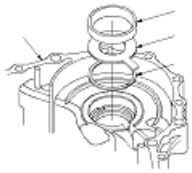
Driver handle 15 x 135L
07749-0010000

Driver attachment, 72 x 75 mm
07746-0010600

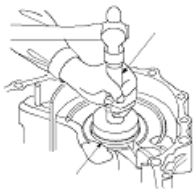
Diff preload inspection attachment
07HAJ-PK40201

NOTE: If the transmission housing, torque converter housing, differential carrier, tapered roller bearing, bearing outer race, or thrust shim were replaced, the bearing preload must be adjusted.

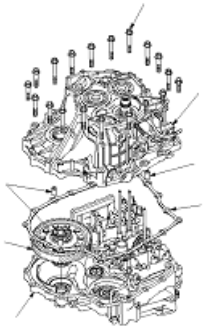
1. Remove the bearing outer race (A), 76.2 mm spacer (B), and 76 mm thrust shim (C) from the transmission housing (D) by heating the housing to about 100 °C (212 °F) with a heat gun (E). Do not heat the housing more than 100 °C (212 °F).
   NOTE: Let the transmission housing cool to room temperature before adjusting the bearing preload.
2. Replace the tapered roller bearing when the outer race is to be replaced.
3. Do not use a shim on the torque converter housing side.



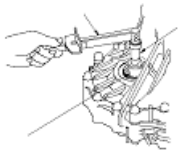
4. Install the 76 mm thrust shim (A) in the transmission housing (B). If you replace the 76 mm thrust shim with a new one, use the same thickness shim as the old one.
5. Install the 76.2 mm spacer (C) and the bearing outer race (D) in the transmission housing.



6. Drive the outer race securely in the housing with the special tools so there is no clearance between the outer race, spacer, shim, and housing.



7. Install the differential assembly (A) in the torque converter housing (B), and install the gasket (C) and the three dowel pins (D) on the housing.
8. Install the transmission housing (E), and install the transmission housing mounting bolts. Tighten the 19 bolts to 44 N·m (4.5 kgf·m, 33 lbf·ft) in at least two steps in a crisscross pattern.
9. Rotate the differential assembly in both directions to seat the bearings.



10. Measure the starting torque of the differential assembly with the special tool, a torque wrench (A), and a socket (B). Measure the staring torque at normal room temperature in both directions.
    Standard
    New Bearing:
    2.7−3.9 N·m (28−40 kgf·cm, 24−35 lbf·in.)
    Reused Bearing:
    2.5−3.6 N·m (25−37 kgf·cm, 22−32 lbf·in.)
11. If the starting torque is out of the standard, remove the thrust shim and measure its thickness.
12. Select a new thrust shim. To increase the starting torque, increase thickness of the thrust shim. To decrease the starting torque, decrease the thickness of the thrust shim.
    Changing the shim to the next size will increase or decrease the starting torque about 0.5−0.6 N·m (5−6 kgf·m, 5−5 lbf·in.)

THRUST SHIM, 76 mm

No.	Part Number	Thickness
0A	41428-PRP-000	1.55 mm (0.0610 in.)
0B	41429-PRP-000	1.60 mm (0.0630 in.)
0C	41430-PRP-000	1.65 mm (0.0650 in.)
0D	41431-PRP-000	1.70 mm (0.0669 in.)

No.	Part Number	Thickness
0E	41432-PRP-000	1.75 mm (0.0689 in.)
0F	41433-PRP-000	1.80 mm (0.0709 in.)
0G	41434-PRP-000	1.85 mm (0.0728 in.)
0H	41435-PRP-000	1.90 mm (0.0748 in.)
0I	41436-PRP-000	1.95 mm (0.0768 in.)
0J	41437-PRP-000	2.00 mm (0.0787 in.)
S	41438-PX4-700	2.05 mm (0.0807 in.)
T	41439-PX4-700	2.10 mm (0.0827 in.)
U	41440-PX4-700	2.15 mm (0.0846 in.)
A	41441-PK4-000	2.20 mm (0.0866 in.)
B	41442-PK4-000	2.25 mm (0.0886 in.)
C	41443-PK4-000	2.30 mm (0.0906 in.)
D	41444-PK4-000	2.35 mm (0.0925 in.)
E	41445-PK4-000	2.40 mm (0.0945 in.)
F	41446-PK4-000	2.45 mm (0.0965 in.)
G	41447-PK4-000	2.50 mm (0.0984 in.)
H	41448-PK4-000	2.55 mm (0.1004 in.)
I	41449-PK4-000	2.60 mm (0.1024 in.)
J	41450-PK4-000	2.65 mm (0.1043 in.)
K	41451-PK4-000	2.70 mm (0.1063 in.)
L	41452-PK4-000	2.75 mm (0.1083 in.)
M	41453-PK4-000	2.80 mm (0.1102 in.)
N	41454-PK4-000	2.85 mm (0.1122 in.)
O	41455-PK4-000	2.90 mm (0.1142 in.)
P	41456-PK4-000	2.95 mm (0.1161 in.)
Q	41457-PK4-000	3.00 mm (0.1181 in.)
R	41458-PK4-000	3.05 mm (0.1201 in.)
A	41428-PAX-000	1.575 mm (0.0620 in.)
B	41429-PAX-000	1.626 mm (0.0640 in.)
C	41430-PAX-000	1.675 mm (0.0659 in.)
D	41431-PAX-000	1.725 mm (0.0679 in.)
E	41432-PAX-000	1.775 mm (0.0669 in.)
F	41433-PAX-000	1.825 mm (0.0719 in.)
G	41434-PAX-000	1.875 mm (0.0738 in.)
H	41435-PAX-000	1.925 mm (0.0758 in.)
I	41436-PAX-000	1.975 mm (0.0778 in.)

(cont'd)

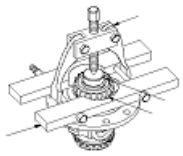
THRUST SHIM, 76 mm (cont'd)

No.	Part Number	Thickness
J	41437-PAX-000	2.025 mm (0.0797 in.)
K	41438-PAX-000	2.075 mm (0.0817 in.)
L	41439-PAX-000	2.125 mm (0.0837 in.)
M	41440-PAX-000	2.175 mm (0.0856 in.)
N	41441-PAX-000	2.225 mm (0.0876 in.)
O	41442-PAX-000	2.275 mm (0.0896 in.)
P	41443-PAX-000	2.325 mm (0.0915 in.)
Q	41444-PAX-000	2.375 mm (0.0935 in.)
R	41445-PAX-000	2.425 mm (0.0955 in.)
S	41446-PAX-000	2.475 mm (0.0974 in.)
T	41447-PAX-000	2.525 mm (0.0994 in.)
U	41448-PAX-000	2.575 mm (0.1014 in.)
V	41449-PAX-000	2.625 mm (0.1033 in.)
W	41450-PAX-000	2.675 mm (0.1053 in.)
X	41451-PAX-000	2.725 mm (0.1073 in.)
Y	41452-PAX-000	2.775 mm (0.1093 in.)
Z	41453-PAX-000	2.825 mm (0.1112 in.)
0A	41454-PAX-000	2.875 mm (0.1132 in.)
0B	41455-PAX-000	2.925 mm (0.1152 in.)
0C	41456-PAX-000	2.975 mm (0.1171 in.)
0D	41457-PAX-000	3.025 mm (0.1191 in.)

13. Install the new thrust shim, then recheck the staring torque.

A/T Differential Carrier Bearing Replacement

Special Tools Required



Bearing Separator
07KAF-PS30200

Attachment, 40
07LAD-PW50601

NOTE:

- The bearing and outer race should be replaced as a set.
- Inspect and adjust the carrier bearing preload whenever the bearing is replaced.
- Check the bearing for wear and rough rotation. If the bearing is OK, removal is not necessary.

1. Remove the final driven gear from the differential carrier when replacing the carrier bearing on the final driven gear side. When only replacing the carrier bearing on opposite side of the final driven gear, final driven gear removal is no needed.
2. Set a commercially available bearing separator (A) or the special tool (07KAF-PS30200) under the carrier bearing (B).
3. Place a collar (C) on the differential carrier, and set a commercially available bearing puller (D), then remove the carrier bearing.

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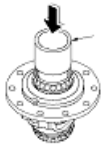
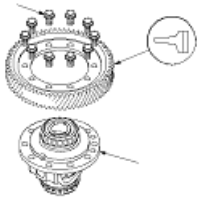
4. Install the new bearing with the special tool and a press. Press the bearing on securely until it bottoms so there is no clearance between the bearing and the differential carrier.
5. Install the final driven gear if the gear was removed.



A/T Differential Carrier, Final Driven Gear Replacement

1. Remove the final driven gear (A) from the differential carrier (B). The final driven gear bolts have left-hand threads.
2. Install the final driven gear on the differential carrier in the direction shown.
3. Tighten the bolts to 101 N·m (10.3 kgf·m, 74.5 lbf·ft) in a crisscross pattern in at least two steps.



A/T Differential Oil Seal Replacement

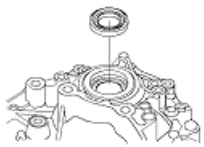
Special Tools Required

Driver handle 15 x 135L
07749-0010000

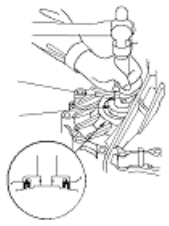
Oil seal driver attachment
07JAD-PH80101

1. Remove the oil seal from the transmission housing.

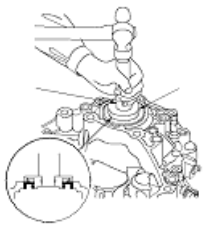
2. Remove the oil seal from the torque converter housing.



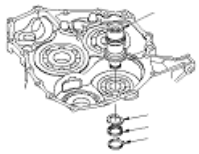
3. Install the new oil seal in the transmission housing in between 0.2 mm-deep and 0.5 mm-high from the housing surface with the special tools.



4. Install the new oil seal in the torque converter housing in between 0.2 mm-deep and 0.5 mm-high from the housing surface with the special tools.



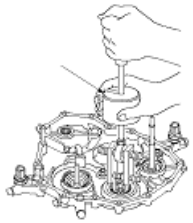
A/T Idler Gear Shaft Removal and Installation



1. Remove the snap ring (A), cotter retainer (B), and cotters (C) from the idler gear shaft (D), then remove the idler gear shaft. Do not distort the snap ring.
2. Check the snap ring and cotter retainer for wear and damage. Replace the snap ring and/or cotter retainer if the snap ring or cotter retainer is worn, distorted, or damaged.
3. Install the idler gear shaft in the idler gear shaft bearing.
4. Install the cotters and cotter retainer, and secure the idler gear shaft with the snap ring.

A/T End Cover Idler Gear Shaft Bearing Replacement

Special Tools Required



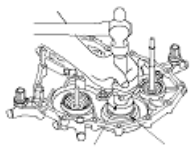
Adjustable bearing remover set
07JAC-PH80000

Driver handle 15 x 135L
07749-0010000

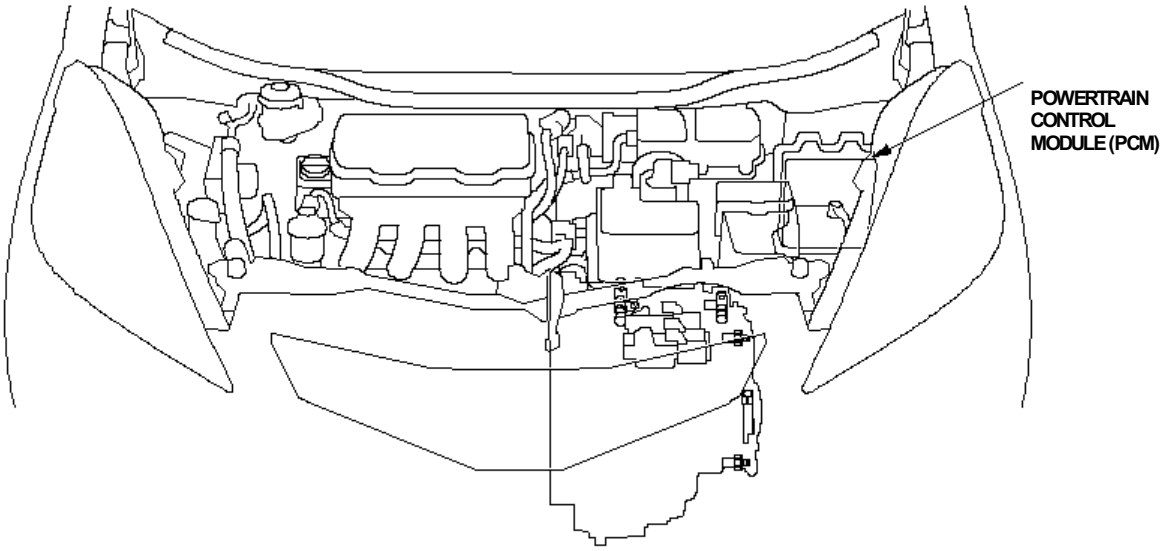
Driver attachment, 52 x 55 mm
07746-0010400

1. Remove the idler gear shaft bearing from the end cover with the special tool.

2. Install the new bearing in the end cover with the special tools.



A/T Interlock System Component Location Index



*: This illustration shows RHD model.

Test,
Replacement,

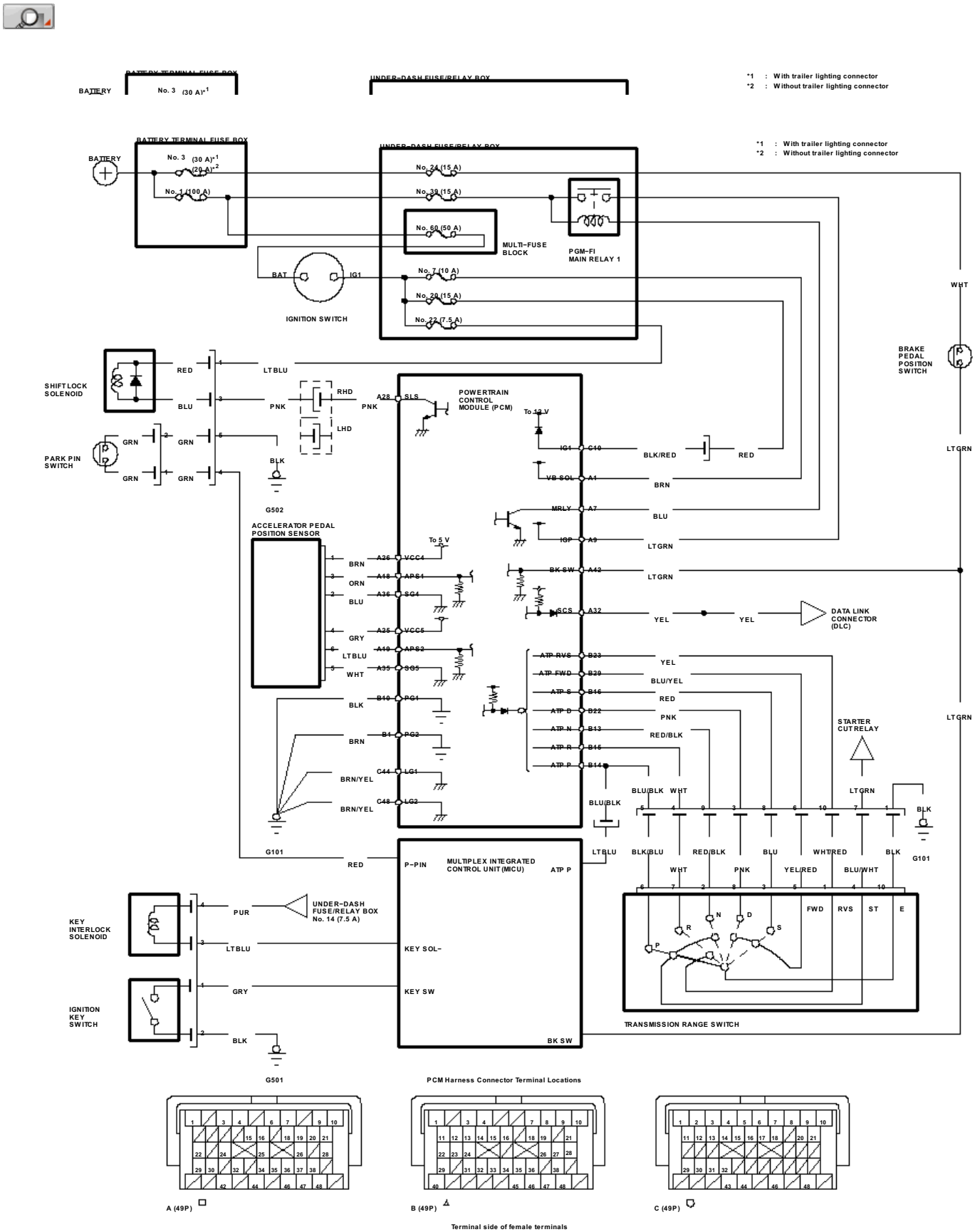
Test,
Replacement,

STEERING LOCK ASSEMBLY
KEY INTERLOCK SOLENOID
Key Interlock System Circuit
Troubleshooting,

*: This illustration shows RHD model.

A/T Interlock System Circuit Diagram

Seven-position Transmission



A/T Interlock System - Key Interlock System Circuit Troubleshooting

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.

1. Turn the ignition switch to ACCESSORY (I). The shift lever must be in P.
2. Disconnect the steering lock assembly connector.
3. Check if the ignition switch can be turned to LOCK (0).

   Can the ignition switch be turned to LOCK (0)?
   YES - Go to Step 4 .
   NO - Replace the ignition key cylinder/steering lock assembly. ■
4. Turn the ignition switch to LOCK (0).
5. Move the shift lever out of P.
6. Check for continuity between steering lock assembly connector terminal No. 3 and body ground.

   Is there continuity?
   YES - Repair short in the wire between key interlock solenoid and the MICU.■
   NO - Go to Step 7 .
7. Connect the HDS to the DLC.
8. Check the Park Pin Switch signal with the HDS in the A/T data list while the shift lever is in P, and when the shift lever is shifted to any position other than P.

   Is the park pin switch signal OFF while the shift lever is in P, and ON when the shift lever is shifted out of P?
   YES - Go to Step 15 .
   NO - Go to Step 9 .
9. Turn the ignition switch to LOCK (0).
10. Remove the center console.
11. Disconnect the park pin switch 2P connector, and remove it from the shift lever bracket base.

---

12. Check for continuity between park pin switch 2P connector terminal No. 1 and No. 2.

    Is there no continuity while the shift lever is in P, and continuity when the shift lever is shifted out of P?
    YES - Go to Step 13 .
    NO - Replace the park pin switch. ■

13. Disconnect the shift lock solenoid/park pin switch/A/T gear position indicator panel light connector.

---

14. Check for continuity between shift lock solenoid/park pin switch/A/T gear position indicator panel light connector terminal No. 4 and body ground.

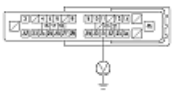
    Is there continuity?
    YES - Repair short in the wire between shift lock solenoid/park pin switch/A/T gear position indicator panel light connector terminal No. 4 and the MICU.■
    NO - There is short in the wires between shift lock solenoid/park pin switch/A/T gear position indicator panel light connector and the 2P connector. Replace the shift lock solenoid; the shift lock solenoid is combined with the park pin switch harness and the indicator panel light harness/socket, and supplied as an assembly.■

15. Turn the ignition switch to LOCK (0).
16. Disconnect under-dash fuse/relay box connector B (36P).
17. Turn the ignition switch to ON (II).

---

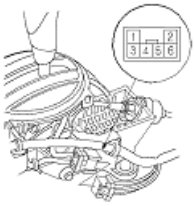
18. Measure the voltage between under-dash fuse/relay box connector B (36P) terminal No. 31 and body ground.

    Is there voltage?
    YES - Substitute a known-good MICU and recheck.■
    NO - Repair open or short in the wire between under-dash fuse/relay box connector B (36P) and the transmission range switch.■

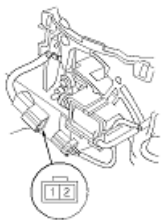


A/T Interlock System - Park Pin Switch Test

1. Connect the HDS to the DLC (A).
2. Check the Park Pin Switch signal with the HDS in the A/T data list while the shift lever is in P, and when the shift lever is shifted to any position other than P.
   NOTE: If the HDS does not communicate with the PCM, troubleshoot the DLC circuit.
3. Check that the park pin switch signal is OFF while the shift lever is in P, and signal is ON when the shift lever is shifted out of P.
4. If the park pin switch signal is OK, test is complete, disconnect the HDS. If the signal is incorrect, go to Step 5 .
5. Turn the ignition switch to LOCK (0).
6. Remove the center console.



7. Remove the shift lock solenoid/park pin switch/A/T gear position indicator panel light connector from the shift lever bracket base, then disconnect the connector.
8. Shift into P, and check for continuity between shift lock solenoid/park pin switch/A/T gear position indicator panel light connector terminals No. 4 and No. 5. Do not press the shift lever button. There should be no continuity.
9. Shift out of P, and check for continuity between connector terminals No. 4 and No. 5. There should be continuity.
10. If the park pin switch tests OK, repair open or short in the wire between the shift lock solenoid/park pin switch/A/T gear position indicator panel light connector terminal No. 4 and the MICU.
11. If the park pin switch tests incorrectly, test the park pin switch at the park pin switch 2P connector.



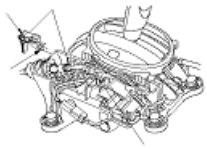
12. Disconnect the park pin switch 2P connector, and remove it from the bracket base.
13. Shift into P, and check for continuity between park pin switch 2P connector terminals No. 1 and No. 2. Do not press the shift lever button. There should be no continuity.
14. Shift out of P, and check for continuity between connector terminals No. 1 and No. 2. There should be continuity.
15. If the park pin switch tests OK at the 2P connector, there is a break or short in the wire between shift lock solenoid/park pin switch/A/T gear position indicator panel light connector and the 2P connector. Replace the shift lock solenoid; the shift lock solenoid is combined with the park pin switch harness and the indicator panel light harness/socket, and supplied as an assembly.
16. If the park pin switch fails the test, replace the park pin switch.
17. Install the center console.

A/T Interlock System - Park Pin Switch Replacement

NOTE: The park pin switch is installed in the shift lever bracket base, and not available separately from the shift lever bracket base; replace the park pin switch and the shift lever bracket base as an assembly.

1. Remove the shift lever.
2. Disassemble the shift lever.
3. Replace the park pin switch and shift lever bracket base assembly.
4. Assemble the shift lever.
5. Install the shift lever.

A/T Interlock System - Shift Lock Release and Release Spring Replacement

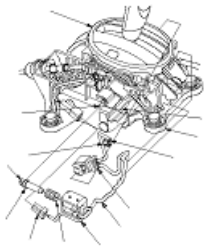


1. Remove the center console.
2. Release the lock tab retaining the A/T gear position indicator panel, and move the indicator panel up.
3. Remove the shift lock release (A) and release spring (B).
4. Apply silicone grease to the pin (C) on the shift lever bracket base, and install the shift lock release and release spring over the pin. Keep the connector terminals free of silicone grease.
5. Install the indicator panel on the shift lever bracket base.
6. Install the center console.

A/T Interlock System - Shift Lock Solenoid Test

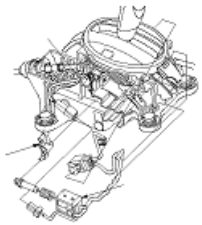
1. Connect the HDS to the DLC (A).
2. Select Shift Lock Solenoid Test in the Miscellaneous Test Menu, and check that the shift lock solenoid operates with the HDS.
   NOTE: If the HDS does not communicate with the PCM, troubleshoot the DLC circuit.
3. Make sure that the shift lever can be moved out of P when Shift Lock Solenoid: ON. Move the shift lever back in P, and make sure it locks with Shift Lock Solenoid: OFF.
4. Make sure that the shift lock releases when the shift lock release is pushed, and make sure it locks when the shift lock release is released.
5. If the shift lock solenoid does not work properly, troubleshoot shift lock system.

A/T Interlock System - Shift Lock Solenoid Replacement



1. Remove the center console.
2. Remove the A/T gear position indicator panel light socket (A) from the indicator panel (B), then remove the bulb (C) from the socket.
3. Remove the shift lock solenoid/park pin switch/A/T gear position indicator panel light connector (D) from the shift lever bracket base (E), then disconnect the connector.
4. Disconnect the park pin switch 2P connector (F).
5. Release the lock tab (G) retaining the shift lock solenoid using thin blade screwdriver, and remove the shift lock solenoid (H).
6. Replace the shift lock solenoid, solenoid plunger (I), and plunger spring (J) assembly.
7. Apply silicone grease to the tip of the shift lock stop and solenoid plunger. Keep the connector terminals free of silicone grease.
8. Install the shift lock solenoid by aligning the joint (K) of the shift lock solenoid plunger with the tip of the shift lock stop (L), then push the shift lock solenoid into the shift lever bracket base securely.
9. Install the A/T gear position indicator panel light bulb in the panel light socket, then install the socket in the A/T gear position indicator panel.
10. Route the harness (M) through the harness clamp, and connect the park pin switch 2P connector.
11. Install the shift lock solenoid/park pin switch/A/T gear position indicator panel light connector on the bracket base, and connect the connector.
12. Test the shift lock solenoid.
13. Install the center console.

A/T Interlock System - Shift Lock Stop/Shift Lock Stop Cushion Replacement



1. Remove the center console.
2. Remove the shift lock solenoid assembly (A).
3. Remove the shift lock stop/stop cushion (B), and replace them as an assembly.
4. Apply silicone grease to the pin (C) on the shift lever bracket base, and install the shift lock stop over the pin. Keep the connector terminals free of silicone grease.
5. Install the shift lock solenoid assembly.
6. Install the center console.

A/T Interlock System - Shift Lock System Circuit Troubleshooting

1. Connect the HDS to the DLC.
2. Select Shift Lock Solenoid Test in the Miscellaneous Test Menu, and check that the shift lock solenoid operates with the HDS.
   NOTE: If the HDS does not communicate with the PCM, troubleshoot the DLC circuit.

   Does the shift lock solenoid work properly?
   YES - Go to Step 3 .
   NO - Go to Step 6 .
3. Check the Brake Switch signal with the HDS in the A/T data list while pressing the brake pedal, and when the brake pedal is released.

   Does the brake pedal position switch work properly?
   YES - Go to Step 4 .
   NO - Troubleshoot the brake pedal position switch signal circuit. ■
4. Check the ATP Switch signal with the HDS in the A/T data list. The shift lever must be in P.

   Is the ATP Switch ON?
   YES - Go to Step 5 .
   NO - Go to Step 19 .
5. Check the accelerator pedal position (APP) sensor A with the HDS in the A/T data list. Do not press the accelerator.

   Is the APP sensor A opening 5 % or more, or the APP sensor A voltage 1.16 V or higher?
   YES - Check the APP Sensor. ■
   NO - Update the PCM if it does not have the latest software, or substitute a known-good PCM, and recheck. If the symptom goes away with a known-good PCM, replace the original PCM. ■
6. Turn the ignition switch to LOCK (0).
7. Remove the center console.
8. Disconnect the shift lock solenoid/park pin switch/A/T gear position indicator panel light connector.
9. Turn the ignition switch to ON (II).
10. Measure the voltage between shift lock solenoid/park pin switch/A/T gear position indicator panel light connector terminal No. 1 and body ground.

    Is there battery voltage?
    YES - Go to Step 11 .
    NO - Check for a blown No. 22 (7.5 A) fuse in the under-dash fuse/relay box. If the fuse is OK, repair open or short in the wire between the shift lock solenoid/park pin switch/A/T gear position indicator panel light connector and the under-dash fuse/relay box.■
11. Shift to P, and press the brake pedal. Do not press the accelerator.

---

12. Measure the voltage between shift lock solenoid/park pin switch/A/T gear position indicator panel light connector terminals No. 1 and No. 3 while pressing the brake pedal.

    Is there battery voltage?
    YES - Go to Step 13 .
    NO - Go to Step 15 .

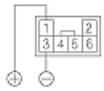
---

13. Release the brake pedal, and measure the voltage between shift lock solenoid/park pin switch/A/T gear position indicator panel light connector terminals No. 1 and No. 3. The shift lever must be in P.

    Is there battery voltage?
    YES - Repair short in the wire between PCM connector terminal A28 and the shift lock solenoid/park pin switch/A/T gear position indicator panel light connector.■
    NO - Go to Step 14 .

---

14. Connect a jumper wire from the negative battery terminal to shift lock solenoid/park pin switch/A/T gear position indicator panel light connector terminal No. 3, and connect another jumper wire from the positive battery terminal to connector terminal No. 1, then check that the shift lock solenoid operates.
NOTE: Do not connect the positive battery terminal to the connector terminal No. 3 or you will damage the diode inside the shift lock solenoid.

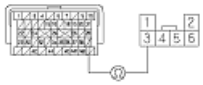


Does the shift lock solenoid operate properly?
YES - Check the shift lock mechanism. Replace the shift lock stop and stop cushion, if the shift lock stop is worn or stuck.■
NO - Replace the shift lock solenoid. ■

15. Turn the ignition switch to LOCK (0).
16. Jump the SCS line with the HDS.
17. Disconnect PCM connector A (49P).

---

18. Check for continuity between PCM connector terminal A28 and shift lock solenoid/park pin switch/A/T gear position indicator panel light connector terminal No. 3.



Is there continuity?
YES - Update the PCM if it does not have the latest software, or substitute a known-good PCM, and recheck. If the symptom goes away with a known-good PCM, replace the original PCM. ■
NO - Repair open in the wire between PCM connector terminal A28 and shift lock solenoid connector.■

19. Turn the ignition switch to LOCK (0).
20. Disconnect the transmission range switch connector.

---

21. Check for continuity between transmission range switch connector terminal No. 10 and body ground.

Is there continuity?
YES - Go to Step 22 .
NO - Repair open in the wire between transmission range switch connector terminal No. 10 and ground (G101), or repair poor ground (G101).■

22. Turn the ignition switch to ON (II).

---

23. Measure the voltage between transmission range switch connector terminals No. 6 and No. 10.

Is there battery voltage?
YES - Go to Step 24 .
NO - Repair open in the wire between PCM connector terminal B14 and the transmission range switch.■

---

24. Check for continuity between transmission range switch connector terminals No. 6 and No. 10.

Is there continuity while the shift lever is in P, and no continuity when the shift lever is shifted to any position other than P?
YES - Update the PCM if it does not have the latest software, or substitute a known-good PCM, and recheck. If the symptom goes away with a known-good PCM, replace the original PCM. ■
NO - Replace the transmission range switch. ■

A/T System Description - Lock-up System

[Lock-up System](#)
[Lock-up System (cont'd)](#)

A/T Stall Speed Test

1. Make sure the transmission fluid is filled to the proper level.
2. Apply the parking brake, and block all four wheels.
3. Connect the HDS to the DLC (A), and go to the A/T data list. If the HDS does not communicate with the PCM, troubleshoot the DLC circuit.
4. Make sure the A/C switch OFF.
5. After the engine has warmed up to normal operating temperature (the radiator fan comes on), shift to D.
6. Firmly press and hold the brake pedal then, while still holding the brake pedal, press the accelerator pedal for six to eight seconds, and note maximum engine speed. Do not move the shift lever while raising engine speed.
7. Allow 2 minutes for cooling, repeat the test for the seven-position transmission in 2, and allow 2 minutes, then repeat test in 1.
8. Allow 2 minutes for cooling, then repeat the test in R.
   NOTE:
   - Do not test stall speed for more than 10 seconds at a time.
   - Stall speed tests should be used for diagnostic purposes only.
   - The stall speed should be the same in D, 2, 1, and R.
   - Do not test stall speed with the A/T pressure gauges installed.

   Stall Speed rpm

   Specification: **2,200 rpm (min $^{-1}$)**

   Service Limit: **2,050–2,350 rpm (min $^{-1}$)**
9. If any of the stall speeds are out of the service limit, refer to the problems and probable causes listed in the table.

Seven-position Transmission

Problem	Probable Causes
Stall speed rpm high in D, 2, 1, and R	• ATF pump output low • Clogged ATF strainer • Regulator valve stuck • Slipping clutch
Stall speed rpm high in 2	Slippage of 2nd clutch
Stall speed rpm high in 1	Slippage of 1st clutch
Stall speed rpm high in R	Slippage of 5th clutch
Stall speed rpm low in D, 2, 1, and R	• Engine output low • Engine throttle valve closed • Torque converter one-way clutch slipping

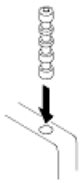
Five-position Transmission

Problem	Probable Causes
Stall speed rpm high in D and R	• ATF pump output low • Clogged ATF strainer • Regulator valve stuck • Slipping clutch
Stall speed rpm high in R	Slippage of 5th clutch
Stall speed rpm low in D and R	• Engine output low • Engine throttle valve closed • Torque converter one-way clutch slipping

A/T Valve Body Repair

NOTE: Valve body repair is only necessary if one or more of the valves in a valve body do not slide smoothly in their bores. Use this procedure to free the valves.

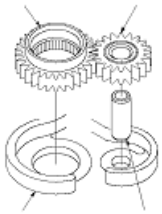
1. Soak a sheet of #600 abrasive paper in ATF for about 30 minutes.
2. Carefully tap the valve body so the sticking valve drops out of its bore. It may be necessary to use a small screwdriver to pry the valve free. Be careful not to scratch the bore with the screwdriver.
3. Inspect the valve for any scuff marks. Use the ATF-soaked #600 paper to polish off any burrs that are on the valve, then wash the valve in solvent and dry it with compressed air.
4. Roll up half of the ATF-soaked #600 paper and insert it in the valve bore of the sticking valve. Twist the paper slightly, so that it unrolls and fits the bore tightly, then polish the bore by twisting the paper as you push it in and out.
   NOTE: The valve body is aluminum and doesn't require much polishing to remove any burrs.
5. Remove the #600 paper. Thoroughly wash the entire valve body in solvent, then dry it with compressed air.



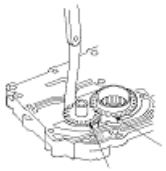
6. Coat the valve with ATF, then drop it into its bore. It should drop to the bottom of the bore under its own weight. If not, repeat steps 4 and 5, then retest. If the valve still sticks, replace the valve body.
7. Remove the valve, and thoroughly clean it and the valve body with solvent. Dry all parts with compressed air, then reassemble using ATF as a lubricant.

ATF Pump Inspection

1. Install the ATF pump drive gear (A), the driven gear (B), and the ATF pump driven gear shaft (C) in the main valve body (D). Lubricate all parts with ATF, and install the ATF pump driven gear with its grooved and chamfered side facing up.



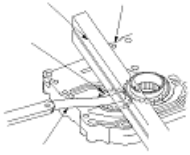
2. Measure the side clearance of the ATF pump drive gear (A) and the driven gear (B).



ATF Pump Gears Side (Radial) Clearance

Standard (New)
ATF Pump Drive Gear:
0.210−0.265 mm (0.0083−0.0104 in.)
ATF Pump Driven Gear:
0.070−0.125 mm (0.0028−0.0049 in.)

3. Remove the ATF pump driven gear shaft. Measure the thrust clearance between the ATF pump driven gear (A) and the valve body (B) with a straight edge (C) and a feeler gauge (D).

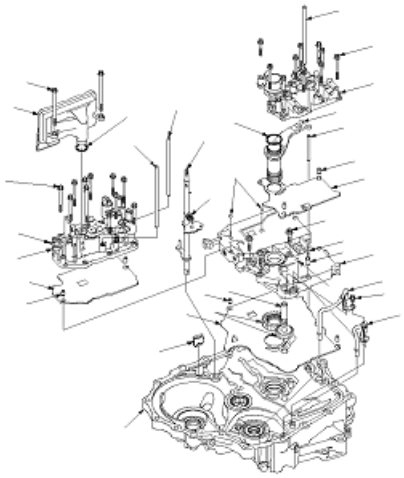


ATF Pump Drive/Driven Gear Thrust (Axial) Clearance

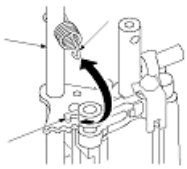
Standard (New):	**0.03−0.06 mm (0.001−0.002 in.)**
Service Limit:	**0.07 mm (0.003 in.)**

A/T Valve Body and ATF Strainer Removal

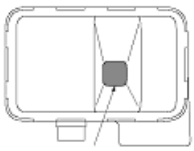
1. Remove the ATF feed pipe (A) from the regulator valve body (B).
2. Remove the ATF feed pipes (C) (D) from the servo body (E).
3. Remove the ATF strainer (F) (two bolts).



4. Unhook the detent spring (G) from the detent arm (H), and remove the control shaft (I).
5. Remove the regulator valve body (10 bolts).
6. Remove the stator shaft (J) and stator shaft stop (K), then remove the regulator separator plate (L) and two dowel pins (M).
7. Remove the servo body (11 bolts), then remove the separator plate (N) and two dowel pins (O).
8. Remove the ATF joint pipes (P) (Q).
9. Remove the cooler check valve spring (R) and cooler check valve (S), then remove the main valve body (T) (three bolts). Do not let the check balls (U) fall out.
10. Remove the ATF pump driven gear shaft (V), then remove the ATF pump gears (W).
11. Remove the main separator plate (X) and two dowel pins (Y).
12. Remove the ATF magnet (Z), clean and reinstall it in the torque converter housing (AA).
13. Remove the O-ring (BB) from the stator shaft, and remove the O-ring (CC) from the ATF strainer. Install the new ones when installing the valve bodies.

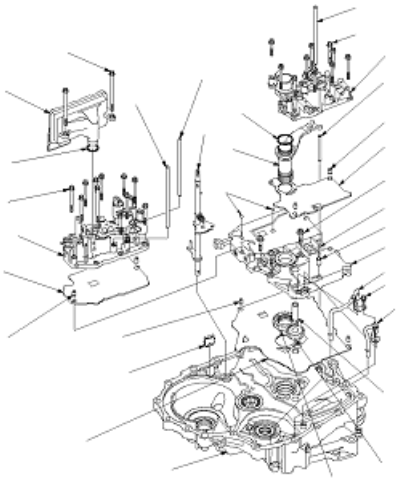


14. Clean the inlet opening (A) of the ATF strainer (B) thoroughly with compressed air, then check that it is in good condition and that the inlet opening is not clogged.
15. Test the ATF strainer by pouring clean ATF through the inlet opening, and replace it if it is clogged or damaged.

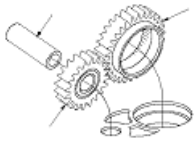


A/T Valve Body and ATF Strainer Installation

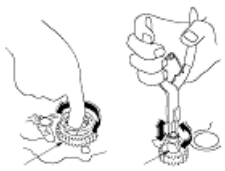
1. Make sure that the ATF magnet is cleaned and installed in the torque converter housing.
   Torque Specifications;
   6 x 1.0 mm: 12 N·m (1.2 kgf·m, 8.7 lbf·ft)
   8 x 1.25 mm: 18 N·m (1.8 kgf·m, 13 lbf·ft)
2. Install the main separator plate and two dowel pins on the torque converter housing.



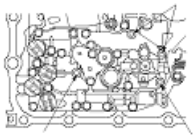
3. Install the ATF pump drive gear (A), ATF pump driven gear (B), and ATF pump driven gear shaft (C). Install the ATF pump driven gear with its grooved and chamfered side facing down.
4. Install the main valve body.



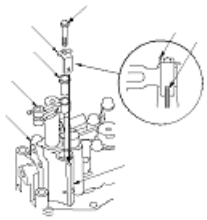
5. Make sure the ATF pump drive gear (A) rotates smoothly in the normal operating direction, and the ATF pump driven gear shaft (B) moves smoothly in the axial and normal operating direction.
6. If the ATF pump drive gear and ATF pump driven gear shaft do not move smoothly, loosen the main valve body bolts. Realign the ATF pump driven gear shaft, and retighten the bolts to the specified torque, then recheck. Failure to align the ATF pump driven gear shaft correctly will result in a seized ATF pump drive gear or ATF pump driven gear shaft.
7. Make sure that the three check balls and the cooler check valve are in the main valve body, then install the cooler check valve spring in the cooler check valve.
8. Install the ATF joint pipes between the main valve body and the torque converter housing.
9. Install the regulator separator plate and two dowel pins on the main valve body.
10. Install the new O-ring on the stator shaft, and install the stator shaft and stator shaft stop.
11. Install the regulator valve body (10 bolts).
12. Install the servo separator plate and two dowel pins on the main valve body.



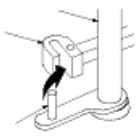
13. Install the servo body (11 bolts). Install the ATF strainer with the two bolts in the bolt holes (A) in step 17, and install the baffle plate with the two bolts in the bolt holes (B) in step 4 in shaft assembly and housing installation.



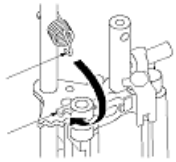
14. If the detent arm was removed, install the detent arm (A) with arm collar (B) on the servo body (C), and install the new lock washer (D) by aligning its cutout (E) with the projection (F) of the servo body. Install and tighten the bolt, then bend the lock tab (G) of the lock washer against the bolt head.



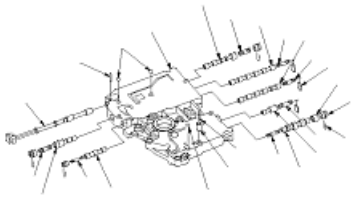
15. Install the control shaft (A) in the torque converter housing while aligning the manual valve lever pin (B) on the control shaft with the guide of the manual valve (C).



16. Hook the detent arm spring (A) to the detent arm (B).
17. Install the new O-ring on the ATF strainer, and install the ATF strainer (two bolts).
18. Install the 8 x 180.5 mm ATF feed pipe in the regulator valve body.
19. Install the 8 x 192.5 mm ATF feed pipe and 8 x 180.5 mm ATF feed pipe in the servo body.



A/T Main Valve Body Disassembly, Inspection, and Reassembly

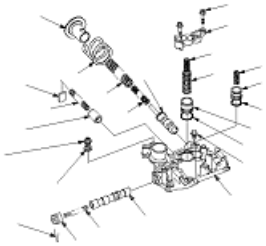


1. Clean all parts thoroughly in solvent, and dry them with compressed air. Blow out all passages.
2. Do not use a magnet to remove the check balls, it may magnetize the check balls.
3. Inspect the main valve body for scoring and damage.
4. Check all valves for free movement. If any fail to slide freely, refer to valve body repair.
5. Coat all parts with ATF during assembly.

VALVE SPRING SPECIFICATIONS

Valve Springs		Standard (New)-Unit: mm (in.)			
		Wire Diameter	O.D.	Free Length	No. of Coils
A	Cut valve B spring	0.8 (0.031)	9.9 (0.290)	27.3 (1.075)	8.0
B	Shift valve A spring	0.8 (0.031)	7.1 (0.280)	23.7 (0.933)	9.7
C	Shift valve C spring	0.8 (0.031)	7.1 (0.280)	23.7 (0.933)	9.7
D	Relief valve spring	1.0 (0.039)	9.6 (0.378)	34.1 (1.343)	10.2
E	Lock-up control valve spring	0.6 (0.024)	7.1 (0.280)	29.6 (1.165)	11.2
F	Cooler check valve spring	0.85 (0.033)	6.6 (0.260)	27.0 (1.063)	11.3
G	Shift valve D spring	0.8 (0.031)	5.6 (0.220)	28.1 (1.106)	15.9
H	Servo control valve spring	0.8 (0.031)	9.9 (0.290)	27.3 (1.075)	8.0

A/T Regulator Valve Body Disassembly, Inspection, and Reassembly

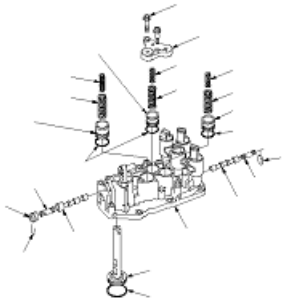


1. Clean all parts thoroughly in solvent, and dry them with compressed air. Blow out all passages except the air check valve filter.
2. Inspect the regulator valve body for scoring and damage.
3. Hold the regulator spring cap in place while removing the stop bolt. The regulator spring cap is spring loaded. Once the stop bolt is removed, release the spring cap slowly so it does not pop out.
4. Check all valves for free movement. If any fail to slide freely, refer to valve body repair.
5. Check the air check valve filter for clogging. If the filter is clogged, remove the air check valve, and clean the filter thoroughly by pouring clean ATF. Do not blow out the filter with compressed air. Replace the air check valve, if the filter or the check valve (ball) is clogged or damaged.
6. Coat all parts with ATF during assembly.
7. Align the hole in the regulator spring cap with the stop bolt hole, then press the spring cap into the valve body, and tighten the stop bolt.

VALVE SPRING SPECIFICATIONS

Valve Springs		Standard (New)-Unit: mm (in.)			
		Wire Diameter	O.D.	Free Length	No. of Coils
A	Stator reaction spring	4.5 (0.177)	35.4 (1.394)	30.3 (1.193)	1.92
B	Regulator valve spring A	1.9 (0.075)	14.7 (0.579)	80.6 (3.173)	16.1
C	Regulator valve spring B	1.6 (0.063)	9.2 (0.362)	44.0 (1.732)	12.5
D	Torque converter check valve spring	1.2 (0.047)	8.6 (0.339)	33.8 (1.331)	12.2
E	Lock-up shift valve spring	1.0 (0.039)	6.6 (0.260)	35.5 (1.398)	18.2
F	1st accumulator spring B	2.4 (0.094)	12.2 (0.480)	35.0 (1.378)	7.7
G	1st accumulator spring A	2.4 (0.094)	18.6 (0.732)	50.1 (1.972)	6.7
H	4th accumulator spring	2.5 (0.098)	14.6 (0.575)	29.9 (1.177)	4.9

A/T Servo Body Disassembly, Inspection, and Reassembly



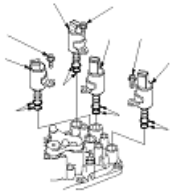
1. Clean all parts thoroughly in solvent, and dry them with compressed air. Blow out all passages.
2. Inspect the servo body for scoring and damage.
3. Check all valves for free movement. If any fail to slide freely, refer to valve body repair.
4. Coat all parts with ATF during assembly.

VALVE SPRINGS SPECIFICATIONS

Valve Springs		Standard (New)-Unit: mm (in.)			
		Wire Diameter	O.D.	Free Length	No. of Coils
A	Cut valve A spring	0.9 (0.035)	9.9 (0.390)	22.3 (0.878)	6.9
B	Shift valve B spring	0.8 (0.031)	7.1 (0.280)	23.7 (0.933)	9.7
C	5th accumulator spring A	2.5 (0.098)	16.6 (0.654)	46.9 (1.846)	7.8
D	5th accumulator spring B	1.9 (0.075)	10.0 (0.394)	38.5 (1.516)	10.6
E	2nd accumulator spring A	1.8 (0.071)	14.6 (0.575)	43.8 (1.724)	7.9
F	2nd accumulator spring B	1.85 (0.073)	9.4 (0.370)	32.5 (1.280)	8.7
G	3rd accumulator spring A	1.8 (0.071)	14.6 (0.575)	43.8 (1.724)	7.9
H	3rd accumulator spring B	1.85 (0.073)	9.4 (0.370)	32.5 (1.280)	8.7

A/T Valve Body Shift Solenoid Valve Removal and Installation

NOTE: Do not hold the solenoid valve connector to remove and install the solenoid valve. Be sure to hold the solenoid valve body.

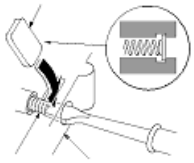


1. Remove the mounting bolts, then remove the solenoid valves by holding the solenoid valve body.
2. Install the new O-rings (E) on each solenoid valve.
   NOTE: A new solenoid valve comes with new O-rings. If you install a new solenoid valve, use the O-rings provided with it.
3. Install shift solenoid valve D (black connector) by holding the shift solenoid valve body; be sure the mounting bracket contacts to the servo body.
4. Install shift solenoid valve C (brown connector) by holding the shift solenoid valve body; be sure the mounting bracket contacts to the servo body.
5. Install shift solenoid valve B (black connector) by holding the shift solenoid valve body; be sure the mounting bracket contacts to the servo body.
6. Install shift solenoid valve A (brown connector) by holding the shift solenoid valve body; be sure the mounting bracket contacts to the bracket of shift solenoid valve B.
   NOTE: Do not install shift solenoid valve A before installing shift solenoid valve B. If shift solenoid valve A is installed before installing shift solenoid valve B, it may damage the hydraulic control system.

A/T Valve Body Valve Installation

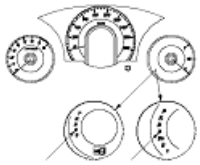
1. Coat all parts with ATF before assembly.
2. Install the valves and springs in the sequence shown for the main valve body, the regulator valve body, and the servo body. Refer to the following valve cap illustrations, and install each valve cap so the end shown facing up will be facing the outside of the valve body, then secure the valve cap with the valve cap clip.

3. Install the valve and the valve spring (A) in the valve body (B). Push the valve spring in with a screwdriver, then install the spring seat (C).

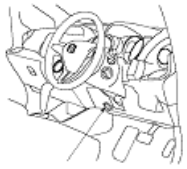


How to Troubleshoot the A/T System

How to Check for DTCs with the Honda Diagnostic System (HDS)



When the powertrain control module (PCM) senses an abnormality in the input or output system, the D indicator (A) in the gauge assembly (B) will usually blink.



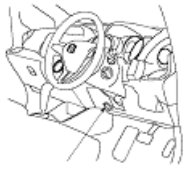
When the Honda Diagnostic System (HDS) is connected to the data link connector (DLC) (A) (located under the driver's dashboard lower cover), it will indicate the diagnostic trouble code (DTC) when the ignition switch is turned to ON (II) and the appropriate menu is selected.
If the D indicator or malfunction indicator lamp (MIL) has been reported on, or if a driveability problem is suspected, follow this procedure:

1. Connect the HDS to the DLC. (See the HDS user's manual for specific instructions.)
2. Turn the ignition switch to ON (II), select A/T system, and observe the DTC in the DTCs MENU on the HDS screen.
   If the HDS does not communicate with the PCM, go to the DLC circuit troubleshooting.
3. Record the freeze data and the on-board snapshots for all fuel and emissions DTCs and A/T DTCs.
4. If there is a fuel and emissions DTC, first check the fuel and emissions system as indicated by the DTC.
5. Clear the DTC and data.
6. Drive the vehicle for several minutes under the same conditions as those indicated by the freeze data, and then recheck for a DTC. If the A/T DTC returns, go to the indicated DTC's troubleshooting. If the DTC does not return, there was an intermittent problem within the circuit. Make sure all pins and terminals in the circuit are tight.

Symptom Troubleshooting Versus DTC Troubleshooting

Some symptoms will not trigger DTCs or cause the D indicator to blink. If the malfunction indicator lamp (MIL) was reported ON or the D indicator has been blinking, check for DTCs. If the vehicle has an abnormal symptom, and there are no DTCs stored, do the symptom troubleshooting. Check the list of probable cause(s) for the symptom, in the sequence listed, until you find the problem.

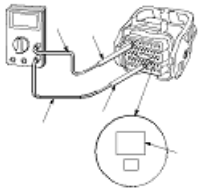
How to Troubleshoot Circuits at the PCM Connectors



NOTE: Monitoring the powertrain control system throughout the vehicle, the PCM stays on up to 60 minutes after the ignition switch is turned to LOCK (0). Jumping the SCS line after turning the ignition switch to LOCK (0) cancels this function. Disconnecting the PCM during this function, without jumping the SCS line first, can damage the PCM.

1. Connect the HDS to the DLC (A), and jump the SCS line with the HDS.
   NOTE: If the HDS does not communicate with the PCM, troubleshoot the DLC circuit.

2. Disconnect PCM connectors A, B, and C.



3. Connect one side of the patch cord (A) terminal to a digital multimeter (B), and connect the other side of the patch cord terminals to a commercially available banana jack (Pomona Electronics Tool No. 3563 or equivalent) (C).
4. Gently slide the pin probe into the inspection port (D) at the connector terminal side. Always use the inspection port. Do not slide the probe into the connector terminals.

   NOTICE

   - For accurate result, always use the pin probe (male).
   - To prevent damage to the connector terminals, do not insert test equipment probes, paper clips, or other substitutes as they can damage the terminals. Damaged terminals cause a poor connection and an incorrect measurement.
   - Do not puncture the insulation on a wire. Punctures can cause poor or intermittent electrical connections.

How to Clear A/T DTCs

1. Connect the HDS to the DLC (A).
2. Turn the ignition switch to ON (II).
3. Clear the DTC(s) with the HDS.
   NOTE: If the HDS does not communicate with the PCM, troubleshoot the DLC circuit.

OBD Status

The OBD status shows the current system status of each DTC and all of the parameters. This function is used to see if the technician's repair was successfully finished. The results of diagnostic tests for the DTC are displayed as:

- PASSED: On board diagnosis is successfully finished.
- FAILED: On board diagnosis has finished but failed.
- NOT COMPLETED: The on board diagnosis was running but is out of the enable conditions of the DTC.

How to End a Troubleshooting Session (required after any troubleshooting)

1. Reset the PCM with the HDS while the engine is stopped.
2. Turn the ignition switch to LOCK (0).
3. Turn the ignition switch to ON (II), and wait for 30 seconds.
4. Turn the ignition switch to LOCK (0), and disconnect the HDS from the DLC.
5. Do the PCM idle learn procedure.
6. Start the engine in P or N, and warm it up to normal operating temperature (the radiator fan comes on).
7. To verify that the problem is repaired, test-drive the vehicle for several minutes at speeds over 50 km/h (30 mph) or under the same conditions as those indicated by the freeze data.

Updating the A/T software in the PCM

Refer to the PCM Update when the A/T software updating is needed in the DTC troubleshooting.

Replacing the PCM

Refer to the PCM Replacement when replacing the PCM is needed in the DTC troubleshooting.

How to Substitute the PCM

1. Turn the ignition switch to LOCK (0).
2. Connect the HDS to the DLC (A).
3. Turn the ignition switch to ON (II), and make sure the HDS communicates with the PCM. If it doesn't, go to the DLC circuit troubleshooting.
4. Turn the ignition switch to LOCK (0).
5. Do the battery removal procedure.

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6. Remove the PCM cover (A).

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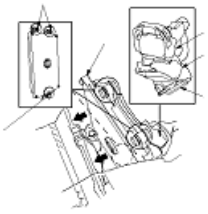
7. Remove the mounting bolts (A) from the PCM (B).
8. Disconnect PCM connectors A (C), B (D), and C (E), and remove the PCM.
9. Install a known-good PCM in the reverse order of removal.
10. Do the battery installation procedure.
11. Open the SCS line with the HDS.
12. Turn the ignition switch to ON (II).
    NOTE: If DTC P0630 ‘‘VIN not Programmed or Mismatch" will be stored because the VIN has not been programmed into the PCM; ignore it, and continue this procedure.
13. Manually input the VIN to the PCM with the HDS.
14. Select the IMMOBI SYSTEM with the HDS.
15. Enter the immobilizer code using the PCM replacement procedure in the HDS; this allows you to start the engine.
16. Reset the PCM with the HDS.
17. Update the PCM if it does not have the latest software.
18. Do the CKP learn procedure.
19. Do the PCM idle learn procedure.



DTC Troubleshooting: P0705 (5)

DTC P0705:
Transmission Range Switch (Multiple Shift-position Input)
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Start the engine.
3. With the brake pedal pressed, move the shift lever through all positions. Stop for at least 1 second in each position, and monitor the OBD status for P0705 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Check for an intermittent short in the wire between the transmission range switch and the PCM. If the HDS indicates NOT COMPLETED, return to Step 2 and recheck.■
4. Turn the ignition switch to LOCK (0).
5. Disconnect the transmission range switch connector.
6. Turn the ignition switch to ON (II).
7. Check the A/T P Switch, A/T R Switch, A/T N Switch, A/T D Switch, A/T D3 Switch, A/T 2-1 Switch, A/T S Switch, Forward Switch (ATP FWD), and Reverse Switch (ATP RVS) inputs with the HDS in the A/T data list.

   Are there any ON-inputs?
   YES - Repair short in the ON-input circuit:

   - A/T P Switch circuit: between PCM connector terminal B14 and transmission range switch connector terminal No. 6.
   - A/T R Switch circuit: between PCM connector terminal B15 and transmission range switch connector terminal No. 7.
   - A/T N Switch circuit: between PCM connector terminal B13 and transmission range switch connector terminal No. 2.
   - A/T D Switch circuit: between PCM connector terminal B22 and transmission range switch connector terminal No. 8.
   - A/T D3 Switch circuit (seven-position transmission): between PCM connector terminal B16 and transmission range switch connector terminal No. 3.
   - A/T S Switch circuit (five-position transmission): between PCM connector terminal B16 and transmission range switch connector terminal No. 3.
   - A/T 2-1 Switch circuit (seven-position transmission): between PCM connector terminal B17 and transmission range switch connector terminal No. 9.
   - Forward Switch (ATP FWD) circuit: between PCM connector terminal B29 and transmission range switch connector terminal No. 5.
   - Reverse Switch (ATP RVS) circuit: between PCM connector terminal B23 and transmission range switch connector terminal No. 1.

   Go to Step 15 after repairing the circuit.
   NO - Go to Step 8 .
8. Turn the ignition switch to LOCK (0).
9. Inspect the transmission range switch.

   Is the test result OK?
   YES - Connect the transmission range switch connector, then go to Step 10 .
   NO - Replace the transmission range switch, then go to Step 15 .
10. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.
11. Start the engine.
12. With the brake pedal pressed, move the shift lever through all positions. Stop for at least 1 second in each position.
13. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0705 indicated?
    YES - Check for poor connections and loose terminals at the transmission range switch and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .
    NO - Go to Step 14 .
14. Monitor the OBD status for P0705 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the HDS indicate PASSED?

YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 13 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at the transmission range switch and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 11 and recheck.

15. Clear the DTC with the HDS.
16. Start the engine.
17. With the brake pedal pressed, move the shift lever through all positions. Stop for at least 1 second in each position.
18. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0705 indicated?

YES - Check for poor connections and loose terminals at the transmission range switch and the PCM, then return to Step 16 and recheck.

NO - Go to Step 19 .

19. Monitor the OBD status for P0705 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - Troubleshooting is complete. If any other DTCs were indicated on Step 18 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at the transmission range switch and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 16 and recheck.

DTC Troubleshooting: P0706 (6)

DTC P0706:
Transmission Range Switch (Open)
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Turn the ignition switch to LOCK (0).
3. Raise the front of the vehicle, make sure it is securely supported, and allow the front wheels to rotate freely. Or raise the vehicle on a lift.
4. Start the engine. Run the engine in D until the vehicle speed reaches 40 km/h (25 mph), then slow down, and stop the wheels.
5. Monitor the OBD status for P0706 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to Step 4 and recheck.■
6. Turn the ignition switch to LOCK (0).
7. Inspect the transmission range switch.

   Is the test result OK?
   YES - Connect the transmission range switch connector, then go to Step 8 .
   NO - Replace the transmission range switch, then go to Step 38 .
8. Check the control wire adjustment.
9. Clear the DTC with the HDS.
10. Turn the ignition switch to LOCK (0).
11. Start the engine. Run the engine in D until the vehicle speed reaches 40 km/h (25 mph), then slow down, and stop the wheels.
12. Monitor the OBD status for P0706 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the HDS indicate FAILED?
    YES - Go to Step 13 .
    NO - Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to Step 11 and recheck.■
13. Shift to D, and verify the A/T D Switch and Forward Switch (ATP FWD) inputs with the HDS in the A/T data list.

    Are A/T D Switch and Forward Switch (ATP FWD) ON?
    YES -
    - Seven-position transmission: Go to Step 14 .
    - Five-position transmission: Go to Step 16 .

    NO - Go to Step 22 .
14. Shift to D3, and verify the A/T D3 Switch and Forward Switch (ATP FWD) inputs with the HDS in the A/T data list.

    Are A/T D3 Switch and Forward Switch (ATP FWD) ON?
    YES - Go to Step 15 .
    NO - Go to Step 22 .
15. Shift to 2, and verify the A/T 2-1 Switch and Forward Switch (ATP FWD) inputs with the HDS in the A/T data list.

    Are A/T 2-1 Switch and Forward Switch (ATP FWD) ON?
    YES - Go to Step 17 .
    NO - Go to Step 22 .
16. Shift to S, and verify the A/T S Switch and Forward Switch (ATP FWD) with the HDS in the A/T data list.

    Are A/T S Switch and Forward Switch (ATP FWD) ON?
    YES - Go to Step 17 .
    NO - Go to Step 22 .
17. Clear the DTC with the HDS.
18. Turn the ignition switch to LOCK (0).
19. Raise the front of the vehicle, make sure it is securely supported, and allow the front wheels to rotate freely. Or raise the vehicle on a lift.

20. Start the engine. Run the engine in D until the vehicle speed reaches 40 km/h (25 mph), then slow down, and stop the wheels.
21. Monitor the OBD status for P0706 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

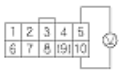
    Does the HDS indicate FAILED?
    YES - Go to Step 22 .
    NO - Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to Step 20 and recheck.
22. Turn the ignition switch to LOCK (0).
23. Disconnect the transmission range switch connector.
24. Check for continuity between transmission range switch connector terminal No. 10 and body ground.

    Is there continuity?
    YES - Go to Step 25 .
    NO - Repair open in the wire between the transmission range switch and ground (G101), or repair poor ground (G101), then go to Step 37 .
25. Turn the ignition switch to ON (II).

---

26. Measure the voltage between transmission range switch connector terminals No. 5 and No. 10.

    Is there voltage?
    YES - Go to Step 27 .
    NO - Repair open in the wire between the transmission range switch and PCM connector terminal B29, then go to Step 37 .



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27. Measure the voltage between transmission range switch connector terminals No. 8 and No. 10.

    Is there voltage?
    YES -
    - Seven-position transmission: Go to Step 28 .
    - Five-position transmission: Go to Step 30 .

    NO - Repair open in the wire between the transmission range switch and PCM connector terminal B22, then go to Step 37 .

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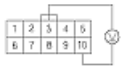
28. Measure the voltage between transmission range switch connector terminals No. 3 and No. 10.

    Is there voltage?
    YES - Go to Step 29 .
    NO - Repair open in the wire between the transmission range switch and PCM connector terminal B16, then go to Step 37 .



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29. Measure the voltage between transmission range switch connector terminals No. 9 and No. 10.

    Is there voltage?
    YES - Go to Step 31 .
    NO - Repair open in the wire between the transmission range switch and PCM connector terminal B17, then go to Step 37 .

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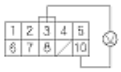
30. Measure the voltage between transmission range switch connector terminals No. 3 and No. 10.



Is there voltage?
YES - Go to Step 31 .
NO - Repair open in the wire between the transmission range switch and PCM connector terminal B16, then go to Step 37 .

31. Connect the transmission range switch connector.

32. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

33. Raise the front of the vehicle, make sure it is securely supported, and allow the front wheels to rotate freely. Or raise the vehicle on a lift.

34. Start the engine, and run it in D until the vehicle speed reaches 48 km/h (30 mph). Slow down and stop the wheels.

35. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0706 indicated?
YES - Check for poor connections and loose terminals at the transmission range switch and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .
NO - Go to Step 36 .

36. Monitor the OBD status for P0706 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?
YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 35 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at the transmission range switch and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 34 and recheck.

37. Connect the transmission range switch connector.

38. Clear the DTC with the HDS.

39. Raise the front of the vehicle, make sure it is securely supported, and allow the front wheels to rotate freely. Or raise the vehicle on a lift.

40. Start the engine, and run it in D until the vehicle speed reaches 48 km/h (30 mph). Slow down and stop the wheels.

41. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0706 indicated?
YES - Check for poor connections and loose terminals at the transmission range switch and the PCM, then go to Step 1 .
NO - Go to Step 42 .

42. Monitor the OBD status for P0706 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?
YES - Troubleshooting is complete. If any other DTCs were indicated on Step 41 , go to the indicated DTC's troubleshooting.■
NO - Check for poor connections and loose terminals at the transmission range switch and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 40 and recheck.

DTC Troubleshooting: P0711 (28)

DTC P0711:
ATF Temperature Sensor (Range/Performance)
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch to ON (II), and wait for 20 seconds.
2. Check the ATF temperature with the HDS in the A/T data list.

   Does the ATF temperature exceed the ambient air temperature?
   YES - Record the ATF temperature. Leave the engine off for at least 30 minutes, and go to Step 3 .
   NO - Record the ATF temperature. Test the stall speed RPM three times. Go to Step 3 after stall speed testing.
3. Check the ATF temperature with the HDS.

   Does the ATF temperature change?
   YES - Leave the engine off for at least 30 minutes, and go to Step 4 .
   NO - Replace the ATF temperature sensor, then go to Step 13 .
4. Check the ECT SENSOR with the HDS.

   Is the ECT SENSOR equal to the ambient air temperature?
   YES - Go to Step 5 .
   NO - Leave the engine off until the ECT SENSOR reads the same as ambient air temperature, then go to Step 5 .
5. Check the ATF TEMP SENSOR with the HDS.

   Does the ATF temperature read about the same as the ECT SENSOR?
   YES - Check for poor connections and loose terminals at the ATF temperature sensor and the PCM. If the connection is OK, go to Step 6 .
   NO - Replace the ATF temperature sensor, then go to Step 13 .
6. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.
7. Turn the ignition switch to ON (II), and wait for 20 seconds, then start the engine. Warm the engine up to normal operating temperature (the radiator fan comes on).
8. Turn the engine off, and leave it off until the engine coolant cools to the ambient air temperature (the ECT SENSOR reads the same as the ambient air temperature).
9. Raise the front of the vehicle, make sure it is securely supported, and allow the front wheels to rotate freely. Or raise the vehicle on a lift.
10. Turn the ignition switch to ON (II), and wait for 20 seconds, then start the engine. Warm the engine up to normal operating temperature (the radiator fan comes on). Start off in D, accelerate with the throttle opened at least 4 degrees, and run the vehicle at speeds over 30 km/h (19 mph) for at least 5 minutes. Or test-drive the vehicle in D for at least 20 seconds while the ATF temperature reads −10 °C to 110 °C (14 °F to 230 °F) by monitoring with the HDS. Slow down and stop the wheels.
11. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0711 indicated?
    YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .
    NO - Go to Step 12 .
12. Monitor the OBD status for P0711 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the HDS indicate PASSED?
    YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 11 , go to the indicated DTC's troubleshooting.■
    NO - Check for poor connections and loose terminals at the ATF temperature sensor and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, go to Step 7 and recheck.
13. Clear the DTC with the HDS.
14. Turn the ignition switch to ON (II), and wait for 20 seconds, then start the engine. Warm the engine up to normal operating temperature (the radiator fan comes on).
15. Turn the engine off, and leave it off until the engine coolant cools to the ambient air temperature (the ECT SENSOR reads the same as the ambient air temperature).
16. Raise the front of the vehicle, make sure it is securely supported, and allow the front wheels to rotate freely. Or

raise the vehicle on a lift.

17. Turn the ignition switch to ON (II), and wait for 20 seconds, then start the engine. Warm the engine up to normal operating temperature (the radiator fan comes on). Start off in D, accelerate with the throttle opened at least 4 degrees, and run the vehicle at speeds over 30 km/h (19 mph) for at least 5 minutes. Or test-drive the vehicle in D for at least 20 seconds while the ATF temperature reads −10 °C to 110 °C (14 °F to 230 °F) by monitoring with the HDS. Slow down and stop the wheels.

18. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0711 indicated?

    YES - Check for poor connections and loose terminals at the ATF temperature sensor and the PCM, then go to Step 1 .

    NO - Go to Step 19 .

19. Monitor the OBD status for P0711 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the HDS indicate PASSED?

    YES - Troubleshooting is complete. If any other DTCs were indicated on Step 18 , go to the indicated DTC's troubleshooting.■

    NO - Check for poor connections and loose terminals at the ATF temperature sensor and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 14 and recheck.

DTC Troubleshooting: P0712 (28)

DTC P0712:
ATF Temperature Sensor (Short)
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Check the ATF temperature sensor voltage with the HDS in the A/T data list.

   Is the ATF Temp Sensor (V) 0.07 V or less?
   YES - Go to Step 2 .
   NO - Intermittent failure, the system is OK at this time. Check for an intermittent short in the ATFT wire between the ATF temperature sensor and the PCM.■

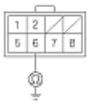
2. Turn the ignition switch to LOCK (0).
3. Disconnect the shift solenoid harness connector at the shift solenoid valve cover.
4. Turn the ignition switch to ON (II).
5. Check the ATF temperature sensor voltage with the HDS.

   Is the ATF Temp Sensor (V) 0.07 V or less?
   YES - Go to Step 6 .
   NO - Replace the ATF temperature sensor, then go to Step 16 .

6. Turn the ignition switch to LOCK (0).
7. Jump the SCS line with the HDS.
8. Disconnect PCM connector B (49P).
9. Check for continuity between shift solenoid harness connector terminal No. 6 and body ground.

   Is there continuity?
   YES - Repair short in the wire between PCM connector terminal B28 and shift solenoid harness connector terminal No. 6, then go to Step 16 .
   NO - Go to Step 10 .

10. Check for continuity between shift solenoid harness connector terminal No. 6 and body ground.



Is there continuity?
YES - Replace the ATF temperature sensor, then go to Step 16 .
NO - Go to Step 11 .

11. Reconnect all connectors.

12. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

13. Start the engine in P, and wait for at least 20 seconds.

14. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0712 indicated?
YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .
NO - Go to Step 15 .

15. Monitor the OBD status for P0712 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?
YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 14 , go to the indicated DTC's troubleshooting.■
NO - Check for an intermittent short in the wire between the ATF temperature sensor and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, go to Step 13 and recheck.

16. Reconnect all connectors.

17. Clear the DTC with the HDS.

18. Start the engine in P, and wait for at least 20 seconds.

19. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0712 indicated?
YES - Check for an intermittent short in the wire between the ATF temperature sensor and the PCM, then go to Step 1 .
NO - Go to Step 20 .

20. Monitor the OBD status for P0712 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?
YES - Troubleshooting is complete. If any other DTCs were indicated on Step 19 , go to the indicated DTC's troubleshooting.■
NO - Check for an intermittent short in the wire between the ATF temperature sensor and the PCM. If the HDS indicates NOT COMPLETED, return to Step 18 and recheck.

DTC Troubleshooting: P0713 (28)

DTC P0713:
ATF Temperature Sensor (Open)
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Check the ATF temperature sensor voltage with the HDS in the A/T data list.

   Does the ATF Temp Sensor (V) exceed 4.93 V?
   YES - Go to Step 2 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ATF temperature sensor and the PCM.■

2. Turn the ignition switch to LOCK (0).
3. Disconnect the shift solenoid harness connector at the shift solenoid valve cover.
4. Turn the ignition switch to ON (II).
5. Measure the voltage between shift solenoid harness connector terminal No. 6 and body ground.

   Is there about 5 V?
   YES - Go to Step 6 .
   NO - Go to Step 7 .

---

6. Measure the voltage between shift solenoid harness connector terminals No. 6 and No. 7.

   Is there about 5 V?
   YES - Replace the ATF temperature sensor, then go to Step 17 .
   NO - Repair open in the wire between PCM connector terminal B34 and the shift solenoid harness connector, then go to Step 17 .

7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect PCM connector B (49P).

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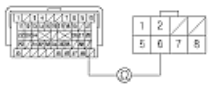
10. Check for continuity between PCM connector terminal B28 and shift solenoid harness connector terminal No. 6.



Is there continuity?
YES - Go to Step 11 .
NO - Repair open in the wire between PCM connector terminal B28 and the shift solenoid harness connector, then go to Step 16 .

11. Reconnect all connectors.

12. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

13. Start the engine in P, and wait for at least 20 seconds.

14. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0713 indicated?
YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .
NO - Go to Step 15 .

15. Monitor the OBD status for P0713 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?
YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 14 , go to the indicated DTC's troubleshooting.■
NO - Check for poor connections and loose terminals at the ATF temperature sensor and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 13 and recheck.

16. Connect PCM connector B (49P).

17. Connect the ATF temperature sensor connector.

18. Clear the DTC with the HDS.

19. Start the engine in P, and wait for at least 20 seconds.

20. Check for Temporary DTCs or DTCs with the HDS.

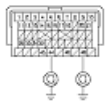
Is DTC P0713 indicated?
YES - Check for poor connections and loose terminals at the ATF temperature sensor and the PCM, then go to Step 1 .
NO - Go to Step 21 .

21. Monitor the OBD status for P0713 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?
YES - Troubleshooting is complete. If any other DTCs were indicated on Step 20 , go to the indicated DTC's troubleshooting.■
NO - Check for poor connections and loose terminals at the ATF temperature sensor and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 19 and recheck.

DTC Troubleshooting: P0716 (15), P0717 (15)

DTC P0716:
Input Shaft (Mainshaft) Speed Sensor (Range/Performance)
DTC P0717:
Input Shaft (Mainshaft) Speed Sensor (No Signal Input)
NOTE:



- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Check for proper input shaft (mainshaft) speed sensor installation. If the sensor is installed improperly, correct the problem, then go to Step 40 .
3. Raise the front of the vehicle, make sure it is securely supported, and allow the front wheels to rotate freely. Or raise the vehicle on a lift.
4. Start the engine, and run the vehicle in D at speeds over 20 km/h (12 mph) for at least 10 seconds. Slow down and stop the wheels.
5. Monitor the OBD status for P0716 or P0717 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections at the PCM and input shaft (mainshaft) speed sensor connectors. If the HDS indicates NOT COMPLETED, return to Step 4 and recheck.
6. Turn the ignition switch to LOCK (0).
7. Jump the SCS line with the HDS.
8. Disconnect PCM connector C (49P).
9. Check for continuity between PCM connector terminals C44 and body ground, and between C48 and body ground.

   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wires between PCM connector terminals C44, C48 and ground (G101), or repair poor ground (G101), then go to Step 39 .
10. Connect PCM connector C (49P).
11. Disconnect the input shaft (mainshaft) speed sensor connector.
12. Turn the ignition switch to ON (II).

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13. Measure the voltage between input shaft (mainshaft) speed sensor connector terminal No. 1 and body ground.

    Is there about 5 V?
    YES - Go to Step 18 .
    NO - Go to Step 14 .

14. Turn the ignition switch to LOCK (0).
15. Jump the SCS line with the HDS.
16. Disconnect PCM connector B (49P).

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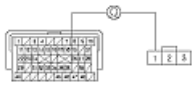
17. Check for continuity between PCM connector terminal B19 and input shaft (mainshaft) speed sensor connector terminal No. 1.

    Is there continuity?
    YES - Go to Step 34 .
    NO - Repair open in the wire between PCM connector terminal B19 and the input shaft (mainshaft) speed sensor, then go to Step 39 .



18. Turn the ignition switch to LOCK (0).
19. Jump the SCS line with the HDS.
20. Disconnect PCM connector B (49P).

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21. Check for continuity between input shaft (mainshaft) speed sensor connector terminal No. 2 and body ground.

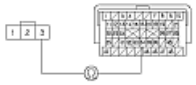
Is there continuity?

YES - Repair short in the wire between PCM connector terminal B18 and the input shaft (mainshaft) speed sensor connector, then go to Step 39 .

NO - Go to Step 22 .

---

22. Check for continuity between PCM connector terminal B34 and input shaft (mainshaft) speed sensor connector terminal No. 3.



Is there continuity?

YES - Go to Step 23 .

NO - Repair open in the wire between PCM connector terminal B34 and the input shaft (mainshaft) speed sensor connector, then go to Step 39 .

23. Connect PCM connector B (49P).

24. Turn the ignition switch to ON (II).

---

25. Measure the voltage between input shaft (mainshaft) speed sensor connector terminals No. 2 and No. 3.

Is there about 5 V?

YES - Go to Step 26 .

NO - Go to Step 30 .

26. Connect the input shaft (mainshaft) speed sensor connector.

27. Clear the DTC with the HDS.

28. Start the engine, and run the vehicle in D at speeds over 20 km/h (12 mph) for at least 10 seconds. Slow down and stop the wheels.

29. Monitor the OBD status for P0716 or P0717 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES - Replace the input shaft (mainshaft) speed sensor, then go to Step 40 .

NO - Go to Step 35 .

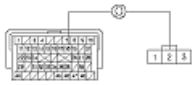
30. Turn the ignition switch to LOCK (0).

31. Jump the SCS line with the HDS.

32. Disconnect PCM connector B (49P).

---

33. Check for continuity between PCM connector terminal B18 and input shaft (mainshaft) speed sensor connector terminal No. 2.



Is there continuity?

YES - Go to Step 34 .

NO - Repair open in the wire between PCM connector terminal B18 and the input shaft (mainshaft) speed sensor, then go to Step 39 .

34. Reconnect all connectors.

35. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

36. Start the engine, and run the vehicle in D at speeds over 20 km/h (12 mph) for at least 10 seconds. Slow down and stop the wheels.

37. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0716 or P0717 indicated?

YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .

NO - Go to Step 38 .

38. Monitor the OBD status for P0716 or P0717 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 37 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 36 and recheck.

39. Reconnect all connectors.

40. Clear the DTC with the HDS.

41. Start the engine, and run the vehicle in D at speeds over 20 km/h (12 mph) for at least 10 seconds. Slow down and stop the wheels.

42. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0716 or P0717 indicated?

YES - Check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor and the PCM, then go to Step 1 .

NO - Go to Step 43 .

43. Monitor the OBD status for P0716 or P0717 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

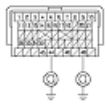
Does the HDS indicate PASSED?

YES - Troubleshooting is complete. If any other DTCs were indicated on Step 42 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, go to Step 41 and recheck.

DTC Troubleshooting: P0718 (15)

DTC P0718:
Input Shaft (Mainshaft) Speed Sensor (Intermittent Failure)
NOTE:



- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Test-drive the vehicle with the shift lever in D, and let the transmission shift through all five gears at speeds over 20 km/h (12 mph). Slow down and stop the wheels.
3. Monitor the OBD status for P0718 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the input shaft (mainshaft) speed sensor and the PCM. If the HDS indicates NOT COMPLETED, return to Step 2 and recheck.
4. Turn the ignition switch to LOCK (0).
5. Disconnect the input shaft (mainshaft) speed sensor connector, and inspect the connector and connector terminals to be sure they are making good contact.

   Are the connector terminals OK?
   YES - Go to Step 6 .
   NO - Repair the connector terminals, then go to Step 6 .
6. Connect the input shaft (mainshaft) speed sensor connector.
7. Test-drive the vehicle with the shift lever in D, and let the transmission shift through all five gears at speeds over 20 km/h (12 mph). Slow down and stop the wheels.
8. Monitor the OBD status for P0718 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 9 .
   NO - Troubleshooting is complete. If the HDS indicates NOT COMPLETED, return to Step 7 and recheck.■
9. Turn the ignition switch to LOCK (0).
10. Jump the SCS line with the HDS.
11. Disconnect PCM connector C (49P).
12. Check for continuity between PCM connector terminals C44 and body ground, and between C48 and body ground.

    Is there continuity?
    YES - Go to Step 13 .
    NO - Repair open in the wires between PCM connector terminals C44, C48 and ground (G101), or repair poor ground (G101), then go to Step 37 .
13. Connect PCM connector C (49P).
14. Disconnect the input shaft (mainshaft) speed sensor connector.
15. Turn the ignition switch to ON (II).

---

16. Measure the voltage between input shaft (mainshaft) speed sensor connector terminal No. 1 and body ground.

    Is there about 5 V?
    YES - Go to Step 17 .
    NO - Go to Step 28 .
17. Turn the ignition switch to LOCK (0).
18. Jump the SCS line with the HDS.
19. Disconnect PCM connector B (49P).

---

20. Check for continuity between input shaft (mainshaft) speed sensor connector terminal No. 2 and body ground.

Is there continuity?
YES - Repair short in the wire between PCM connector terminal B18 and the input shaft (mainshaft) speed sensor connector, then go to Step 37 .
NO - Go to Step 21 .

21. Connect PCM connector B (49P).
22. Turn the ignition switch to ON (II).

---

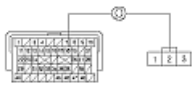
23. Measure the voltage between input shaft (mainshaft) speed sensor connector terminal No. 2 and body ground.

Is there about 5 V?
YES - Replace the input shaft (mainshaft) speed sensor, then go to Step 37 .
NO - Go to Step 24 .

24. Turn the ignition switch to LOCK (0).
25. Jump the SCS line with the HDS.
26. Disconnect PCM connector B (49P).

---

27. Check for continuity between PCM connector terminal B18 and input shaft (mainshaft) speed sensor connector terminal No. 2.

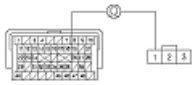


Is there continuity?
YES - Go to Step 32 .
NO - Repair open in the wire between PCM connector terminal B18 and the input shaft (mainshaft) speed sensor, then go to Step 37 .

28. Turn the ignition switch to LOCK (0).
29. Jump the SCS line with the HDS.
30. Disconnect PCM connector B (49P).

---

31. Check for continuity between PCM connector terminal B19 and input shaft (mainshaft) speed sensor connector terminal No. 1.



Is there continuity?

YES - Go to Step 32 .

NO - Repair open in the wire between PCM connector terminal B19 and the input shaft (mainshaft) speed sensor, then go to Step 37 .

32. Reconnect all connectors.

33. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

34. Test-drive the vehicle with the shift lever in D, and let the transmission shift through all five gears at speeds over 20 km/h (12 mph). Slow down and stop the wheels.

35. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0718 indicated?

YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .

NO - Go to Step 36 .

36. Monitor the OBD status for P0718 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 35 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 34 and recheck.

37. Reconnect all connectors.

38. Clear the DTC with the HDS.

39. Test-drive the vehicle with the shift lever in D, and let the transmission shift through all five gears at speeds over 20 km/h (12 mph). Slow down and stop the wheels.

40. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0718 indicated?

YES - Check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor and the PCM, then go to Step 1 .

NO - Go to Step 41 .

41. Monitor the OBD status for P0718 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

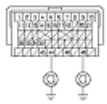
Does the HDS indicate PASSED?

YES - Troubleshooting is complete. If any other DTCs were indicated on Step 40 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 39 and recheck.

DTC Troubleshooting: P0721 (9), P0722 (9)

DTC P0721:
Output Shaft (Countershaft) Speed Sensor (Range/Performance)
DTC P0722:
Output Shaft (Countershaft) Speed Sensor (No Signal Input)
NOTE:



- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Check for proper output shaft (countershaft) speed sensor installation. If the sensor is installed improperly, correct the problem, then go to Step 42 .
3. Raise the front of the vehicle, make sure it is securely supported, and allow the front wheels to rotate freely. Or raise the vehicle on a lift.
4. Start the engine, and run the vehicle in D with the engine speed at 2,000 rpm (min $^{-1}$) or higher, for at least 10 seconds. Slow down and stop the wheels.
5. Monitor the OBD status for P0721 or P0722 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections at the PCM and output shaft (countershaft) speed sensor connectors. If the HDS indicates NOT COMPLETED, return to Step 4 and recheck.
6. Turn the ignition switch to LOCK (0).
7. Jump the SCS line with the HDS.
8. Disconnect PCM connector C (49P).
9. Check for continuity between PCM connector terminals C44 and body ground, and between C48 and body ground.

   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wires between PCM connector terminals C44, C48 and ground (G101), or repair poor ground (G101), then go to Step 41 .
10. Connect PCM connector C (49P).
11. Disconnect the output shaft (countershaft) speed sensor connector.
12. Turn the ignition switch to ON (II).

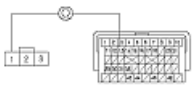
---

13. Measure the voltage between output shaft (countershaft) speed sensor connector terminal No. 1 and body ground.

    Is there about 5 V?
    YES - Go to Step 18 .
    NO - Go to Step 14 .
14. Turn the ignition switch to LOCK (0).
15. Jump the SCS line with the HDS.
16. Disconnect PCM connector C (49P).

---

17. Check for continuity between PCM connector terminal C13 and output shaft (countershaft) speed sensor connector terminal No. 1.



    Is there continuity?
    YES - Go to Step 36 .
    NO - Repair open in the wire between PCM connector terminal C13 and the output shaft (countershaft) speed sensor, then go to Step 41 .
18. Turn the ignition switch to LOCK (0).
19. Jump the SCS line with the HDS.
20. Disconnect PCM connector B (49P).

---

21. Check for continuity between output shaft (countershaft) speed sensor connector terminal No. 2 and body ground.

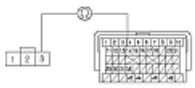
Is there continuity?
YES - Repair short in the wire between PCM connector terminal B38 and output shaft (countershaft) speed sensor connector, then go to Step 41 .

NO - Go to Step 22 .

22. Disconnect PCM connector C (49P).

---

23. Check for continuity between PCM connector terminal C14 and output shaft (countershaft) speed sensor connector terminal No. 3.



Is there continuity?
YES - Go to Step 24 .
NO - Repair open in the wire between PCM connector terminal C14 and output shaft (countershaft) speed sensor connector, then go to Step 41 .

24. Connect PCM connectors B (49P) and C (49P).

25. Turn the ignition switch to ON (II).

---

26. Measure the voltage between output shaft (countershaft) speed sensor connector terminals No. 2 and No. 3.

Is there about 5 V?
YES - Go to Step 27 .
NO - Go to Step 32 .

27. Connect the output shaft (countershaft) speed sensor connector.

28. Clear the DTC with the HDS.

29. Raise the front of the vehicle, make sure it is securely supported, and allow the front wheels to rotate freely. Or raise the vehicle on a lift.

30. Start the engine, and run the vehicle in D with the engine speed at 2,000 rpm (min^{-1}) or higher, for at least 10 seconds. Slow down and stop the wheels.

31. Monitor the OBD status for P0721 or P0722 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?
YES - Replace the output shaft (countershaft) speed sensor , then go to Step 42 .
NO - Go to Step 37 .

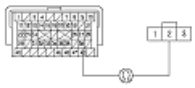
32. Turn the ignition switch to LOCK (0).

33. Jump the SCS line with the HDS.

34. Disconnect PCM connector B (49P).

---

35. Check for continuity between PCM connector terminal B38 and output shaft (countershaft) speed sensor connector terminal No. 2.



Is there continuity?

YES - Go to Step 36 .

NO - Repair open in the wire between PCM connector terminal B38 and the output shaft (countershaft) speed sensor, then go to Step 41 .

36. Reconnect all connectors.

37. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

38. Start the engine, and run the vehicle in D at speeds over 20 km/h (12 mph) for at least 10 seconds. Slow down and stop the wheels.

39. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0721 or P0722 indicated?

YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .

NO - Go to Step 40 .

40. Monitor the OBD status for P0721 or P0722 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 39 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at the output shaft (countershaft) speed sensor and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 38 and recheck.

41. Reconnect all connectors.

42. Clear the DTC with the HDS.

43. Start the engine, and run the vehicle in D at speeds over 20 km/h (12 mph) for at least 10 seconds. Slow down and stop the wheels.

44. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0721 or P0722 indicated?

YES - Check for poor connections and loose terminals at the output shaft (countershaft) speed sensor and the PCM, then go to Step 1 .

NO - Go to Step 45 .

45. Monitor the OBD status for P0721 or P0722 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

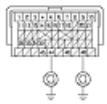
Does the HDS indicate PASSED?

YES - Troubleshooting is complete. If any other DTCs were indicated on Step 44 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at the output shaft (countershaft) speed sensor and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, go to Step 43 and recheck.

DTC Troubleshooting: P0723 (9)

DTC P0723:
Output Shaft (Countershaft) Speed Sensor (Intermittent Failure)
NOTE:



- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Test-drive the vehicle with the shift lever in D, and let the transmission shift through all five gears with the engine speed at 2,000 rpm (min $^{-1}$) or higher, for several minutes. Slow down and stop the wheels.
3. Monitor the OBD status for P0723 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 4.
   NO - Intermittent failure, the system is OK at this time. Check for poor connections and loose terminals at the output shaft (countershaft) speed sensor and the PCM. If the HDS indicates NOT COMPLETED, return to Step 2 and recheck.
4. Turn the ignition switch to LOCK (0).
5. Disconnect the output shaft (countershaft) speed sensor connector, and inspect the connector and connector terminals to be sure they are making good contact.

   Are the connector terminals OK?
   YES - Go to Step 6.
   NO - Repair the connector terminals, then go to Step 6.
6. Connect the output shaft (countershaft) speed sensor connector.
7. Test-drive the vehicle with the shift lever in D, and let the transmission shift through all five gears with the engine speed at 2,000 rpm (min $^{-1}$) or higher, for several minutes. Slow down and stop the wheels.
8. Monitor the OBD status for P0723 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 9.
   NO - Troubleshooting is complete. If the HDS indicates NOT COMPLETED, return to Step 7 and recheck.■
9. Turn the ignition switch to LOCK (0).
10. Jump the SCS line with the HDS.
11. Disconnect PCM connector C (49P).
12. Check for continuity between PCM connector terminals C44 and body ground, and between C48 and body ground.

    Is there continuity?
    YES - Go to Step 13.
    NO - Repair open in the wires between PCM connector terminals C44, C48 and ground (G101), or repair poor ground (G101), then go to Step 37.
13. Connect PCM connector C (49P).
14. Disconnect the output shaft (countershaft) speed sensor connector.
15. Turn the ignition switch to ON (II).

---

16. Measure the voltage between output shaft (countershaft) speed sensor connector terminal No. 1 and body ground.

    Is there about 5 V?
    YES - Go to Step 17.
    NO - Go to Step 28.
17. Turn the ignition switch to LOCK (0).
18. Jump the SCS line with the HDS.
19. Disconnect PCM connector B (49P).

---

20. Check for continuity between output shaft (countershaft) speed sensor connector terminal No. 2 and body ground.

Is there continuity?

YES - Repair short in the wire between PCM connector terminal B38 and the output shaft (countershaft) speed sensor connector, then go to Step 37 .

NO - Go to Step 21 .

21. Connect PCM connector B (49P).
22. Turn the ignition switch to ON (II).

---

23. Measure the voltage between output shaft (countershaft) speed sensor connector terminal No. 2 and body ground.

Is there about 5 V?

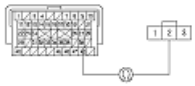
YES - Replace the output shaft (countershaft) speed sensor, then go to Step 37 .

NO - Go to Step 24 .

24. Turn the ignition switch to LOCK (0).
25. Jump the SCS line with the HDS.
26. Disconnect PCM connector B (49P).

---

27. Check for continuity between PCM connector terminal B38 and output shaft (countershaft) speed sensor connector terminal No. 2.



Is there continuity?

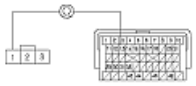
YES - Go to Step 32 .

NO - Repair open in the wire between PCM connector terminal B38 and the output shaft (countershaft) speed sensor, then go to Step 37 .

28. Turn the ignition switch to LOCK (0).
29. Jump the SCS line with the HDS.
30. Disconnect PCM connector C (49P).

---

31. Check for continuity between PCM connector terminal C13 and output shaft (countershaft) speed sensor connector terminal No. 1.



Is there continuity?

YES - Go to Step 32 .

NO - Repair open in the wire between PCM connector terminal C13 and the output shaft (countershaft) speed sensor, then go to Step 37 .

32. Reconnect all connectors.

33. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

34. Test-drive the vehicle with the shift lever in D, and let the transmission shift through all five gears at speeds over 20 km/h (12 mph). Slow down and stop the wheels.

35. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0723 indicated?

YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .

NO - Go to Step 36 .

36. Monitor the OBD status for P0723 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 35 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at the output shaft (countershaft) speed sensor and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 34 .

37. Reconnect all connectors.

38. Clear the DTC with the HDS.

39. Test-drive the vehicle with the shift lever in D, and let the transmission shift through all five gears at speeds over 20 km/h (12 mph). Slow down and stop the wheels.

40. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0723 indicated?

YES - Check for poor connections and loose terminals at the output shaft (countershaft) speed sensor and the PCM, then go to Step 1 .

NO - Go to Step 41 .

41. Monitor the OBD status for P0723 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - Troubleshooting is complete. If any other DTCs were indicated on Step 40 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at the output shaft (countershaft) speed sensor and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 39 and recheck.

DTC Troubleshooting: P0746 (76)

DTC P0776:
A/T Clutch Pressure Control Solenoid Valve A Stuck OFF
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?
   YES - Replace the transmission, then go to Step 10 .
   NO - Replace the ATF, then go to Step 4 .
4. Clear the DTC with the HDS.
5. Test-drive the vehicle with the shift lever in D, and let the transmission shift through all five gears. Then slow down to a stop. Shift to N, wait for at least 3 seconds, then shift into R. Move the vehicle in reverse for at least 3 seconds, then slow down and stop the wheels.
6. Monitor the OBD status for P0746 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to Step 5 and recheck.■
7. Clear the DTC with the HDS.
8. Select Clutch Pressure Control (Linear) Solenoid Valve A in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve A with the HDS.

   Does the HDS indicate NORMAL?
   YES - Intermittent failure, the system is OK at this time.■
   NO - Follow the instructions indicated on the HDS by the test result, but if the HDS has not determined the cause of the failure, go to Step 9 . If any part is replaced, go to Step 10 .
9. Inspect A/T clutch pressure control solenoid valve A.

   Does A/T clutch pressure control solenoid valve A work properly?
   YES - Repair the hydraulic system related with shift valve A, or replace the transmission, then go to Step 10 .
   NO - Replace A/T clutch pressure control solenoid valve A, then go to Step 10 .
10. Clear the DTC with the HDS.
11. Test-drive the vehicle with the shift lever in D, and let the transmission shift through all five gears. Then slow down to a stop. Shift to N, wait for at least 3 seconds, then shift into R. Move the vehicle in reverse for at least 3 seconds, then slow down and stop the wheels.
12. Monitor the OBD status for P0746 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the HDS indicate PASSED?
    YES - Troubleshooting is complete.■
    NO - Return to Step 10 and recheck. If the HDS indicates NOT COMPLETED, return to Step 11 and recheck.

DTC Troubleshooting: P0747 (76)

DTC P0747:
A/T Clutch Pressure Control Solenoid Valve A Stuck ON
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?
   YES - Replace the transmission, then go to Step 10 .
   NO - Replace the ATF, then go to Step 4 .
4. Clear the DTC with the HDS.
5. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
6. Monitor the OBD status for P0747 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to Step 5 and recheck.
7. Clear the DTC with the HDS.
8. Select Clutch Pressure Control (Linear) Solenoid Valve A in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve A with the HDS.

   Does the HDS indicate NORMAL?
   YES - Intermittent failure, the system is OK at this time.■
   NO - Follow the instructions indicated on the HDS by the test result, but if the HDS has not determined the cause of the failure, go to Step 9 . If any part is replaced, go to Step 10 .
9. Inspect A/T clutch pressure control solenoid valve A.

   Does A/T clutch pressure control solenoid valve A work properly?
   YES - Repair the hydraulic system related with shift valve A, or replace the transmission, then go to Step 10 .
   NO - Replace A/T clutch pressure control solenoid valve A, then go to Step 10 .
10. Clear the DTC with the HDS.
11. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
12. Monitor the OBD status for P0747 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the HDS indicate PASSED?
    YES - Troubleshooting is complete.■
    NO - Return to Step 10 and recheck. If the HDS indicates NOT COMPLETED, return to Step 11 and recheck.

DTC Troubleshooting: P0751 (70), P0752 (70)

DTC P0751:
Shift Solenoid Valve A Stuck OFF
DTC P0752:
Shift Solenoid Valve A Stuck ON
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?
   YES - Replace the transmission, then go to Step 11 .
   NO - Replace the ATF, then go to Step 4 .
4. Clear the DTC with the HDS.
5. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
6. Monitor the OBD status for P0751 or P0752 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to Step 5 and recheck.■
7. Clear the DTC with the HDS.
8. Select Shift Solenoid A in the Miscellaneous Test Menu, and check that shift solenoid valve A operates with the HDS.

   Is a clicking sound heard?
   YES - Go to Step 9 .
   NO - Replace shift solenoid valve A, then go to Step 11 .
9. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
10. Monitor the OBD status for P0751 or P0752 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the HDS indicate FAILED?
    YES - Repair the hydraulic system related with shift valve A, or replace the transmission, then go to Step 11 .
    NO - Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to Step 9 and recheck.■
11. Clear the DTC with the HDS.
12. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
13. Monitor the OBD status for P0751 or P0752 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the HDS indicate PASSED?
    YES - Troubleshooting is complete.■
    NO - Return to Step 11 and recheck. If the HDS indicates NOT COMPLETED, return to Step 12 and recheck.

DTC Troubleshooting: P0756 (71), P0757 (71)

DTC P0756:
Shift Solenoid Valve B Stuck OFF
DTC P0757:
Shift Solenoid Valve B Stuck ON
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?
   YES - Replace the transmission, then go to Step 11.
   NO - Replace the ATF, then go to Step 4.
4. Clear the DTC with the HDS.
5. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
6. Monitor the OBD status for P0756 or P0757 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 7.
   NO - Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to Step 5 and recheck.■
7. Clear the DTC with the HDS.
8. Select Shift Solenoid B in the Miscellaneous Test Menu, and check that shift solenoid valve B operates with the HDS.

   Is a clicking sound heard?
   YES - Go to Step 9.
   NO - Replace shift solenoid valve B, then go to Step 11.
9. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
10. Monitor the OBD status for P0756 or P0757 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the HDS indicate FAILED?
    YES - Repair the hydraulic system related with shift valve B, or replace the transmission, then go to Step 11.
    NO - Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to Step 9 and recheck.■
11. Clear the DTC with the HDS.
12. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
13. Monitor the OBD status for P0756 or P0757 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the HDS indicate PASSED?
    YES - Troubleshooting is complete.■
    NO - Return to Step 11 and recheck. If the HDS indicates NOT COMPLETED, return to Step 12 and recheck.

DTC Troubleshooting: P0761 (72), P0762 (72)

DTC P0761:
Shift Solenoid Valve C Stuck OFF
DTC P0762:
Shift Solenoid Valve C Stuck ON
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?
   YES - Replace the transmission, then go to Step 11.
   NO - Replace the ATF, then go to Step 4.
4. Clear the DTC with the HDS.
5. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
6. Monitor the OBD status for P0761 or P0762 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 7.
   NO - Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to Step 5 and recheck.■
7. Clear the DTC with the HDS.
8. Select Shift Solenoid C in the Miscellaneous Test Menu, and check that shift solenoid valve C operates with the HDS.

   Is a clicking sound heard?
   YES - Go to Step 9.
   NO - Replace shift solenoid valve C, then go to Step 11.
9. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
10. Monitor the OBD status for P0761 or P0762 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail

    Does the HDS indicate FAILED?
    YES - Repair the hydraulic system related with shift valve C, or replace the transmission, then go to Step 11.
    NO - Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to Step 9 and recheck.■
11. Clear the DTC with the HDS.
12. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
13. Monitor the OBD status for P0761 or P0762 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the HDS indicate PASSED?
    YES - Troubleshooting is complete.■
    NO - Return to Step 11 and recheck. If the HDS indicates NOT COMPLETED, return to Step 12 and recheck.

DTC Troubleshooting: P0766 (73)

DTC P0766:
Shift Solenoid Valve D Stuck OFF
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?
   YES - Replace the transmission, then go to Step 11.
   NO - Replace the ATF, then go to Step 4.
4. Clear the DTC with the HDS.
5. Start the engine, shift to N, then into R. Move the vehicle in reverse for at least 2 seconds, and stop the wheels. Shift to D, and test-drive the vehicle for at least 2 seconds, and let the transmission shift through all five gears, then slow down to a stop.
6. Monitor the OBD status for P0766 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 7.
   NO - Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to Step 5 and recheck.■
7. Clear the DTC with the HDS.
8. Select Shift Solenoid D in the Miscellaneous Test Menu, and check that shift solenoid valve D operates with the HDS.

   Is a clicking sound heard?
   YES - Go to Step 9.
   NO - Replace shift solenoid valve D, then go to Step 11.
9. Start the engine, shift to N, then into R. Move the vehicle in reverse for at least 2 seconds, and stop the wheels. Shift to D, and test-drive the vehicle for at least 2 seconds, and let the transmission shift through all five gears, then slow down to a stop.
10. Monitor the OBD status for P0766 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the HDS indicate FAILED?
    YES - Repair the hydraulic system related with shift valve D, or replace the transmission, then go to Step 11.
    NO - Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to Step 9 and recheck.■
11. Clear the DTC with the HDS.
12. Start the engine, shift to N, then into R. Move the vehicle in reverse for at least 2 seconds, and stop the wheels. Shift to D, and test-drive the vehicle for at least 2 seconds, and let the transmission shift through all five gears, then slow down to a stop.
13. Monitor the OBD status for P0766 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the HDS indicate PASSED?
    YES - Troubleshooting is complete.■
    NO - Return to Step 11 and recheck. If the HDS indicates NOT COMPLETED, return to Step 12 and recheck.

DTC Troubleshooting: P0767 (73)

DTC P0767:
Shift Solenoid Valve D Stuck ON
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?
   YES - Replace the transmission, then go to Step 11.
   NO - Replace the ATF, then go to Step 4.
4. Clear the DTC with the HDS.
5. Test-drive the vehicle with the shift lever in D for at least 2 seconds, and let the transmission shift through all five gears. Then slow down to a stop. With the brake pedal pressed, shift into to R, and wait for at least 3 seconds.
6. Monitor the OBD status for P0767 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 7.
   NO - Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to Step 5 and recheck.■
7. Clear the DTC with the HDS.
8. Select Shift Solenoid D in the Miscellaneous Test Menu, and check that shift solenoid valve D operates with the HDS.

   Is a clicking sound heard?
   YES - Go to Step 9.
   NO - Replace shift solenoid valve D, then go to Step 11.
9. Test-drive the vehicle with the shift lever in D for at least 2 seconds, and let the transmission shift through all five gears. Then slow down to a stop. With the brake pedal pressed, shift into to R, and wait for at least 3 seconds.
10. Monitor the OBD status for P0767 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the HDS indicate FAILED?
    YES - Repair the hydraulic system related with shift valve D, or replace the transmission, then go to Step 11.
    NO - Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to Step 9 and recheck.■
11. Clear the DTC with the HDS.
12. Test-drive the vehicle with the shift lever in D for at least 2 seconds, and let the transmission shift through all five gears. Then slow down to a stop. With the brake pedal pressed, shift into to R, and wait for at least 3 seconds.
13. Monitor the OBD status for P0767 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the HDS indicate PASSED?
    YES - Troubleshooting is complete.■
    NO - Return to Step 11 and recheck. If the HDS indicates NOT COMPLETED, return to Step 12 and recheck.

DTC Troubleshooting: P0776 (77), P0777 (77)

DTC P0776:
A/T Clutch Pressure Control Solenoid Valve B Stuck OFF
DTC P0777:
A/T Clutch Pressure Control Solenoid Valve B Stuck ON
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?
   YES - Replace the transmission, then go to Step 10 .
   NO - Replace the ATF, then go to Step 4 .
4. Clear the DTC with the HDS.
5. Test-drive the vehicle with the shift lever in D for at least 3 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
6. Monitor the OBD status for P0776 or P0777 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to Step 5 and recheck.
7. Clear the DTC with the HDS.
8. Select Clutch Pressure Control (Linear) Solenoid Valve B in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve B with the HDS.

   Does the HDS indicate NORMAL?
   YES - Intermittent failure, the system is OK at this time.■
   NO - Follow the instructions indicated on the HDS by the test result, but if the HDS has not determined the cause of the failure, go to Step 9 . If any part is replaced, go to Step 10 .
9. Inspect A/T clutch pressure control solenoid valve A.

   Does A/T clutch pressure control solenoid valve B work properly?
   YES - Repair the hydraulic system related with shift valve B, or replace the transmission, then go to Step 11 .
   NO - Replace A/T clutch pressure control solenoid valve B, then go to Step 10 .
10. Clear the DTC with the HDS.
11. Test-drive the vehicle with the shift lever in D for at least 3 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
12. Monitor the OBD status for P0776 or P0777 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the HDS indicate PASSED?
    YES - Troubleshooting is complete.■
    NO - Return to Step 10 and recheck. If the HDS indicates NOT COMPLETED, return to Step 11 and recheck.

DTC Troubleshooting: P0796 (78), P0797 (78)

DTC P0796:
A/T Clutch Pressure Control Solenoid Valve C Stuck OFF
DTC P0797:
A/T Clutch Pressure Control Solenoid Valve C Stuck ON
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?
   YES - Replace the transmission, then go to Step 10 .
   NO - Replace the ATF, then go to Step 4 .
4. Clear the DTC with the HDS.
5. Test-drive the vehicle with the shift lever in D for at least 3 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
6. Monitor the OBD status for P0796 or P0797 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to Step 5 and recheck.■
7. Clear the DTC with the HDS.
8. Select Clutch Pressure Control (Linear) Solenoid Valve C in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve C with the HDS.

   Does the HDS indicate NORMAL?
   YES - Intermittent failure, the system is OK at this time.■
   NO - Follow the instructions indicated on the HDS by the test result, but if the HDS has not determined the cause of the failure, go to Step 9 . If any part is replaced, go to Step 10 .
9. Inspect A/T clutch pressure control solenoid valve C.

   Does A/T clutch pressure control solenoid valve C work properly?
   YES - Repair the hydraulic system related with shift valve C, or replace the transmission, then go to Step 10 .
   NO - Replace A/T clutch pressure control solenoid valve C, then go to Step 10 .
10. Clear the DTC with the HDS.
11. Test-drive the vehicle with the shift lever in D for at least 3 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
12. Monitor the OBD status for P0796 or P0797 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the HDS indicate PASSED?
    YES - Troubleshooting is complete.■
    NO - Return to Step 10 and recheck. If the HDS indicates NOT COMPLETED, return to Step 11 and recheck.

DTC Troubleshooting: P0812 (65)

DTC P0812:
Transmission Range Switch ATP R Switch (Open)
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch to ON (II).
2. Shift to R, and verify the A/T R Switch signal with the HDS in the A/T data list.

   Is the A/T R Switch ON?
   YES - Intermittent failure, the system is OK at this time.■
   NO - Go to Step 3 .
3. Turn the ignition switch to LOCK (0).
4. Disconnect the transmission range switch connector.
5. Check for continuity between transmission range switch connector terminal No. 10 and body ground.

   Is there continuity?
   YES - Go to Step 6
   NO - Repair open in the wire between transmission range switch connector terminal No. 10 and ground (G101), or repair poor ground (G101), then go to Step 14 .
6. Turn the ignition switch to ON (II).

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7. Measure the voltage between transmission range switch connector terminals No. 7 and No. 10.

   Is there voltage?
   YES - Go to Step 8 .
   NO - Repair open in the wire between PCM connector terminal B15 and the transmission range switch, then go to Step 14 .

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8. Check for continuity between transmission range switch connector terminals No. 7 and No. 10 while the shift lever is in R, and when the shift lever is shifted to any position other than R.

Is there continuity while the shift lever is in R, and no continuity when the shift lever is shifted to any position other than R?
   YES - Go to Step 9
   NO - Replace the transmission range switch, then go to Step 14 .

9. Connect the transmission range switch connector.

10. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

11. Start the engine, shift to R while pressing the brake pedal, and wait for at least 2 seconds. Move the vehicle in reverse at speeds below 5 km/h (3 mph) for at least 2 seconds, then increase the speed and move at speeds over 5 km/h (3 mph) for at least 2 seconds. Slow down and stop the wheels.

12. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0812 indicated?
   YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .
   NO - Go to Step 13 .

13. Monitor the OBD status for P0812 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?
   YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 12 , go to the indicated DTC's troubleshooting.■
   NO - Check for poor connections and loose terminals at the transmission range switch and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 11 and recheck.

14. Connect the transmission range switch connector.

15. Clear the DTC with the HDS.

16. Start the engine, shift to R while pressing the brake pedal, and wait for at least 2 seconds. Move the vehicle in reverse at speeds below 5 km/h (3 mph) for at least 2 seconds, then increase the speed and move at speeds over 5 km/h (3 mph) for at least 2 seconds. Slow down and stop the wheels.

17. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0812 indicated?

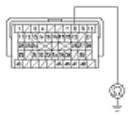
   YES - Check for poor connections and loose terminals at the transmission range switch and the PCM, then go to Step 1 .
   NO - Go to Step 18 .

18. Monitor the OBD status for P0812 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?
   YES - Troubleshooting is complete. If any other DTCs were indicated on Step 17 , go to the indicated DTC's troubleshooting.■
   NO - Check for poor connections and loose terminals at the transmission range switch and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 16 and recheck.

DTC Troubleshooting: P0842 (25)

DTC P0842:
2nd Clutch Transmission Fluid Pressure Switch (Short or Stuck ON)



NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Check the 2nd Pressure Switch signal with the HDS in the A/T data list when not in 2nd gear.

   Is the 2nd Pressure Switch OFF?
   YES - Go to Step 3 .
   NO - Go to Step 6 .
3. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).
4. Test-drive the vehicle:
   - Seven-position transmission: Drive the vehicle in 3rd gear in D or D3 for at least 2 seconds, then slow down to a stop.
   - Five-position transmission: Drive the vehicle in 3rd gear in the sequential shift mode in S for at least 2 seconds, or in D, then slow down to a stop.
5. Monitor the OBD status for P0842 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time. Check the OP2SW wire for an intermittent short to ground between the 2nd clutch transmission fluid pressure switch and the PCM. If the HDS indicates NOT COMPLETED, return to Step 4 and recheck.
6. Turn the ignition switch to LOCK (0).
7. Disconnect the 2nd clutch transmission fluid pressure switch connector.
8. Turn the ignition switch to ON (II).
9. Check the 2nd Pressure Switch signal with the HDS in the A/T data list.

   Is the 2nd Pressure Switch OFF?
   YES - Replace the 2nd clutch transmission fluid pressure switch, then go to Step 20 .
   NO - Go to Step 10 .
10. Turn the ignition switch to LOCK (0).
11. Jump the SCS line with the HDS.
12. Disconnect PCM connector B (49P).
13. Check for continuity between PCM connector terminal B8 and body ground.

    Is there continuity?
    YES - Repair short in the wire between PCM connector terminal B8 and the 2nd clutch transmission fluid pressure switch, then go to Step 20 .
    NO - Go to Step 14 .
14. Reconnect all connectors.
15. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.
16. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).
17. Test-drive the vehicle:
    - Seven-position transmission: Drive the vehicle in 2nd gear in D for at least 2 seconds, then press the accelerator pedal so that the transmission upshifts into 4th gear, and drive in 4th gear for at least 2 seconds. Slow down and stop the wheels.
    - Five-position transmission: Drive the vehicle in 2nd gear in the sequential shift mode in S for at least 2 seconds, then upshift to 4th gear by pulling the paddle shifter + (upshift switch), and drive in 4th gear for at least 2 seconds. Slow down and stop the wheels.
18. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0842 indicated?
    YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .
    NO - Go to Step 19 .
19. Monitor the OBD status for P0842 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the HDS indicate PASSED?

YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 18 , go to the indicated DTC's troubleshooting.■

NO - Check for an intermittent short in the wire between the 2nd clutch transmission fluid pressure switch and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 17 and recheck.

20. Reconnect all connectors.

21. Clear the DTC with the HDS.

22. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).

23. Test-drive the vehicle:
    - Seven-position transmission: Drive the vehicle in 2nd gear in D for at least 2 seconds, then press the accelerator pedal so that the transmission upshifts into 4th gear, and drive in 4th gear for at least 2 seconds. Slow down and stop the wheels.
    - Five-position transmission: Drive the vehicle in 2nd gear in the sequential shift mode in S for at least 2 seconds, then upshift to 4th gear by pulling the paddle shifter + (upshift switch), and drive in 4th gear for at least 2 seconds. Slow down and stop the wheels.

24. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0842 indicated?

    YES - Check for an intermittent short in the wire between the 2nd clutch transmission fluid pressure switch and the PCM, then go to Step 1 .

    NO - Go to Step 25 .

25. Monitor the OBD status for P0842 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the HDS indicate PASSED?

    YES - Troubleshooting is complete. If any other DTCs were indicated on Step 24 , go to the indicated DTC's troubleshooting.■

    NO - Check for an intermittent short in the wire between the 2nd clutch transmission fluid pressure switch and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 23 and recheck.

DTC Troubleshooting: P0843 (25)

DTC P0843:
2nd Clutch Transmission Fluid Pressure Switch (Open or Stuck OFF)
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.

1. Clear the DTC with the HDS.
2. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).
3. Shift into 2nd gear, and verify Shift Control display in the HDS:
   - Seven-position transmission: Shift to 2 while pressing the brake pedal, and verify with the HDS in the A/T data list that the Shift Control indicates 2nd.
   - Five-position transmission: Shift to S while pressing the brake pedal, upshift to 2nd gear by pulling the paddle shifter + (upshift switch), and verify with the HDS in the A/T data list that the Shift Control indicates 2nd.
4. Check the 2nd Pressure Switch signal with the HDS in the A/T data list.

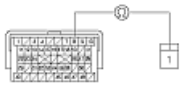
   Is the 2nd Pressure Switch ON?
   YES - Go to Step 5 .
   NO - Go to Step 7 .
5. Test-drive the vehicle:
   - Seven-position transmission: Drive the vehicle in 2 for at least 2 seconds, then slow down to a stop.
   - Five-position transmission: Drive the vehicle in 2nd gear in the sequential shift mode in S for at least 2 seconds, then slow down to a stop.
6. Monitor the OBD status for P0843 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 8 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections and loose terminals at the 2nd clutch transmission fluid pressure switch and the PCM. If the HDS indicates NOT COMPLETED, return to Step 5 and recheck.
7. Measure the 2nd clutch pressure.

   Is the 2nd clutch pressure within the service limits?
   YES - Go to Step 8 .
   NO - Repair shift valves A, B, and C, and related hydraulic circuit, or replace the transmission, then go to Step 22 .
8. Turn the ignition switch to LOCK (0).
9. Disconnect the 2nd clutch transmission fluid pressure switch connector.
10. Turn the ignition switch to ON (II).
11. Measure the voltage between the 2nd clutch transmission fluid pressure switch connector terminal and body ground.

    Is there about 5 V?
    YES - Replace the 2nd clutch transmission fluid pressure switch, then go to Step 22 .
    NO - Go to Step 12 .
12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.
14. Disconnect PCM connector B (49P).

15. Check for continuity between PCM connector terminal B8 and the 2nd clutch transmission fluid pressure switch connector terminal.



Is there continuity?

YES - Go to Step 16 .

NO - Repair open in the wire between PCM connector terminal B8 and the 2nd clutch transmission fluid pressure switch, then go to Step 22 .

16. Reconnect all connectors.

17. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

18. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).

19. Test-drive the vehicle:
    - Seven-position transmission: Drive the vehicle in 2nd gear in D for at least 2 seconds, then press the accelerator pedal so that the transmission upshifts into 4th gear, and drive in 4th gear for at least 2 seconds. Slow down and stop the wheels.
    - Five-position transmission: Drive the vehicle in 2nd gear in the sequential shift mode in S for at least 2 seconds, then upshift to 4th gear by pulling the paddle shifter + (upshift switch), and drive in 4th gear for at least 2 seconds. Slow down and stop the wheels.

20. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0843 indicated?

YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .

NO - Go to Step 21 .

21. Monitor the OBD status for P0843 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 20 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at the 2nd clutch transmission fluid pressure switch and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 19 and recheck.

22. Reconnect all connectors.

23. Clear the DTC with the HDS.

24. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).

25. Test-drive the vehicle:
    - Seven-position transmission: Drive the vehicle in 2nd gear in D for at least 2 seconds, then press the accelerator pedal so that the transmission upshifts into 4th gear, and drive in 4th gear for at least 2 seconds. Slow down and stop the wheels.
    - Five-position transmission: Drive the vehicle in 2nd gear in the sequential shift mode in S for at least 2 seconds, then upshift to 4th gear by pulling the paddle shifter + (upshift switch), and drive in 4th gear for at least 2 seconds. Slow down and stop the wheels.

26. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0843 indicated?

YES - Check for poor connections and loose terminals at the 2nd clutch transmission fluid pressure switch and the PCM, then go to Step 1 .

NO - Go to Step 27 .

27. Monitor the OBD status for P0843 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

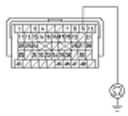
Does the HDS indicate PASSED?

YES - Troubleshooting is complete. If any other DTCs were indicated on Step 26 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at the 2nd clutch transmission fluid pressure switch and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 25 and recheck.

DTC Troubleshooting: P0847 (26)

DTC P0847:
3rd Clutch Transmission Fluid Pressure Switch (Short or Stuck ON)
NOTE:



- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Check the 3rd Pressure Switch signal with the HDS in the A/T data list when not in 3rd gear.

   Is the 3rd Pressure Switch OFF?
   YES - Go to Step 3 .
   NO - Go to Step 6 .
3. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).
4. Test-drive the vehicle:
   - Seven-position transmission: Drive the vehicle in 4th gear in D for at least 2 seconds, then slow down to a stop.
   - Five-position transmission: Drive the vehicle in 4th gear in the sequential shift mode in S for at least 2 seconds, then slow down to a stop.
5. Monitor the OBD status for P0847 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time. Check the OP3SW wire for an intermittent short to ground between the 3rd clutch transmission fluid pressure switch and the PCM. If the HDS indicates NOT COMPLETED, return to Step 4 and recheck.
6. Turn the ignition switch to LOCK (0).
7. Disconnect the 3rd clutch transmission fluid pressure switch connector.
8. Turn the ignition switch to ON (II).
9. Check the 3rd Pressure Switch signal with the HDS in the A/T data list.

   Is the 3rd Pressure Switch OFF?
   YES - Replace the 3rd clutch transmission fluid pressure switch, then go to Step 20 .
   NO - Go to Step 10 .
10. Turn the ignition switch to LOCK (0).
11. Jump the SCS line with the HDS.
12. Disconnect PCM connector B (49P).
13. Check for continuity between PCM connector terminal B9 and body ground.

    Is there continuity?
    YES - Repair short in the wire between PCM connector terminal B9 and the 3rd clutch transmission fluid pressure switch, then go to Step 20 .
    NO - Go to Step 14 .
14. Reconnect all connectors.
15. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.
16. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).
17. Test-drive the vehicle:
    - Seven-position transmission: Drive the vehicle in 3rd gear in D for at least 2 seconds, then press the accelerator pedal so that the transmission upshifts into 4th gear, and drive in 4th gear for at least 2 seconds. Slow down and stop the wheels.
    - Five-position transmission: Drive the vehicle in 3rd gear in the sequential shift mode in S for at least 2 seconds, then upshift to 4th gear by pulling the paddle shifter + (upshift switch), and drive in 4th gear for at least 2 seconds. Slow down and stop the wheels.
18. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0847 indicated?
    YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .
    NO - Go to Step 19 .
19. Monitor the OBD status for P0847 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the HDS indicate PASSED?

YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 18 , go to the indicated DTC's troubleshooting.■

NO - Check for an intermittent short in the wire between the 3rd clutch transmission fluid pressure switch and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 17 and recheck.

20. Reconnect all connectors.

21. Clear the DTC with the HDS.

22. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).

23. Test-drive the vehicle:
    - Seven-position transmission: Drive the vehicle in 3rd gear in D for at least 2 seconds, then press the accelerator pedal so that the transmission upshifts into 4th gear, and drive in 4th gear for at least 2 seconds. Slow down and stop the wheels.
    - Five-position transmission: Drive the vehicle in 3rd gear in the sequential shift mode in S for at least 2 seconds, then upshift to 4th gear by pulling the paddle shifter + (upshift switch), and drive in 4th gear for at least 2 seconds. Slow down and stop the wheels.

24. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0847 indicated?

    YES - Check for an intermittent short in the wire between the 3rd clutch transmission fluid pressure switch and the PCM, then go to Step 1 .

    NO - Go to Step 25 .

25. Monitor the OBD status for P0847 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

    Does the HDS indicate PASSED?

    YES - Troubleshooting is complete. If any other DTCs were indicated on Step 24 , go to the indicated DTC's troubleshooting.■

    NO - Check for an intermittent short in the wire between the 3rd clutch transmission fluid pressure switch and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 23 and recheck.

DTC Troubleshooting: P0848 (26)

DTC P0848:
3rd Clutch Transmission Fluid Pressure Switch (Open or Stuck OFF)
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.

1. Clear the DTC with the HDS.
2. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).
3. Verify Shift Control display in the HDS while driving in 3rd gear:
   - Seven-position transmission: Drive the vehicle in 3rd gear in D3, and verify with the HDS in the A/T data list that the Shift Control indicates 3rd.
   - Five-position transmission: Drive the vehicle in 3rd gear in the sequential shift mode in S, and verify with the HDS in the A/T data list that the Shift Control indicates 3rd.
4. Check the 3rd Pressure Switch signal with the HDS in the A/T data list.

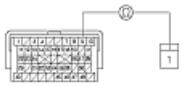
   Is the 3rd Pressure Switch ON?
   YES - Go to Step 5 .
   NO - Go to Step 7 .
5. Test-drive the vehicle:
   - Seven-position transmission: Drive the vehicle in 3rd gear in D3 for at least 2 seconds, then slow down to a stop.
   - Five-position transmission: Drive the vehicle in 3rd gear in the sequential shift mode in S for at least 2 seconds, then slow down to a stop.
6. Monitor the OBD status for P0848 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 8 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the 3rd clutch transmission fluid pressure switch and the PCM. If the HDS indicates NOT COMPLETED, return to Step 5 and recheck.
7. Measure the 3rd clutch pressure.

   Is the 3rd clutch pressure within the service limits?
   YES - Go to Step 8 .
   NO - Repair shift valves A, B, and C, and related hydraulic circuit, or replace the transmission, then go to Step 22 .
8. Turn the ignition switch to LOCK (0).
9. Disconnect the 3rd clutch transmission fluid pressure switch connector.
10. Turn the ignition switch to ON (II).
11. Measure the voltage between the 3rd clutch transmission fluid pressure switch connector terminal and body ground.

    Is there about 5 V?
    YES - Replace the 3rd clutch transmission fluid pressure switch, then go to Step 22 .
    NO - Go to Step 12 .
12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.
14. Disconnect PCM connector B (49P).

15. Check for continuity between PCM connector terminal B9 and the 3rd clutch transmission fluid pressure switch connector terminal.



Is there continuity?

YES - Go to Step 16 .

NO - Repair open in the wire between PCM connector terminal B9 and the 3rd clutch transmission fluid pressure switch, then go to Step 22 .

16. Reconnect all connectors.

17. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

18. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).

19. Test-drive the vehicle:
    - Seven-position transmission: Drive the vehicle in 3rd gear in D for at least 2 seconds, then press the accelerator pedal so that the transmission upshifts into 4th gear, and drive in 4th gear for at least 2 seconds. Slow down and stop the wheels.
    - Five-position transmission: Drive the vehicle in 3rd gear in the sequential shift mode in S for at least 2 seconds, then upshift to 4th gear by pulling the paddle shifter + (upshift switch), and drive in 4th gear for at least 2 seconds. Slow down and stop the wheels.

20. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0848 indicated?

YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .

NO - Go to Step 21 .

21. Monitor the OBD status for P0848 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 20 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at the 3rd clutch transmission fluid pressure switch and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 19 and recheck.

22. Reconnect all connectors.

23. Clear the DTC with the HDS.

24. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).

25. Test-drive the vehicle:
    - Seven-position transmission: Drive the vehicle in 3rd gear in D for at least 2 seconds, then press the accelerator pedal so that the transmission upshifts into 4th gear, and drive in 4th gear for at least 2 seconds. Slow down and stop the wheels.
    - Five-position transmission: Drive the vehicle in 3rd gear in the sequential shift mode in S for at least 2 seconds, then upshift to 4th gear by pulling the paddle shifter + (upshift switch), and drive in 4th gear for at least 2 seconds. Slow down and stop the wheels.

26. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0848 indicated?

YES - Check for poor connections and loose terminals at the 3rd clutch transmission fluid pressure switch and the PCM, then go to Step 1 .

NO - Go to Step 27 .

27. Monitor the OBD status for P0848 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - Troubleshooting is complete. If any other DTCs were indicated on Step 26 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at the 3rd clutch transmission fluid pressure switch and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 25 and recheck.

DTC Troubleshooting: P0962 (16)

DTC P0962:
A/T Clutch Pressure Control Solenoid Valve A (Open or Short)
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Check that DTC P0962 recurs.

   Is DTC P0962 indicated?
   YES - Go to Step 6 .
   NO - Go to Step 3 .
3. Select Clutch Pressure Control (Linear) Solenoid Valve A in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve A with the HDS.

   Does the HDS indicate NORMAL?
   YES - Go to Step 4 .
   NO - Go to Step 6 .
4. In the Clutch Pressure Control Solenoid Control menu, select Clutch Pressure Control Solenoid Valve A at 1.0 A.
5. Monitor the OBD status for P0962 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve A and the PCM. If the HDS indicates NOT COMPLETED, return to Step 3 and recheck.
6. Turn the ignition switch to LOCK (0).
7. Disconnect the A/T clutch pressure control solenoid valve A connector.
8. Measure the resistance between A/T clutch pressure control solenoid valve A connector terminals No. 1 and No. 2.

   Is there 3−10 Ω?
   YES - Go to Step 9 .
   NO - Replace A/T clutch pressure control solenoid valve A, then go to Step 19 .

---

9. Check for continuity between A/T clutch pressure control solenoid valve A connector terminal No. 2 and body ground.

   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wire between A/T clutch pressure control solenoid valve A and ground (G101), or repair poor ground (G101), then go to Step 19 .
10. Jump the SCS line with the HDS.
11. Disconnect PCM connector B (49P).

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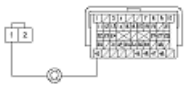
12. Check for continuity between PCM connector terminal B40 and A/T clutch pressure control solenoid valve A connector terminal No. 1.



    Is there continuity?
    YES - Go to Step 13 .
    NO - Repair open in the wire between PCM connector terminal B40 and A/T clutch pressure control solenoid valve A, then go to Step 19 .

---

13. Check for continuity between A/T clutch pressure control solenoid valve A connector terminal No. 1 and body ground.

Is there continuity?

YES - Repair short in the wire between PCM connector terminal B40 and A/T clutch pressure control solenoid valve A, then go to Step 19 .

NO - Go to Step 14 .

14. Reconnect all connectors.

15. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

16. Start the engine, and wait for at least 1 second.

17. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0962 indicated?

YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .

NO - Go to Step 18 .

18. Monitor the OBD status for P0962 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 17 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve A and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 16 and recheck.

19. Reconnect all connectors.

20. Clear the DTC with the HDS.

21. Start the engine, and wait for at least 1 second.

22. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0962 indicated?

YES - Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve A and the PCM, then go to Step 1 .

NO - Go to Step 23 .

23. Monitor the OBD status for P0962 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - Troubleshooting is complete. If any other DTCs were indicated on Step 22 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve A and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 21 and recheck.

DTC Troubleshooting: P0963 (16)

DTC P0963:
A/T Clutch Pressure Control Solenoid Valve A
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Check that DTC P0963 recurs.

   Is DTC P0963 indicated?
   YES - Go to Step 6 .
   NO - Go to Step 3 .
3. Select Clutch Pressure Control (Linear) Solenoid Valve A in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve A with the HDS.

   Does the HDS indicate NORMAL?
   YES - Go to Step 4 .
   NO - Go to Step 6 .
4. In the Clutch Pressure Control Solenoid Control menu, select Clutch Pressure Control Solenoid Valve A at 0.2 A.
5. Monitor the OBD status for P0963 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve A and the PCM. If the HDS indicates NOT COMPLETED, return to Step 3 and recheck.
6. Turn the ignition switch to LOCK (0).
7. Disconnect the A/T clutch pressure control solenoid valve A connector.
8. Measure the resistance between A/T clutch pressure control solenoid valve A connector terminals No. 1 and No. 2.

   Is there 3−10 Ω?
   YES - Go to Step 9 .
   NO - Replace A/T clutch pressure control solenoid valve A, then go to Step 15 .

9. Check for continuity between A/T clutch pressure control solenoid valve A connector terminal No. 2 and body ground.

Is there continuity?

YES - Go to Step 10 .

NO - Repair open in the wire between A/T clutch pressure control solenoid valve A and ground (G101), or repair poor ground (G101), then go to Step 15 .

10. Connect the A/T clutch pressure control solenoid valve A connector.

11. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

12. Start the engine, and wait for at least 1 second.

13. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0963 indicated?

YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .

NO - Go to Step 14 .

14. Monitor the OBD status for P0963 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 13 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve A and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 12 and recheck.

15. Connect the A/T clutch pressure control solenoid valve A connector.

16. Clear the DTC with the HDS.

17. Start the engine, and wait for at least 1 second.

18. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0963 indicated?

YES - Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve A and the PCM, then go to Step 1 .

NO - Go to Step 19 .

19. Monitor the OBD status for P0963 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - Troubleshooting is complete. If any other DTCs were indicated on Step 18 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve A and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 17 and recheck.

DTC Troubleshooting: P0966 (23)

DTC P0966:
A/T Clutch Pressure Control Solenoid Valve B (Open or Short)
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Check that DTC P0966 recurs.

   Is DTC P0966 indicated?
   YES - Go to Step 6 .
   NO - Go to Step 3 .
3. Select Clutch Pressure Control (Linear) Solenoid Valve B in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve B with the HDS.

   Does the HDS indicate NORMAL?
   YES - Go to Step 4 .
   NO - Go to Step 6 .
4. In the Clutch Pressure Control Solenoid Control menu, select Clutch Pressure Control Solenoid Valve B at 1.0 A.
5. Monitor the OBD status for P0966 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve B and the PCM. If the HDS indicates NOT COMPLETED, return to Step 3 and recheck.
6. Turn the ignition switch to LOCK (0).
7. Disconnect the A/T clutch pressure control solenoid valve B connector.
8. Measure the resistance between A/T clutch pressure control solenoid valve B connector terminals No. 1 and No. 2.

   Is there 3−10 Ω?
   YES - Go to Step 9 .
   NO - Replace A/T clutch pressure control solenoid valve B, then go to Step 19 .

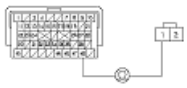
---

9. Check for continuity between A/T clutch pressure control solenoid valve B connector terminal No. 2 and body ground.

   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wire between A/T clutch pressure control solenoid valve B and ground (G101), or repair poor ground (G101), then go to Step 19 .
10. Jump the SCS line with the HDS.
11. Disconnect PCM connector B (49P).

---

12. Check for continuity between PCM connector terminal B48 and A/T clutch pressure control solenoid valve B connector terminal No. 1.



    Is there continuity?
    YES - Go to Step 13 .
    NO - Repair open in the wire between PCM connector terminal B48 and A/T clutch pressure control solenoid valve B, then go to Step 19 .

---

13. Check for continuity between A/T clutch pressure control solenoid valve B connector terminal No. 1 and body ground.

Is there continuity?

YES - Repair short in the wire between PCM connector terminal B48 and A/T clutch pressure control solenoid valve B, then go to Step 19 .

NO - Go to Step 14 .

14. Reconnect all connectors.

15. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

16. Start the engine, and wait for at least 1 second.

17. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0966 indicated?

YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .

NO - Go to Step 18 .

18. Monitor the OBD status for P0966 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 17 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve B and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 16 and recheck.

19. Reconnect all connectors.

20. Clear the DTC with the HDS.

21. Start the engine, and wait for at least 1 second.

22. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0966 indicated?

YES - Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve B and the PCM, then go to Step 1 .

NO - Go to Step 23 .

23. Monitor the OBD status for P0966 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - Troubleshooting is complete. If any other DTCs were indicated on Step 22 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve B and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 21 and recheck.

DTC Troubleshooting: P0967 (23)

DTC P0967:
A/T Clutch Pressure Control Solenoid Valve B
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Check that DTC P0967 recurs.

   Is DTC P0967 indicated?
   YES - Go to Step 6 .
   NO - Go to Step 3 .
3. Select Clutch Pressure Control (Linear) Solenoid Valve B in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve B with the HDS.

   Does the HDS indicate NORMAL?
   YES - Go to Step 4 .
   NO - Go to Step 6 .
4. In the Clutch Pressure Control Solenoid Control menu, select Clutch Pressure Control Solenoid Valve B at 0.2 A.
5. Monitor the OBD status for P0967 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve B and the PCM. If the HDS indicates NOT COMPLETED, return to Step 3 and recheck.
6. Turn the ignition switch to LOCK (0).
7. Disconnect the A/T clutch pressure control solenoid valve B connector.
8. Measure the resistance between A/T clutch pressure control solenoid valve B connector terminals No. 1 and No. 2.

   Is there 3−10 Ω?
   YES - Go to Step 9 .
   NO - Replace A/T clutch pressure control solenoid valve B, then go to Step 15 .

9. Check for continuity between A/T clutch pressure control solenoid valve B connector terminal No. 2 and body ground.

Is there continuity?

YES - Go to Step 10 .

NO - Repair open in the wire between A/T clutch pressure control solenoid valve B and ground (G101), or repair poor ground (G101), then go to Step 15 .

10. Connect the A/T clutch pressure control solenoid valve B connector.

11. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

12. Start the engine, and wait for at least 1 second.

13. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0967 indicated?

YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .

NO - Go to Step 14 .

14. Monitor the OBD status for P0967 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 13 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve B and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 12 and recheck.

15. Connect the A/T clutch pressure control solenoid valve B connector.

16. Clear the DTC with the HDS.

17. Start the engine, and wait for at least 1 second.

18. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0967 indicated?

YES - Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve B and the PCM, then go to Step 1 .

NO - Go to Step 19 .

19. Monitor the OBD status for P0967 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - Troubleshooting is complete. If any other DTCs were indicated on Step 18 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve B and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 17 and recheck.

DTC Troubleshooting: P0970 (29)

DTC P0970:
A/T Clutch Pressure Control Solenoid Valve C (Open or Short)
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Check that DTC P0970 recurs.

   Is DTC P0970 indicated?
   YES - Go to Step 6 .
   NO - Go to Step 3 .
3. Select Clutch Pressure Control (Linear) Solenoid Valve C in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve C with the HDS.

   Does the HDS indicate NORMAL?
   YES - Go to Step 4 .
   NO - Go to Step 6 .
4. In the Clutch Pressure Control Solenoid Control menu, select Clutch Pressure Control Solenoid Valve C at 1.0 A.
5. Monitor the OBD status for P0970 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve C and the PCM. If the HDS indicates NOT COMPLETED, return to Step 3 and recheck.
6. Turn the ignition switch to LOCK (0).
7. Disconnect the A/T clutch pressure control solenoid valve C connector.
8. Measure the resistance between A/T clutch pressure control solenoid valve C connector terminals No. 1 and No. 2.

   Is there 3−10 Ω?
   YES - Go to Step 9 .
   NO - Replace A/T clutch pressure control solenoid valve C, then go to Step 19 .

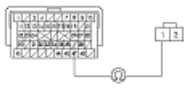
---

9. Check for continuity between A/T clutch pressure control solenoid valve C connector terminal No. 2 and body ground.

   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wire between A/T clutch pressure control solenoid valve C and ground (G101), or repair poor ground (G101), then go to Step 19 .
10. Jump the SCS line with the HDS.
11. Disconnect PCM connector B (49P).

---

12. Check for continuity between PCM connector terminal B26 and A/T clutch pressure control solenoid valve C connector terminal No. 1.



    Is there continuity?
    YES - Go to Step 13 .
    NO - Repair open in the wire between PCM connector terminal B26 and A/T clutch pressure control solenoid valve C, then go to Step 19 .

---

13. Check for continuity between A/T clutch pressure control solenoid valve C connector terminal No. 1 and body ground.

Is there continuity?

YES - Repair short in the wire between PCM connector terminal B26 and A/T clutch pressure control solenoid valve C, then go to Step 19 .

NO - Go to Step 14 .

14. Reconnect all connectors.

15. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

16. Start the engine, and wait for at least 1 second.

17. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0970 indicated?

YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .

NO - Go to Step 18 .

18. Monitor the OBD status for P0970 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 17 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve C and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, go to Step 16 and recheck.

19. Reconnect all connectors.

20. Clear the DTC with the HDS.

21. Start the engine, and wait for at least 1 second.

22. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0970 indicated?

YES - Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve C and the PCM, then go to Step 1 .

NO - Go to Step 23 .

23. Monitor the OBD status for P0970 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - Troubleshooting is complete. If any other DTCs were indicated on Step 22 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve C and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 21 and recheck.

DTC Troubleshooting: P0971 (29)

DTC P0971:
A/T Clutch Pressure Control Solenoid Valve C
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Check that DTC P0971 recurs.

   Is DTC P0971 indicated?
   YES - Go to Step 6 .
   NO - Go to Step 3 .
3. Select Clutch Pressure Control (Linear) Solenoid Valve C in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve C with the HDS.

   Does the HDS indicate NORMAL?
   YES - Go to Step 4 .
   NO - Go to Step 6 .
4. In the Clutch Pressure Control Solenoid Control menu, select Clutch Pressure Control Solenoid Valve C at 0.2 A.
5. Monitor the OBD status for P0971 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve C and the PCM. If the HDS indicates NOT COMPLETED, return to Step 3 and recheck.
6. Turn the ignition switch to LOCK (0).
7. Disconnect the A/T clutch pressure control solenoid valve C connector.
8. Measure the resistance between A/T clutch pressure control solenoid valve C connector terminals No. 1 and No. 2.

   Is there 3−10 Ω?
   YES - Go to Step 9 .
   NO - Replace A/T clutch pressure control solenoid valve C, then go to Step 15 .

9. Check for continuity between A/T clutch pressure control solenoid valve C connector terminal No. 2 and body ground.

Is there continuity?
YES - Go to Step 10 .
NO - Repair open in the wire between A/T clutch pressure control solenoid valve C and ground (G101), or repair poor ground (G101), then go to Step 12 .

10. Connect the A/T clutch pressure control solenoid valve C connector.

11. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

12. Start the engine, and wait for at least 1 second.

13. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0971 indicated?
YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .
NO - Go to Step 14 .

14. Monitor the OBD status for P0971 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?
YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 13 , go to the indicated DTC's troubleshooting.■
NO - Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve C and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 12 and recheck.

15. Connect the A/T clutch pressure control solenoid valve C connector.

16. Clear the DTC with the HDS.

17. Start the engine, and wait for at least 1 second.

18. Check for Temporary DTCs or DTCs with the HDS.

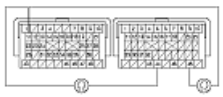
Is DTC P0971 indicated?
YES - Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve C and the PCM, then go to Step 1 .
NO - Go to Step 19 .

19. Monitor the OBD status for P0971 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?
YES - Troubleshooting is complete. If any other DTCs were indicated on Step 18 , go to the indicated DTC's troubleshooting.■
NO - Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve C and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 17 and recheck.

DTC Troubleshooting: P0973 (7)

DTC P0973:
Shift Solenoid Valve A (Short)
NOTE:



- Before you troubleshoot, record all freeze data and any on-board snapshot, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Start the engine, and test-drive the vehicle:
   - Seven-position transmission: Drive the vehicle in 2nd gear in D, D3, or 2 for at least 1 second, then slow down to a stop.
   - Five-position transmission: Drive the vehicle in 2nd gear in the sequential shift mode in S for at least 1 second, or in D, then slow down to a stop.
3. Check that DTC P0973 recurs.

   Is DTC P0973 indicated?
   YES - Go to Step 7 .
   NO - Go to Step 4 .
4. Select Shift Solenoid A in the Miscellaneous Test Menu, and test the shift solenoid valve A with the HDS.

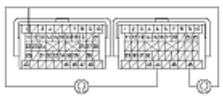
   Is a clicking sound heard?
   YES - Go to Step 5 .
   NO - Go to Step 7 .
5. Test-drive the vehicle:
   - Seven-position transmission: Drive the vehicle in 2nd gear in D, D3, or 2 for at least 1 second. Slow down to a stop, and wait for at least 1 second.
   - Five-position transmission: Drive the vehicle in 2nd gear in the sequential shift mode in S for at least 1 second, or in D. Slow down to a stop, and wait for at least 1 second.
6. Monitor the OBD status for P0973 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check the SH A wire for an intermittent short to ground between shift solenoid valve A and the PCM. If the HDS indicates NOT COMPLETED, return to Step 4 and recheck.
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect PCM connectors B (49P) and C (49P).
10. Measure the resistance between PCM connector terminals B11 and C44 or C48.

    Is there less than 12 Ω?
    YES - Go to Step 11 .
    NO - Go to Step 17 .
11. Disconnect the shift solenoid harness connector.

---

12. Check for continuity between PCM connector terminals B11 and C44 or C48.

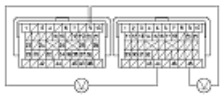


    Is there continuity?
    YES - Repair short in the wire between PCM connector terminal B11 and the shift solenoid harness connector, then go to Step 22 .
    NO - Go to Step 13 .
13. Inspect shift solenoid valve A.

    Is shift solenoid valve A OK?
    YES - Go to Step 14 .
    NO - Replace shift solenoid valve A or the shift solenoid harness, then go to Step 22 .
14. Disconnect PCM connector A (49P).
15. Turn the ignition switch to ON (II).

---

16. Measure the voltage between PCM connector terminals A9 and C44 or C48.



Is there battery voltage?

YES - Go to Step 17 .

NO - Check for a blown No. 39 (15 A) fuse in the under-dash fuse/relay box. If the fuse is OK, check the PGM-FI main relay, and repair open or short in the wire between PCM connector terminal A9 and the under-dash fuse/relay box, then go to Step 22 .

17. Reconnect all connectors.

18. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

19. Test-drive the vehicle:
    - Seven-position transmission: Drive the vehicle in 2nd gear in D, D3, or 2 for at least 1 second. Slow down to a stop, and wait for at least 1 second.
    - Five-position transmission: Drive the vehicle in 2nd gear in the sequential shift mode in S for at least 1 second, or in D. Slow down to a stop, and wait for at least 1 second.

20. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0973 indicated?

YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .

NO - Go to Step 21 .

21. Monitor the OBD status for P0973 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 20 , go to the indicated DTC's troubleshooting.■

NO - Check for an intermittent short in the wire between shift solenoid valve A and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 19 and recheck.

22. Reconnect all connectors.

23. Clear the DTC with the HDS.

24. Test-drive the vehicle:
    - Seven-position transmission: Drive the vehicle in 2nd gear in D, D3, or 2 for at least 1 second. Slow down to a stop, and wait for at least 1 second.
    - Five-position transmission: Drive the vehicle in 2nd gear in the sequential shift mode in S for at least 1 second, or in D. Slow down to a stop, and wait for at least 1 second.

25. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0973 indicated?

YES - Check for an intermittent short in the wire between shift solenoid valve A and the PCM, then go to Step 1 .

NO - Go to Step 26 .

26. Monitor the OBD status for P0973 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

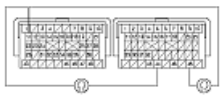
Does the HDS indicate PASSED?

YES - Troubleshooting is complete. If any other DTCs were indicated on Step 25 , go to the indicated DTC's troubleshooting.■

NO - Check for an intermittent short in the wire between shift solenoid valve A and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 24 and recheck.

DTC Troubleshooting: P0974 (7)

DTC P0974:
Shift Solenoid Valve A (Open)
NOTE:



- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Start the engine in P, and wait for at least 1 second.
3. Check that DTC P0974 recurs.

   Is DTC P0974 indicated?
   YES - Go to Step 7 .
   NO - Go to Step 4 .
4. Select Shift Solenoid A in the Miscellaneous Test Menu, and test shift solenoid valve A with the HDS.

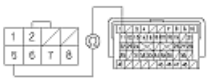
   Is a clicking sound heard?
   YES - Go to Step 5 .
   NO - Go to Step 7 .
5. Start the engine in P, and wait for at least 1 second. Then:
   - Seven-position transmission: Test-drive the vehicle in 2nd gear in D, D3, or 2 for at least 1 second. Slow down to a stop, and wait for at least 1 second.
   - Five-position transmission: Test-drive the vehicle in 2nd gear in the sequential shift mode in S for at least 1 second, or in D. Slow down to a stop, and wait for at least 1 second.
6. Monitor the OBD status for P0974 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at shift solenoid valve A and the PCM. If the HDS indicates NOT COMPLETED, return to Step 4 and recheck.
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect PCM connectors B (49P) and C (49P).
10. Measure the resistance between PCM connector terminals B11 and C44 or C48.

    Is there 12–25 Ω?
    YES - Go to Step 15 .
    NO - Go to Step 11 .
11. Disconnect the shift solenoid harness connector.

---

12. Check for continuity between PCM connector terminal B11 and shift solenoid harness connector terminal No. 5.



    Is there continuity?
    YES - Go to Step 13 .
    NO - Repair open in the wire between PCM connector terminal B11 and the shift solenoid harness connector, then go to Step 25 .
13. Remove the shift solenoid harness.

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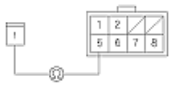
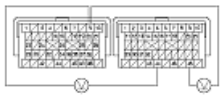
14. Check for continuity between shift solenoid harness connector terminal No. 5 and the shift solenoid valve A connector terminal.



    Is there continuity?
    YES - Replace shift solenoid valve A, then go to Step 25 .
    NO - Replace the shift solenoid harness, then go to Step 25 .
15. Disconnect PCM connector A (49P).
16. Turn the ignition switch to ON (II).

---

17. Measure the voltage between PCM connector terminals A9 and C44 or C48.

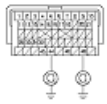


Is there battery voltage?
YES - Go to Step 20 .
NO - Go to Step 18 .

18. Turn the ignition switch to LOCK (0).

---

19. Check for continuity between PCM connector terminals C44 and body ground, and between C48 and body ground.



Is there continuity?
YES - Check for a blown No. 39 (15 A) fuse in the under-dash fuse/relay box. If the fuse is OK, check the PGM-FI main relay, and repair open or short in the wire between PCM connector terminal A9 and the under-dash fuse/relay box, then go to Step 25 .
NO - Repair open in the wires between PCM connector terminals C44, C48 and ground (G101), or repair poor ground (G101), then go to Step 25 .

20. Connect PCM connectors.

21. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

22. Test-drive the vehicle:
- Seven-position transmission: Drive the vehicle in 2nd gear in D, D3, or 2 for at least 1 second. Slow down to a stop, and wait for at least 1 second.
- Five-position transmission: Drive the vehicle in 2nd gear in the sequential shift mode in S for at least 1 second, or in D. Slow down to a stop, and wait for at least 1 second.

23. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0974 indicated?
YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .
NO - Go to Step 24 .

24. Monitor the OBD status for P0974 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?
YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 23 , go to the indicated DTC's troubleshooting.■
NO - Check for poor connections and loose terminals at shift solenoid valve A and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 22 and recheck.

25. Reconnect all connectors.

26. Clear the DTC with the HDS.

27. Test-drive the vehicle:
- Seven-position transmission: Drive the vehicle in 2nd gear in D, D3, or 2 for at least 1 second. Slow down to a stop, and wait for at least 1 second.
- Five-position transmission: Drive the vehicle in 2nd gear in the sequential shift mode in S for at least 1 second, or in D. Slow down to a stop, and wait for at least 1 second.

28. Check for Temporary DTCs or DTCs with the HDS.

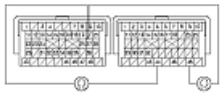
Is DTC P0974 indicated?
YES - Check for poor connections and loose terminals at shift solenoid valve A and the PCM, then go to Step 1 .
NO - Go to Step 29 .

29. Monitor the OBD status for P0974 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?
YES - Troubleshooting is complete. If any other DTCs were indicated on Step 28 , go to the indicated DTC's troubleshooting.■
NO - Check for poor connections and loose terminals at shift solenoid valve A and the PCM, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 27 and recheck.

DTC Troubleshooting: P0976 (8)

DTC P0976:
Shift Solenoid Valve B (Short)
NOTE:



- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Start the engine, and test-drive the vehicle:
   - Seven-position transmission: Drive the vehicle in 1st gear in D, D3, or 1 for at least 1 second, then slow down to a stop.
   - Five-position transmission: Drive the vehicle in 1st gear in the sequential shift mode in S for at least 1 second, or in D, then slow down to a stop.
3. Check that DTC P0976 recurs.

   Is DTC P0976 indicated?
   YES - Go to Step 7 .
   NO - Go to Step 4 .
4. Select Shift Solenoid B in the Miscellaneous Test Menu, and test shift solenoid valve B with the HDS.

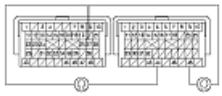
   Is a clicking sound heard?
   YES - Go to Step 5 .
   NO - Go to Step 7 .
5. Start the engine, and test-drive the vehicle:
   - Seven-position transmission: Drive the vehicle in 1st gear in D3 for at least 1 second, then press the accelerator pedal so that the transmission upshifts into 3rd gear, and drive in 3rd gear for at least 1 second. Slow down and stop the wheels.
   - Five-position transmission: Drive the vehicle in 1st gear in the sequential shift mode in S for at least 1 second, then upshift to 3rd gear by pulling the paddle shifter + (upshift switch), and drive in 3rd gear for at least 1 second. Slow down and stop the wheels.
6. Monitor the OBD status for P0976 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check the SH B wire for an intermittent short to ground between shift solenoid valve B and the PCM. If the HDS indicates NOT COMPLETED, return to Step 4 and recheck.
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect PCM connectors B (49P) and C (49P).
10. Measure the resistance between PCM connector terminals B27 and C44 or C48.

    Is there less than 12 Ω?
    YES - Go to Step 11 .
    NO - Go to Step 17 .
11. Disconnect the shift solenoid harness connector.

---

12. Check for continuity between PCM connector terminals B27 and C44 or C48.

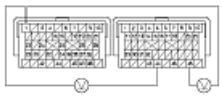


    Is there continuity?
    YES - Repair short in the wire between PCM connector terminal B27 and the shift solenoid harness connector, then go to Step 22 .
    NO - Go to Step 13 .
13. Inspect shift solenoid valve B.

    Is shift solenoid valve B OK?
    YES - Go to Step 14 .
    NO - Replace shift solenoid valve B or the shift solenoid harness, then go to Step 22 .
14. Disconnect PCM connector A (49P).
15. Turn the ignition switch to ON (II).

---

16. Measure the voltage between PCM connector terminals A1 and C44 or C48.



Is there battery voltage?

YES - Go to Step 17 .

NO - Check for a blown No. 7 (10 A) fuse in the under-hood fuse/relay box. If the fuse is OK, repair open or short in the wire between PCM connector terminal A1 and the under-hood fuse/relay box, then go to Step 22 .

17. Reconnect all connectors.

18. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

19. Test-drive the vehicle:
    - Seven-position transmission: Drive the vehicle in 1st gear in D3 for at least 1 second, then press the accelerator pedal so that the transmission upshifts into 3rd gear, and drive in 3rd gear for at least 1 second. Slow down and stop the wheels.
    - Five-position transmission: Drive the vehicle in 1st gear in the sequential shift mode in S for at least 1 second, then upshift to 3rd gear by pulling the paddle shifter + (upshift switch), and drive in 3rd gear for at least 1 second. Slow down and stop the wheels.

20. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0976 indicated?

YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .

NO - Go to Step 21 .

21. Monitor the OBD status for P0976 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 20 , go to the indicated DTC's troubleshooting.■

NO - Check for an intermittent short in the wire between shift solenoid valve B and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 19 and recheck.

22. Reconnect all connectors.

23. Clear the DTC with the HDS.

24. Test-drive the vehicle:
    - Seven-position transmission: Drive the vehicle in 1st gear in D3 for at least 1 second, then press the accelerator pedal so that the transmission upshifts into 3rd gear, and drive in 3rd gear for at least 1 second. Slow down and stop the wheels.
    - Five-position transmission: Drive the vehicle in 1st gear in the sequential shift mode in S for at least 1 second, then upshift to 3rd gear by pulling the paddle shifter + (upshift switch), and drive in 3rd gear for at least 1 second. Slow down and stop the wheels.

25. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0976 indicated?

YES - Check for an intermittent short in the wire between shift solenoid valve B and the PCM, then go to Step 1 .

NO - Go to Step 26 .

26. Monitor the OBD status for P0976 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

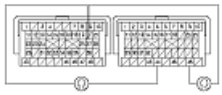
Does the HDS indicate PASSED?

YES - Troubleshooting is complete. If any other DTCs were indicated on Step 25 , go to the indicated DTC's troubleshooting.■

NO - Check for an intermittent short in the wire between shift solenoid valve B and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 24 and recheck.

DTC Troubleshooting: P0977 (8)

DTC P0977:
Shift Solenoid Valve B (Open)
NOTE:



- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Start the engine, and test-drive the vehicle:
   - Seven-position transmission: Drive the vehicle in D3, and let the transmission shift through all three gears. Drive the vehicle in 3rd gear for at least 1 second, then slow down to a stop.
   - Five-position transmission: Drive the vehicle in 1st thru 3rd gears in the sequential shift mode in S. Drive the vehicle in 3rd gear for at least 1 second, then slow down to a stop.
3. Check that DTC P0977 recurs.

   Is DTC P0977 indicated?
   YES - Go to Step 7 .
   NO - Go to Step 4 .
4. Select Shift Solenoid B in the Miscellaneous Test Menu, and test shift solenoid valve B with the HDS.

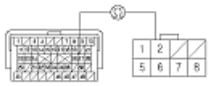
   Is a clicking sound heard?
   YES - Go to Step 5 .
   NO - Go to Step 7 .
5. Start the engine, and test-drive the vehicle:
   - Seven-position transmission: Drive the vehicle in 1st gear in D3 for at least 1 second, then press the accelerator pedal so that the transmission upshifts into 3rd gear, and drive in 3rd gear for at least 1 second. Slow down and stop the wheels.
   - Five-position transmission: Drive the vehicle in 1st gear in the sequential shift mode in S for at least 1 second, then upshift to 3rd gear by pulling the paddle shifter + (upshift switch), and drive in 3rd gear for at least 1 second. Slow down and stop the wheels.
6. Monitor the OBD status for P0977 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at shift solenoid valve B and the PCM. If the HDS indicates NOT COMPLETED, return to Step 4 and recheck.
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect PCM connectors B (49P) and C (49P).
10. Measure the resistance between PCM connector terminals B27 and C44 or C48.

    Is there 12–25 Ω?
    YES - Go to Step 15 .
    NO - Go to Step 11 .
11. Disconnect the shift solenoid harness connector.

---

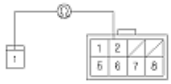
12. Check for continuity between PCM connector terminal B27 and shift solenoid harness connector terminal No. 2.



    Is there continuity?
    YES - Go to Step 13 .
    NO - Repair open in the wire between PCM connector terminal B27 and the shift solenoid harness connector, then go to Step 25 .
13. Remove the shift solenoid harness.

---

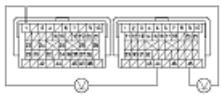
14. Check for continuity between shift solenoid harness connector terminal No. 2 and the shift solenoid valve B connector terminal.



    Is there continuity?
    YES - Replace shift solenoid valve B, then go to Step 25 .
    NO - Replace the shift solenoid harness, then go to Step 25 .
15. Disconnect PCM connector A (49P).
16. Turn the ignition switch to ON (II).

---

17. Measure the voltage between PCM connector terminals A1 and C44 or C48.

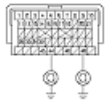


Is there battery voltage?
YES - Go to Step 20 .
NO - Go to Step 18 .

18. Turn the ignition switch to LOCK (0).

---

19. Check for continuity between PCM connector terminals C44 and body ground, and between C48 and body ground.



Is there continuity?
YES - Check for a blown No. 7 (10 A) fuse in the under-hood fuse/relay box. If the fuse is OK, repair open or short in the wire between PCM connector terminal A1 and the under-hood fuse/relay box, then go to Step 25 .
NO - Repair open in the wires between PCM connector terminals C44, C48 and ground (G101), or repair poor ground (G101), then go to Step 25 .

20. Connect PCM connectors.

21. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

22. Test-drive the vehicle:
    - Seven-position transmission: Drive the vehicle in 1st gear in D3 for at least 1 second, then press the accelerator pedal so that the transmission upshifts into 3rd gear, and drive in 3rd gear for at least 1 second. Slow down and stop the wheels.
    - Five-position transmission: Drive the vehicle in 1st gear in the sequential shift mode in S for at least 1 second, then upshift to 3rd gear by pulling the paddle shifter + (upshift switch), and drive in 3rd gear for at least 1 second. Slow down and stop the wheels.

23. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0977 indicated?
YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .
NO - Go to Step 24 .

24. Monitor the OBD status for P0977 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?
YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 23 , go to the indicated DTC's troubleshooting.■
NO - Check for poor connections and loose terminals at shift solenoid valve B and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 22 and recheck.

25. Reconnect all connectors.

26. Clear the DTC with the HDS.

27. Test-drive the vehicle:
    - Seven-position transmission: Drive the vehicle in 1st gear in D3 for at least 1 second, then press the accelerator pedal so that the transmission upshifts into 3rd gear, and drive in 3rd gear for at least 1 second. Slow down and stop the wheels.
    - Five-position transmission: Drive the vehicle in 1st gear in the sequential shift mode in S for at least 1 second, then upshift to 3rd gear by pulling the paddle shifter + (upshift switch), and drive in 3rd gear for at least 1 second. Slow down and stop the wheels.

28. Check for Temporary DTCs or DTCs with the HDS.

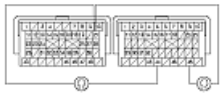
Is DTC P0977 indicated?
YES - Check for poor connections and loose terminals at shift solenoid valve B and the PCM, then go to Step 1 .
NO - Go to Step 29 .

29. Monitor the OBD status for P0977 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?
YES - Troubleshooting is complete. If any other DTCs were indicated on Step 28 , go to the indicated DTC's troubleshooting.■
NO - Check for poor connections and loose terminals at shift solenoid valve B and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 27 and recheck.

DTC Troubleshooting: P0979 (22)

DTC P0979:
Shift Solenoid Valve C (Short)
NOTE:



- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Start the engine, and test-drive the vehicle:
   - Seven-position transmission: Drive the vehicle in D3, and let the transmission shift through all three gears. Drive the vehicle in 3rd gear for at least 1 second, then slow down to a stop.
   - Five-position transmission: Drive the vehicle in 1st thru 3rd gears in the sequential shift mode in S. Drive the vehicle in 3rd gear for at least 1 second, then slow down to a stop.
3. Check that DTC P0979 recurs.

   Is DTC P0979 indicated?
   YES - Go to Step 7 .
   NO - Go to Step 4 .
4. Select Shift Solenoid C in the Miscellaneous Test Menu, and test shift solenoid valve C with the HDS.

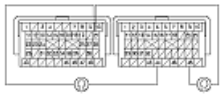
   Is a clicking sound heard?
   YES - Go to Step 5 .
   NO - Go to Step 7 .
5. Start the engine, and test-drive the vehicle:
   - Seven-position transmission: Drive the vehicle in D3, and let the transmission shift through all three gears, then slow down to a stop. Shift into P, and wait for at least 1 second.
   - Five-position transmission: Drive the vehicle in 1st thru 3rd gears in the sequential shift mode in S, then slow down to a stop. Shift into P, and wait for at least 1 second.
6. Monitor the OBD status for P0979 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check the SH C wire for an intermittent short to ground between shift solenoid valve C and the PCM. If the HDS indicates NOT COMPLETED, return to Step 4 and recheck.
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect PCM connectors B (49P) and C (49P).
10. Measure the resistance between PCM connector terminals B21 and C44 or C48.

    Is there less than 12 Ω?
    YES - Go to Step 11 .
    NO - Go to Step 17 .
11. Disconnect the shift solenoid harness connector.

---

12. Check for continuity between PCM connector terminals B21 and C44 or C48.

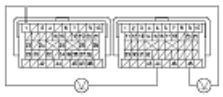


    Is there continuity?
    YES - Repair short in the wire between PCM connector terminal B21 and the shift solenoid harness connector, then go to Step 22 .
    NO - Go to Step 13 .
13. Inspect shift solenoid valve C.

    Is shift solenoid valve C OK?
    YES - Go to Step 14 .
    NO - Replace shift solenoid valve C or the shift solenoid harness, then go to Step 22 .
14. Disconnect PCM connector A (49P).
15. Turn the ignition switch to ON (II).

---

16. Measure the voltage between PCM connector terminals A1 and C44 or C48.



Is there battery voltage?

YES - Go to Step 17 .

NO - Check for a blown No. 7 (10 A) fuse in the under-hood fuse/relay box. If the fuse is OK, repair open or short in the wire between PCM connector terminal A1 and the under-hood fuse/relay box, then go to Step 22 .

17. Connect PCM connectors.

18. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

19. Start the engine, and test-drive the vehicle:
    - Seven-position transmission: Drive the vehicle in D3, and let the transmission shift through all three gears, then slow down to a stop. Shift into P, and wait for at least 1 second.
    - Five-position transmission: Drive the vehicle in 1st thru 3rd gears in the sequential shift mode in S, then slow down to a stop. Shift into P, and wait for at least 1 second.

20. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0979 indicated?

YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .

NO - Go to Step 21 .

21. Monitor the OBD status for P0979 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 20 , go to the indicated DTC's troubleshooting.■

NO - Check for an intermittent short in the wire between shift solenoid valve C and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 19 and recheck.

22. Reconnect all connectors.

23. Clear the DTC with the HDS.

24. Start the engine, and test-drive the vehicle:
    - Seven-position transmission: Drive the vehicle in D3, and let the transmission shift through all three gears, then slow down to a stop. Shift into P, and wait for at least 1 second.
    - Five-position transmission: Drive the vehicle in 1st thru 3rd gears in the sequential shift mode in S, then slow down to a stop. Shift into P, and wait for at least 1 second.

25. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0979 indicated?

YES - Check for an intermittent short in the wire between shift solenoid valve C and the PCM, then go to Step 1 .

NO - Go to Step 26 .

26. Monitor the OBD status for P0979 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

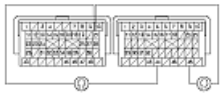
Does the HDS indicate PASSED?

YES - Troubleshooting is complete. If any other DTCs were indicated on Step 25 , go to the indicated DTC's troubleshooting.■

NO - Check for an intermittent short in the wire between shift solenoid valve C and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 24 and recheck.

DTC Troubleshooting: P0980 (22)

DTC P0980:
Shift Solenoid Valve C (Open)
NOTE:



- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Start the engine in P, and wait for at least 1 second.
3. Check that DTC P0980 recurs.

   Is DTC P0980 indicated?
   YES - Go to Step 7 .
   NO - Go to Step 4 .
4. Select Shift Solenoid C in the Miscellaneous Test Menu, and test shift solenoid valve C with the HDS.

   Is a clicking sound heard?
   YES - Go to Step 5 .
   NO - Go to Step 7 .
5. Start the engine in P, and wait for at least 1 second. Then:
   - Seven-position transmission: Test-drive the vehicle in D3, and let the transmission shift through all three gears. Drive the vehicle in 3rd gear for at least 1 second, then slow down to a stop. Shift into P, and wait for at least 1 second.
   - Five-position transmission: Test-drive the vehicle in 1st thru 3rd gears in the sequential shift mode in S. Drive the vehicle in 3rd gear for at least 1 second, then slow down to a stop. Shift into P, and wait for at least 1 second.
6. Monitor the OBD status for P0980 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at shift solenoid valve C and the PCM. If the HDS indicates NOT COMPLETED, return to Step 4 and recheck.
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect PCM connectors B (49P) and C (49P).
10. Measure the resistance between PCM connector terminals B21 and C44 or C48.

    Is there 12−25 Ω?
    YES - Go to Step 15 .
    NO - Go to Step 11 .
11. Disconnect the shift solenoid harness connector.

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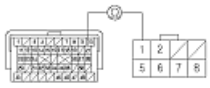
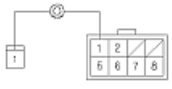
12. Check for continuity between PCM connector terminal B21 and shift solenoid harness connector terminal No. 1.



    Is there continuity?
    YES - Go to Step 13 .
    NO - Repair open in the wire between PCM connector terminal B21 and the shift solenoid harness connector, then go to Step 25 .
13. Remove the shift solenoid harness.

---

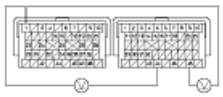
14. Check for continuity between shift solenoid harness connector terminal No. 1 and the shift solenoid valve C connector terminal.



    Is there continuity?
    YES - Replace shift solenoid valve C, then go to Step 25 .
    NO - Replace the shift solenoid harness, then go to Step 25 .
15. Disconnect PCM connector A (49P).
16. Turn the ignition switch to ON (II).

---

17. Measure the voltage between PCM connector terminals A1 and C44 or C48.

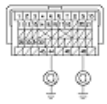


Is there battery voltage?
YES - Go to Step 20 .
NO - Go to Step 18 .

18. Turn the ignition switch to LOCK (0).

---

19. Check for continuity between PCM connector terminals C44 and body ground, and between C48 and body ground.



Is there continuity?
YES - Check for a blown No. 7 (10 A) fuse in the under-hood fuse/relay box. If the fuse is OK, repair open or short in the wire between PCM connector terminal A1 and the under-hood fuse/relay box, then go to Step 25 .
NO - Repair open in the wires between PCM connector terminals C44, C48 and ground (G101), or repair poor ground (G101), then go to Step 25 .

20. Connect PCM connectors.

21. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

22. Test-drive the vehicle:
- Seven-position transmission: Drive the vehicle in D3, and let the transmission shift through all three gears. Drive the vehicle in 3rd gear for at least 1 second, then slow down to a stop. Shift into P, and wait for at least 1 second.
- Five-position transmission: Drive the vehicle in 1st thru 3rd gears in the sequential shift mode in S. Drive the vehicle in 3rd gear for at least 1 second, then slow down to a stop. Shift into P, and wait for at least 1 second.

23. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0980 indicated?
YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .
NO - Go to Step 24 .

24. Monitor the OBD status for P0980 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?
YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 23 , go to the indicated DTC's troubleshooting.■
NO - Check for poor connections and loose terminals at shift solenoid valve C and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 22 and recheck.

25. Clear the DTC with the HDS.

26. Test-drive the vehicle:
- Seven-position transmission: Drive the vehicle in D3, and let the transmission shift through all three gears. Drive the vehicle in 3rd gear for at least 1 second, then slow down to a stop. Shift into P, and wait for at least 1 second.
- Five-position transmission: Drive the vehicle in 1st thru 3rd gears in the sequential shift mode in S. Drive the vehicle in 3rd gear for at least 1 second, then slow down to a stop. Shift into P, and wait for at least 1 second.

27. Check for Temporary DTCs or DTCs with the HDS.

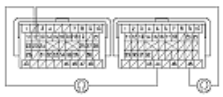
Is DTC P0980 indicated?
YES - Check for poor connections and loose terminals at shift solenoid valve C and the PCM, then go to Step 1 .
NO - Go to Step 28 .

28. Monitor the OBD status for P0980 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?
YES - Troubleshooting is complete. If any other DTCs were indicated on Step 27 , go to the indicated DTC's troubleshooting.■
NO - Check for poor connections and loose terminals at shift solenoid valve C and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 26 and recheck.

DTC Troubleshooting: P0982 (60)

DTC P0982:
Shift Solenoid Valve D (Short)
NOTE:



- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Start the engine in P, and wait for at least 1 second.
3. Check that DTC P0982 recurs.

   Is DTC P0982 indicated?
   YES - Go to Step 7 .
   NO - Go to Step 4 .
4. Select Shift Solenoid D in the Miscellaneous Test Menu, and test shift solenoid valve D with the HDS.

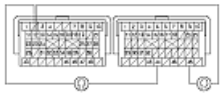
   Is a clicking sound heard?
   YES - Go to Step 5 .
   NO - Go to Step 7 .
5. Start the engine in P, and wait for at least 1 second. With the brake pedal pressed, shift to N, and wait for at least 1 second.
6. Monitor the OBD status for P0982 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check the SH D wire for an intermittent short to ground between shift solenoid valve E and the PCM. If the HDS indicates NOT COMPLETED, return to Step 4 and recheck.
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect PCM connectors B (49P) and C (49P).
10. Measure the resistance between PCM connector terminals B12 and C44 or C48.

    Is there less than 12 Ω?
    YES - Go to Step 11 .
    NO - Go to Step 16 .
11. Disconnect the shift solenoid harness connector.

---

12. Check for continuity between PCM connector terminals B12 and C44 or C48.

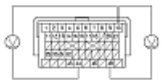


    Is there continuity?
    YES - Repair short in the wire between PCM connector terminal B12 and the shift solenoid harness connector, then go to Step 21 .
    NO - Go to Step 13 .
13. Inspect shift solenoid valve D.

    Is shift solenoid valve D OK?
    YES - Go to Step 14 .
    NO - Replace shift solenoid valve D or the shift solenoid harness , then go to Step 21 .
14. Turn the ignition switch to ON (II).

---

15. Measure the voltage between PCM connector terminals C10 and C44 or C48.



Is there battery voltage?

YES - Go to Step 16 .

NO - Check for a blown No. 20 (15 A) fuse in the under-dash fuse/relay box. If the fuse is OK, repair open or short in the wire between PCM connector terminal C10 and the under-dash fuse/relay box, then go to Step 21 .

16. Reconnect all connectors.

17. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

18. Start the engine in P, and wait for at least 1 second. With the brake pedal pressed, shift to N, and wait for at least 1 second.

19. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0982 indicated?

YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .

NO - Go to Step 20 .

20. Monitor the OBD status for P0982 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 19 , go to the indicated DTC's troubleshooting.■

NO - Check for an intermittent short in the wire between shift solenoid valve D and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 18 and recheck.

21. Reconnect all connectors.

22. Clear the DTC with the HDS.

23. Start the engine in P, and wait for at least 1 second. With the brake pedal pressed, shift to N, and wait for at least 1 second.

24. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0982 indicated?

YES - Check for an intermittent short in the wire between shift solenoid valve D and the PCM, then go to Step 1 .

NO - Go to Step 25 .

25. Monitor the OBD status for P0982 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

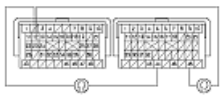
Does the HDS indicate PASSED?

YES - Troubleshooting is complete. If any other DTCs were indicated on Step 24 , go to the indicated DTC's troubleshooting.■

NO - Check for an intermittent short in the wire between shift solenoid valve D and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 23 and recheck.

DTC Troubleshooting: P0983 (60)

DTC P0983:
Shift Solenoid Valve D (Open)
NOTE:



- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Start the engine in P. With the brake pedal pressed, shift to N, and wait for at least 1 second.
3. Check that DTC P0983 recurs.

   Is DTC P0983 indicated?
   YES - Go to Step 7 .
   NO - Go to Step 4 .
4. Select Shift Solenoid D in the Miscellaneous Test Menu, and test shift solenoid valve D with the HDS.

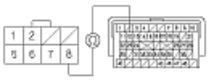
   Is a clicking sound heard?
   YES - Go to Step 5 .
   NO - Go to Step 7 .
5. Start the engine in P, and wait for at least 1 second. With the brake pedal pressed, shift to N, and wait for at least 1 second.
6. Monitor the OBD status for P0983 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at shift solenoid valve D and the PCM. If the HDS indicates NOT COMPLETED, return to Step 4 and recheck.
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect PCM connectors B (49P) and C (49P).
10. Measure the resistance between PCM connector terminals B12 and C44 or C48.

    Is there 12−25 Ω?
    YES - Go to Step 15 .
    NO - Go to Step 11 .
11. Disconnect the shift solenoid harness connector.

---

12. Check for continuity between PCM connector terminal B12 and shift solenoid harness connector terminal No. 8.

    Is there continuity?
    YES - Go to Step 13 .
    NO - Repair open in the wire between PCM connector terminal B12 and the shift solenoid harness connector, then go to Step 24 .
13. Remove the shift solenoid harness.

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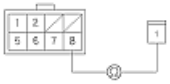
14. Check for continuity between shift solenoid harness connector terminal No. 8 and the shift solenoid valve D connector terminal.

    Is there continuity?
    YES - Replace shift solenoid valve D, then go to Step 24 .
    NO - Replace the shift solenoid harness, then go to Step 24 .
15. Turn the ignition switch to ON (II).

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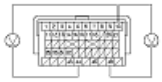
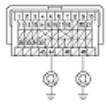
16. Measure the voltage between PCM connector terminals C10 and C44 or C48.

    Is there battery voltage?
    YES - Go to Step 19 .
    NO - Go to Step 17 .
17. Turn the ignition switch to LOCK (0).

---

18. Check for continuity between PCM connector terminals C44 and body ground, and between C48 and body ground.



Is there continuity?

YES - Check for a blown No. 20 (15A) fuse in the under-dash fuse/relay box. If the fuse is OK, repair open or short in the wire between PCM connector terminal C10 and the under-dash fuse/relay box, then go to Step 24 .

NO - Repair open in the wires between PCM connector terminals C44, C48 and ground (G101), or repair poor ground (G101), then go to Step 24 .

19. Connect PCM connectors.

20. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

21. Start the engine in P, and wait for at least 1 second. With the brake pedal pressed, shift to N, and wait for at least 1 second.

22. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0983 indicated?

YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .

NO - Go to Step 23 .

23. Monitor the OBD status for P0983 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 22 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at shift solenoid valve D and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 21 and recheck.

24. Reconnect all connectors.

25. Clear the DTC with the HDS.

26. Start the engine in P, and wait for at least 1 second. With the brake pedal pressed, shift to N, and wait for at least 1 second.

27. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0983 indicated?

YES - Check for poor connections and loose terminals at shift solenoid valve D and the PCM, then go to Step 1 .

NO - Go to Step 28 .

28. Monitor the OBD status for P0983 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES - Troubleshooting is complete. If any other DTCs were indicated on Step 27 , go to the indicated DTC's troubleshooting.■

NO - Check for poor connections and loose terminals at shift solenoid valve D and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 26 and recheck.

DTC Troubleshooting: P16C0

DTC P16C0:
PCM A/T Control System Incomplete Update
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is indicated when PCM updating is incomplete.

1. Update the A/T software in the PCM.
2. Check whether the DTC P16C0 is indicated in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC P16C0 indicated?
   YES - Replace the original PCM. ■
   NO - PCM updating is complete.■

DTC Troubleshooting: P1717 (62)

DTC P1717:
Transmission Range Switch ATP RVS Switch (Open)
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch to ON (II).
2. Shift to R, and verify the A/T R Switch signal with the HDS in the A/T data list.

   Is the A/T R Switch ON?
   YES - Go to Step 3 .
   NO - Check for proper transmission range switch installation, and adjust the shift cable, then recheck.■
3. Check the Reverse Switch (ATP RVS) signal with the HDS.

   Is the Reverse Switch (ATP RVS) ON?
   YES - Intermittent failure, the system is OK at this time.■
   NO - Go to Step 4 .
4. Turn the ignition switch to LOCK (0).
5. Disconnect the transmission range switch connector.
6. Check for continuity between transmission range switch connector terminal No. 10 and body ground.

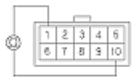
   Is there continuity?
   YES - Go to Step 7 .
   NO - Repair open in the wire between transmission range switch connector terminal No. 10 and ground (G101), or repair poor ground (G101), then go to Step 15 .
7. Turn the ignition switch to ON (II).

---

8. Measure the voltage between transmission range switch connector terminals No. 1 and No. 10.

   Is there voltage?
   YES - Go to Step 9 .
   NO - Repair open in the wire between PCM connector terminal B23 and the transmission range switch, then go to Step 15 .

9. Check for continuity between transmission range switch connector terminals No. 1 and No. 10 while the shift lever is in R, and when the shift lever is shifted to any position other than R.



Is there continuity while the shift lever is in R, and no continuity when the shift lever is shifted to any position other than R?
   YES - Go to Step 10 .
   NO - Replace the transmission range switch, then go to Step 15 .

10. Connect the transmission range switch connector.

11. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.

12. Start the engine, and shift to R. Move the vehicle in reverse at speeds below 5 km/h (3 mph) for at least 2 seconds, then increase the speed and move at speeds over 5 km/h (3 mph) for at least 2 seconds. Slow down and stop the wheels.

13. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P1717 indicated?
   YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .
   NO - Go to Step 14 .

14. Monitor the OBD status for P1717 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?
   YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 13 , go to the indicated DTC's troubleshooting.■
   NO - Check for poor connections and loose terminals at the transmission range switch and the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 12 and recheck.

15. Connect the transmission range switch connector.

16. Clear the DTC with the HDS.

17. Start the engine, and shift to R. Move the vehicle in reverse at speeds below 5 km/h (3 mph) for at least 2 seconds, then increase the speed and move at speeds over 5 km/h (3 mph) for at least 2 seconds. Slow down and stop the wheels.

18. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P1717 indicated?
   YES - Check for poor connections and loose terminals at the transmission range switch and the PCM, then go to Step 1 .
   NO - Go to Step 19 .

19. Monitor the OBD status for P1717 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?
   YES - Troubleshooting is complete. If any other DTCs were indicated on Step 18 , go to the indicated DTC's troubleshooting.■
   NO - Check for poor connections and loose terminals at the transmission range switch and the PCM, then go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 17 and recheck.

DTC Troubleshooting: P1746 (45)

DTC P1746:
Hydraulic Control System (Cut A Valve Stuck OFF or Cut B Valve Stuck ON)
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?
   YES - Replace the transmission, then go to Step 7.
   NO - Replace the ATF, then go to Step 4.
4. Clear the DTC with the HDS.
5. Test-drive the vehicle with the shift lever in D for at least 3 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
6. Monitor the OBD status for P1746 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Repair cut A valve in the servo body, repair cut B valve in the main valve body, replace the main valve body or servo body, then go to Step 7, or replace the transmission.
   NO - Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to Step 5 and recheck.■
7. Clear the DTC with the HDS.
8. Test-drive the vehicle with the shift lever in D for at least 3 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
9. Monitor the OBD status for P1746 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate PASSED?
   YES - Troubleshooting is complete.■
   NO - Return to Step 7 and recheck. If the HDS indicates NOT COMPLETED, return to Step 8 and recheck.

DTC Troubleshooting: P1747 (45)

DTC P1747:
Hydraulic Control System (Cut A Valve Stuck ON or Cut B Valve Stuck OFF)
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer. Inspect the strainer for metal debris or excessive clutch material.

   Does the strainer have metal debris or excessive clutch material?
   YES - Replace the transmission, then go to Step 7.
   NO - Replace the ATF, then go to Step 4.
4. Clear the DTC with the HDS.
5. Test-drive the vehicle with the shift lever in D for at least 3 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
6. Monitor the OBD status for P1747 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate FAILED?
   YES - Repair cut A valve in the servo body, repair cut B valve in the main valve body, replace the main valve body or servo body, then go to Step 7, or replace the transmission.
   NO - Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to Step 5 and recheck.■
7. Clear the DTC with the HDS.
8. Test-drive the vehicle with the shift lever in D for at least 3 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
9. Monitor the OBD status for P1747 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate PASSED?
   YES - Troubleshooting is complete.■
   NO - Return to Step 7 and recheck. If the HDS indicates NOT COMPLETED, return to Step 8 and recheck.

DTC Troubleshooting: P1780 (49)

DTC P1780:
Shift Control System (Transmission Default Mode)
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.

1. Clear the DTC with the HDS.
2. Test-drive the vehicle with the shift lever in D, and let the transmission shift through all five gears. Then slow down to a stop.
3. Check for other DTCs indicated simultaneously with DTC P1780.
   NOTE: DTC P1780 means there is one or more A/T DTCs about the shift control system.

   Are there other DTCs?
   YES - Troubleshoot the problem indicated by the DTC.■
   NO - Go to Step 4 .
4. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.
5. Test-drive the vehicle with the shift lever in D, and let the transmission shift through all five gears. Then slow down to a stop.
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1780 indicated?
   YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .
   NO - Go to Step 7 .
7. Monitor the OBD status for P1780 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate PASSED?
   YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 6 , go to the indicated DTC's troubleshooting.■
   NO - Check for poor connections and loose terminals at the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 5 and recheck.

DTC Troubleshooting: U0029 (107) - A/T

DTC U0029:
F-CAN Malfunction (F-CAN bus OFF)
Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.

1. Clear the DTC with the HDS.
2. Start the engine, and run it at idle for at least 2 minutes.
3. Check whether DTC U0029 is indicated in the DTCs/Freeze Data in PGM-FI Mode Menu with the HDS.

   Is DTC U0029 indicated in the PGM-FI system?
   YES - Troubleshoot DTC U0029 in the PGM-FI system. ■
   NO - Go to Step 4 .
4. Check whether DTC U0029 is indicated in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC U0029 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC U0029 indicated?
   YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .
   NO - Go to Step 7 .
7. Monitor the OBD status for U0029 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate PASSED?
   YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 6 , go to the indicated DTC's troubleshooting.■
   NO - Check for poor connections and loose terminals at the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 7 and recheck.

DTC Troubleshooting: U0121 (107) - A/T System

DTC U0121:
F-CAN Malfunction (PCM-ABS Modulator-Control Unit)
Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review General Troubleshooting Information.

1. Clear the DTC with the HDS.
2. Start the engine, and run it at idle for at least 2 minutes.
3. Check whether DTC U0121 is indicated in the DTCs/Freeze Data in PGM-FI Mode Menu with the HDS.

   Is DTC U0121 indicated in the PGM-FI system?
   YES - Troubleshoot DTC U0121 in the PGM-FI system. ■
   NO - Go to Step 4 .
4. Check whether DTC U0121 is indicated in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

   Is DTC U0121 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Update the A/T software in the PCM if it does not have the latest software, or substitute a known-good PCM.
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC U0121 indicated?
   YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .
   NO - Go to Step 7 .
7. Monitor the OBD status for U0121 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

   Does the HDS indicate PASSED?
   YES - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other DTCs were indicated on Step 6 , go to the indicated DTC's troubleshooting.■
   NO - Check for poor connections and loose terminals at the PCM. If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 . If the HDS indicates NOT COMPLETED, return to Step 7 and recheck.

Automatic Transmission and A/T Differential

Item	Measurement	Qualification	Standard or New	Service Limit
Automatic transmission fluid	Capacity Use genuine Honda ATF-Z1	Fluid change	2.5 L (2.6 US qt, 2.2 Imp qt)	
		Overhaul	5.85 L (6.18 US qt, 5.15 Imp qt)	
Pressure (Seven-position transmission)	Line pressure	At 2,000 rpm (min^{-1}) in P or N	900–960 kPa (9.2–9.8 kgf/cm^2, 130–140 psi)	850 kPa (8.7 kgf/cm^2, 120 psi)
	1st clutch pressure	At 2,000 rpm (min^{-1}) in 1	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	2nd clutch pressure	At 2,000 rpm (min^{-1}) in 2	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	3rd clutch pressure	At 2,000 rpm (min^{-1}) in 3rd gear in D3	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	4th clutch pressure	At 2,000 rpm (min^{-1}) in 4th gear in D	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	5th clutch pressure	At 2,000 rpm (min^{-1}) in 5th gear in D	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
Pressure (Five-position transmission)	Line pressure	At 2,000 rpm (min^{-1}) in P or N	900–960 kPa (9.2–9.8 kgf/cm^2, 130–140 psi)	850 kPa (8.7 kgf/cm^2, 120 psi)
	1st clutch pressure	At 2,000 rpm (min^{-1}) in 1st gear in S	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	2nd clutch pressure	At 2,000 rpm (min^{-1}) in 2nd gear in S	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	3rd clutch pressure	At 2,000 rpm (min^{-1}) in 3rd gear in S	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	4th clutch pressure	At 2,000 rpm (min^{-1}) in 4th gear in S	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	5th clutch pressure	At 2,000 rpm (min^{-1}) in 5th gear in S	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
Torque converter	Stall speed Check with vehicle on level ground		2,200 rpm (min^{-1})	2,050–2,350 rpm (min^{-1})

Automatic Transmission and A/T Differential (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit
Clutch	Clutch between clutch end-plate and top disc	1st	———	1.62–1.82 mm (0.064–0.072 in.)
		2nd	———	0.5–0.7 mm (0.020–0.028 in.)
		3rd	———	0.73–0.93 mm (0.029–0.037 in.)
		4th	———	0.7–0.9 mm (0.028–0.035 in.)
		5th	———	0.73–0.93 mm (0.029–0.037 in.)
	Clutch return spring free length	1st	35.2 mm (1.39 in.)	34.5 mm (1.36 in.)
		2nd	39.5 mm (1.56 in.)	37.4 mm (1.47 in.)
		3rd	45.15 mm (1.778 in.)	43.0 mm (1.69 in.)
		4th	39.5 mm (1.56 in.)	37.4 mm (1.47 in.)
		5th	45.15 mm (1.778 in.)	43.0 mm (1.69 in.)
	Clutch disc thickness	1st	1.94 mm (0.076 in.)	———
		2nd	1.96 mm (0.077 in.)	———
		3rd	1.94 mm (0.076 in.)	———
		4th	1.96 mm (0.077 in.)	———
		5th	1.94 mm (0.076 in.)	———
	Clutch plate thickness	1st	1.6 mm (0.063 in.)	When discolored
		2nd	2.3 mm (0.091 in.)	When discolored
		3rd	2.0 mm (0.079 in.)	When discolored
		4th	1.6 mm (0.063 in.)	When discolored
		5th	2.0 mm (0.079 in.)	When discolored
	Clutch waved-plate height 1st, 3rd, and 5th clutches		0.07–0.20 mm (0.003–0.008 in.)	0.05 mm (0.002 in.)
	1st, 3rd, and 5th clutch end-plate thickness	Mark 1	2.1 mm (0.082 in.)	When discolored
		Mark 2	2.2 mm (0.087 in.)	When discolored
		Mark 3	2.3 mm (0.091 in.)	When discolored
		Mark 4	2.4 mm (0.094 in.)	When discolored
		Mark 5	2.5 mm (0.098 in.)	When discolored

Item	Measurement	Qualification	Standard or New	Service Limit
		Mark 6	2.6 mm (0.102 in.)	When discolored
		Mark 7	2.7 mm (0.106 in.)	When discolored
		Mark 8	2.8 mm (0.110 in.)	When discolored
		Mark 9	2.9 mm (0.114 in.)	When discolored
	2nd and 4th clutch end-plate thickness	Mark AC or AM	2.1 mm (0.082 in.)	When discolored
		Mark AD or AN	2.2 mm (0.087 in.)	When discolored
		Mark AE or AP	2.3 mm (0.091 in.)	When discolored
		Mark AF or AQ	2.4 mm (0.094 in.)	When discolored
		Mark AG or AR	2.5 mm (0.098 in.)	When discolored
		Mark AH or AS	2.6 mm (0.102 in.)	When discolored
		Mark AJ or AT	2.7 mm (0.106 in.)	When discolored
		Mark AK or AU	2.8 mm (0.110 in.)	When discolored
		Mark AL or AV	2.9 mm (0.114 in.)	When discolored

Item	Measurement	Qualification	Standard or New	Service Limit
ATF pump	ATF pump thrust clearance		0.03−0.06 mm (0.001−0.002 in.)	0.07 mm (0.003 in.)
	Clearance between ATF pump gear and body	Drive gear	0.210−0.265 mm (0.008−0.010 in.)	———
		Driven gear	0.070−0.125 mm (0.003−0.005 in.)	———
	ATF pump driven gear I.D.		14.016−14.034 mm (0.5518−0.5525 in.)	When worn or damaged
	ATF pump driven gear shaft O.D.		13.980−13.990 mm (0.5504−0.5508 in.)	When worn or damaged
Stator shaft	Needle bearing contact I.D.	Torque converter side	27.000−27.021 mm (1.063−1.064 in.)	When worn or damaged
		ATF pump side	29.000−29.021 mm (1.1417−1.1426 in.)	———
	Sealing ring contact area I.D.		29.000−29.021 mm (1.1417−1.1426 in.)	29.05 mm (1.144 in.)
Reverse shift fork	Fork finger thickness		5.90−6.00 mm (0.232−0.236 in.)	5.40 mm (0.213 in.)
Park gear and pawl			———	When worn or damaged
Servo body	Shift fork shaft bore I.D.		14.000−14.010 mm (0.5512−0.5526 in.)	When worn or damaged
	Shift fork shaft valve bore I.D.		37.000−37.039 mm (1.4567−1.4582 in.)	37.045 mm (1.4585 in.)
Regulator valve body	Sealing ring contact I.D.		29.000−29.021 mm (1.1417−1.1426 in.)	29.05 mm (1.144 in.)
Mainshaft	Diameter of needle bearing contact area	At stator shaft	22.984−23.000 mm (0.9049−0.9055 in.)	When worn or damaged
		At 5th gear collar	32.975−32.991 mm (1.2982−1.2989 in.)	When worn or damaged
		At 3rd gear	46.986−46.999 mm (1.8498−1.8503 in.)	When worn or damaged
	I.D. of gears	5th gear	37.000−37.016 mm (1.4567−1.4573 in.)	When worn or damaged
		3rd gear	52.000−52.013 mm (2.0472−2.0478 in.)	When worn or damaged
	End play	5th gear	015−0.27 mm (0.006−0.106 in.)	———
		3rd gear	0.04−0.10 mm (0.002−0.004 in.)	———
	40 x 63 mm thrust washer thickness	No. 1	3.750 mm (0.1476 in.)	When worn or damaged
		No. 2	3.775 mm (0.1486 in.)	When worn or damaged
		No. 3	3.800 mm (0.1496 in.)	When worn or damaged
		No. 4	3.825 mm (0.1506 in.)	When worn or damaged
		No. 5	3.850 mm (0.1516 in.)	When worn or damaged
		No. 6	3.875 mm (0.1526 in.)	When worn or damaged
		No. 7	3.900 mm (0.1534 in.)	When worn or damaged
		No. 8	3.925 mm (0.1545 in.)	When worn or damaged
		No. 9	3.950 mm (0.1555 in.)	When worn or damaged
		No. 10	3.975 mm (0.1565 in.)	When worn or damaged
		No. 11	4.000 mm (0.1575 in.)	When worn or damaged
	5th gear collar length		60.4−60.5 mm (2.380−2.381 in.)	———
	5th gear collar flange thickness		3.70−3.85 mm (0.146−0.152 in.)	When worn or damaged
	Sealing ring thickness		1.91−1.97 mm (0.0752−0.0776 in.)	1.86 mm (0.0732 in.)
	Width of sealing ring groove		2.025−2.060 mm (0.0797−0.0811 in.)	2.080 mm (0.0819 in.)
	3rd clutch feed pipe O.D.		7.97−7.98 mm (0.3138−0.3142 in.)	7.95 mm (0.313 in.)
	Feed pipe bushing I.D.		8.000−8.015 mm (0.3150−0.3156 in.)	8.030 mm (0.3161 in.)

Automatic Transmission and A/T Differential (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft	Diameter of needle bearing contact area	At torque converter housing	33.504−33.517 mm (1.3191−1.3196 in.)	When worn or damaged
		At 5th gear	32.986−32.999 mm (1.2987−1.2991 in.)	When worn or damaged
		Reverse selector hub	35.983−35.999 mm (1.4167−1.4173 in.)	When worn or damaged
	I.D. of gears	5th gear	39.000−39.016 mm (1.5354−1.5361 in.)	When worn or damaged

Item	Measurement	Qualification	Standard or New	Service Limit
		Reverse gear	42.000−42.016 mm (1.6535−1.6542 in.)	When worn or damaged
	End play	5th gear	0.04−0.27 mm (0.002−0.011 in.)	———
		Reverse gear	0.10−0.25 mm (0.004−0.010 in.)	———
	Reverse selector hub width		29.25−29.45 mm (1.152−1.160 in.)	———
	Collar, 33.2 x 40 x 26 mm length		25.95−26.00 mm (1.022−1.024 in.)	———
	Reverse selector hub O.D.		51.87−51.90 mm (2.042−2.043 in.)	When worn or damaged
Secondary shaft - 1/2	Diameter of needle bearing contact area	1st gear	30.986−30.999 mm (1.2199−1.2204 in.)	When worn or damaged
		2nd gear	42.986−42.999 mm (1.6924−1.6929 in.)	When worn or damaged
		4th gear collar	34.975−34.991 mm (1.3770−1.3776 in.)	When worn or damaged
	I.D. of gears	1st gear	38.000−38.016 mm (1.4961−1.4967 in.)	When worn or damaged
		2nd gear	49.000−49.016 mm (1.9291−1.9298 in.)	When worn or damaged
		4th gear	41.000−41.016 mm (1.6142−1.6148 in.)	When worn or damaged
	End play	1st gear	0.04−0.12 mm (0.002−0.005 in.)	———
		2nd gear	0.04−0.12 mm (0.002−0.005 in.)	———
		4th gear	0.10−0.22 mm (0.004−0.009 in.)	———
	31 x 50 mm thrust washer thickness	No. 1	3.925 mm (0.1545 in.)	When worn or damaged
		No. 2	3.950 mm (0.1555 in.)	When worn or damaged
		No. 3	3.975 mm (0.1565 in.)	When worn or damaged
		No. 4	4.000 mm (0.1575 in.)	When worn or damaged
		No. 5	4.025 mm (0.1585 in.)	When worn or damaged
		No. 6	4.050 mm (0.1594 in.)	When worn or damaged
		No. 7	4.075 mm (0.1604 in.)	When worn or damaged
		No. 8	4.100 mm (0.1614 in.)	When worn or damaged
		No. 9	4.125 mm (0.1624 in.)	When worn or damaged
		No. 10	4.150 mm (0.1634 in.)	When worn or damaged
		No. 11	4.175 mm (0.1644 in.)	When worn or damaged
		No. 12	4.200 mm (0.1654 in.)	When worn or damaged
		No. 13	4.225 mm (0.1663 in.)	When worn or damaged
		No. 14	4.250 mm (0.1673 in.)	When worn or damaged
		No. 15	4.275 mm (0.1683 in.)	When worn or damaged
		No. 16	4.300 mm (0.1693 in.)	When worn or damaged
		No. 17	4.325 mm (0.1703 in.)	When worn or damaged
	43 x 54.5 mm thrust washer thickness	No. 1	2.900 mm (0.114 in.)	When worn or damaged
		No. 2	2.925 mm (0.115 in.)	When worn or damaged
		No. 3	2.950 mm (0.116 in.)	When worn or damaged
		No. 4	2.975 mm (0.117 in.)	When worn or damaged
		No. 5	3.000 mm (0.118 in.)	When worn or damaged
		No. 6	3.025 mm (0.119 in.)	When worn or damaged
		No. 7	3.050 mm (0.120 in.)	When worn or damaged
		No. 8	3.075 mm (0.121 in.)	When worn or damaged
		No. 9	3.100 mm (0.122 in.)	When worn or damaged
		No. 10	3.125 mm (0.123 in.)	When worn or damaged
		No. 11	3.150 mm (0.124 in.)	When worn or damaged
		No. 12	3.175 mm (0.125 in.)	When worn or damaged
		No. 13	3.200 mm (0.126 in.)	When worn or damaged

Item	Measurement	Qualification	Standard or New	Service Limit
Secondary shaft - 2/2	4th gear collar length		32.9−33.0 mm (1.295−1.299 in.)	———
	4th gear collar flange thickness		3.75−3.90 mm (0.148−0.154 in.)	When worn or damaged
	Sealing ring thickness		1.87−1.97 mm (0.074−0.078 in.)	1.82 mm (0.072 in.)
	Width of sealing ring groove		2.025−2.060 mm (0.0797−0.0811 in.)	2.080 mm (0.0819 in.)
	Clutch feed pipe O.D.	2nd clutch	6.97−6.98 mm (0.2744−0.2748 in.)	6.95 mm (0.2736 in.)
		4th clutch	11.47−11.48 mm (0.4516−0.4520 in.)	11.45 mm (0.4508 in.)
	Clutch feed pipe bushing O.D.	2nd clutch	7.018−7.030 mm (0.2763−0.2768 in.)	7.045 mm (0.2774 in.)
		4th clutch	11.500−11.518 mm (0.4528−0.4553 in.)	11.530 mm (0.4539 in.)
	ATF guide collar I.D. at sealing ring contact area		21.200−21.221 mm (0.8346−0.8355 in.)	21.25 mm (0.8366 in.)
Idler gear shaft	End cover bearing contact area		30.003−30.013 mm (1.1812−1.1816 in.)	When worn or damaged
	Cotters thickness		1.39−1.42 mm (0.055−0.056 in.)	———
Reverse idler gear	Reverse idler gear shaft O.D. at needle bearing contact area		14.99−15.00 mm (0.590−0.591 in.)	When worn or damaged
	I.D.		20.001−20.014 mm (0.7874−0.7880 in.)	When worn or damaged
	I.D. of reverse idler gear shaft contact area on transmission housing		14.800−14.818 mm (0.5827−0.5834 in.)	———
	I.D. of reverse idler gear shaft holder		14.800−14.824 mm (0.5827−0.5836 in.)	When worn or damaged

Item	Measurement	Qualification	Standard or New			
			Wire Diameter	O.D.	Free Length	No. of Coil
Main valve body spring	Cut valve B spring		0.8 mm (0.031 in.)	9.9 mm (0.290 in.)	27.3 mm (1.075 in.)	8.0
	Shift valve A spring		0.8 mm (0.031 in.)	7.1 mm (0.280 in.)	23.7 mm (0.933 in.)	9.7
	Shift valve C spring		0.8 mm (0.031 in.)	7.1 mm (0.280 in.)	23.7 mm (0.933 in.)	9.7
	Relief valve spring		1.0 mm (0.039 in.)	9.6 mm (0.378 in.)	34.1 mm (1.343 in.)	10.2
	Lock-up control valve spring		0.6 mm (0.024 in.)	7.1 mm (0.280 in.)	29.6 mm (1.165 in.)	11.2
	Cooler check valve spring		0.85 mm (0.033 in.)	6.6 mm (0.260 in.)	27.0 mm (1.063 in.)	11.3
	Shift valve D spring		0.8 mm (0.031 in.)	5.6 mm (0.220 in.)	28.1 mm (1.106 in.)	15.9
	Servo control valve spring		0.8 mm (0.031 in.)	9.9 mm (0.290 in.)	27.3 mm (1.075 in.)	8.0
Regulator valve body spring	Stator reaction spring		4.5 mm (0.177 in.)	35.4 mm (1.394 in.)	30.3 mm (1.193 in.)	1.92
	Regulator valve spring A		1.9 mm (0.075 in.)	14.7 mm (0.579 in.)	80.6 mm (3.173 in.)	16.1
	Regulator valve spring B		1.6 mm (0.063 in.)	9.2 mm (0.362 in.)	44.0 mm (1.732 in.)	12.5
	Torque converter check valve spring		1.2 mm (0.047 in.)	8.6 mm (0.339 in.)	33.8 mm (1.331 in.)	12.2
	Lock-up shift valve spring		1.0 mm (0.039 in.)	6.6 mm (0.260 in.)	35.5 mm (1.398 in.)	18.2
	1st accumulator spring B		2.4 mm (0.094 in.)	12.2 mm (0.480 in.)	35.0 mm (1.378 in.)	7.7
	1st accumulator spring A		2.4 mm (0.094 in.)	18.6 mm (0.732 in.)	50.1 mm (1.972 in.)	6.7
	4th accumulator spring		2.5 mm (0.098 in.)	14.6 mm (0.575 in.)	29.9 mm (1.177 in.)	4.9

Automatic Transmission and A/T Dirrerential (cont'd)

Item	Measurement	Qualification	Standard or New			
			Wire Diameter	O.D.	Free Length	No. of Coil
Servo body spring	Cut valve A spring		0.9 mm (0.035 in.)	9.9 mm (0.390 in.)	22.3 mm (0.878 in.)	6.9
	Shift valve B spring		0.8 mm (0.031 in.)	7.1 mm (0.280 in.)	23.7 mm (0.933 in.)	9.7
	5th accumulator spring A		2.5 mm (0.098 in.)	16.6 mm (0.654 in.)	46.9 mm (1.846 in.)	7.8
	5th accumulator spring B		1.9 mm (0.075 in.)	10.0 mm (0.394 in.)	38.5 mm (1.516 in.)	10.6
	2nd accumulator spring A		1.8 mm (0.071 in.)	14.6 mm (0.575 in.)	43.8 mm (1.724 in.)	7.9
	2nd accumulator spring B		1.85 mm (0.073 in.)	9.4 mm (0.370 in.)	32.5 mm(1.280 in.)	8.7
	3rd accumulator spring A		1.8 mm (0.071 in.)	14.6 mm (0.575 in.)	43.8 mm (1.724 in.)	7.9
	3rd accumulator spring B		1.85 mm (0.073 in.)	9.4 mm (0.370 in.)	32.5 mm (1.280 in.)	8.7

Item	Measurement	Qualification	Standard or New	Service Limit
A/T differential carrier	Pinion shaft contact area I.D.		18.010−18.028 mm (0.709−0.710 in.)	———
	Clearance between carrier and pinion shaft		0.023−0.057 mm (0.001−0.002 in.)	0.1 mm (0.004 in.)
	Driveshaft contact area I.D.		26.025−26.045 mm (1.024−1.025 in.)	———
	Clearance between carrier and driveshaft		0.045−0.086 mm (0.002−0.003 in.)	0.12 mm (0.005 in.)
	Intermediate shaft contact area I.D.		26.025−26.045 mm (1.024−1.025 in.)	———
	Clearance between carrier and Intermediate shaft		0.045−0.086 mm (0.002−0.003 in.)	0.12 mm (0.005 in.)
	Tapered roller bearing starting torque (preload)	For new bearing	2.7−3.9 N·m(28−40 kgf·cm, 24−35 lbf·in.)	Adjust
		For reused bearing	2.5−3.5 N·m(25−37 kgf·cm, 21−32 lbf·in.)	Adjust
	Final driven gear backlash	(Reference)	0.085−0.144 mm (0.003−0.006 in.)	0.2 mm (0.008 in.)

Item	Measurement	Qualification	Standard or New	Service Limit
A/T differential pinion gear	Backlash		0.05−0.15 mm (0.002−0.006 in.)	———
	I.D.		18.042−18.066 mm (0.7103−0.7113 in.)	———
	Clearance between pinion gear and pinion shaft		0.055−0.095 mm (0.002−0.004 in.)	0.12 mm (0.005 in.)

Automatic transmission fluid

Item	Measurement	Qualification	Standard or New	Service Limit
Automatic transmission fluid	Capacity Use genuine Honda ATF-Z1	Fluid change	2.5 L (2.6 US qt, 2.2 Imp qt)	
		Overhaul	5.85 L (6.18 US qt, 5.15 Imp qt)	

Reverse idler gear

Item	Measurement	Qualification	Standard or New	Service Limit
Reverse idler gear	Reverse idler gear shaft O.D. at needle bearing contact area		14.99−15.00 mm (0.590−0.591 in.)	When worn or damaged
	I.D.		20.001−20.014 mm (0.7874−0.7880 in.)	When worn or damaged
	I.D. of reverse idler gear shaft contact area on transmission housing		14.800−14.818 mm (0.5827−0.5834 in.)	———
	I.D. of reverse idler gear shaft holder		14.800−14.824 mm (0.5827−0.5836 in.)	When worn or damaged

Reverse shift fork

Item	Measurement	Qualification	Standard or New	Service Limit
Reverse shift fork	Fork finger thickness		5.90−6.00 mm (0.232−0.236 in.)	5.40 mm (0.213 in.)

Park gear and pawl

Item	Measurement	Qualification	Standard or New	Service Limit
Park gear and pawl			———	When worn or damaged

Pressure (Seven-position transmission)

Item	Measurement	Qualification	Standard or New	Service Limit
Pressure (Seven-position transmission)	Line pressure	At 2,000 rpm (min^{-1}) in P or N	900−960 kPa (9.2−9.8 kgf/cm^2, 130−140 psi)	850 kPa (8.7 kgf/cm^2, 120 psi)
	1st clutch pressure	At 2,000 rpm (min^{-1}) in 1	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	2nd clutch pressure	At 2,000 rpm (min^{-1}) in 2	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	3rd clutch pressure	At 2,000 rpm (min^{-1}) in 3rd gear in D3	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	4th clutch pressure	At 2,000 rpm (min^{-1}) in 4th gear in D	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	5th clutch pressure	At 2,000 rpm (min^{-1}) in 5th gear in D	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)

Pressure (Five-position transmission)

Item	Measurement	Qualification	Standard or New	Service Limit
Pressure (Five-position transmission)	Line pressure	At 2,000 rpm (min^{-1}) in P or N	900−960 kPa (9.2−9.8 kgf/cm^2, 130−140 psi)	850 kPa (8.7 kgf/cm^2, 120 psi)
	1st clutch pressure	At 2,000 rpm (min^{-1}) in 1st gear in S	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	2nd clutch pressure	At 2,000 rpm (min^{-1}) in 2nd gear in S	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	3rd clutch pressure	At 2,000 rpm (min^{-1}) in 3rd gear in S	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	4th clutch pressure	At 2,000 rpm (min^{-1}) in 4th gear in S	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	5th clutch pressure	At 2,000 rpm (min^{-1}) in 5th gear in S	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)

Countershaft

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft	Diameter of needle bearing contact area	At torque converter housing	33.504−33.517 mm (1.3191−1.3196 in.)	When worn or damaged
		At 5th gear	32.986−32.999 mm (1.2987−1.2991 in.)	When worn or damaged
		Reverse selector hub	35.983−35.999 mm (1.4167−1.4173 in.)	When worn or damaged
	I.D. of gears	5th gear	39.000−39.016 mm (1.5354−1.5361 in.)	When worn or damaged
		Reverse gear	42.000−42.016 mm (1.6535−1.6542 in.)	When worn or damaged
	End play	5th gear	0.04−0.27 mm (0.002−0.011 in.)	———
		Reverse gear	0.10−0.25 mm (0.004−0.010 in.)	———
	Reverse selector hub width		29.25−29.45 mm (1.152−1.160 in.)	———
	Collar, 33.2 x 40 x 26 mm length		25.95−26.00 mm (1.022−1.024 in.)	———
	Reverse selector hub O.D.		51.87−51.90 mm (2.042−2.043 in.)	When worn or damaged

Mainshaft

Item	Measurement	Qualification	Standard or New	Service Limit
Mainshaft	Diameter of needle bearing contact area	At stator shaft	22.984−23.000 mm (0.9049−0.9055 in.)	When worn or damaged
		At 5th gear collar	32.975−32.991 mm (1.2982−1.2989 in.)	When worn or damaged
		At 3rd gear	46.986−46.999 mm (1.8498−1.8503 in.)	When worn or damaged
	I.D. of gears	5th gear	37.000−37.016 mm (1.4567−1.4573 in.)	When worn or damaged
		3rd gear	52.000−52.013 mm (2.0472−2.0478 in.)	When worn or damaged
	End play	5th gear	015−0.27 mm (0.006−0.106 in.)	———
		3rd gear	0.04−0.10 mm (0.002−0.004 in.)	———
	40 x 63 mm thrust washer thickness	No. 1	3.750 mm (0.1476 in.)	When worn or damaged
		No. 2	3.775 mm (0.1486 in.)	When worn or damaged
		No. 3	3.800 mm (0.1496 in.)	When worn or damaged
		No. 4	3.825 mm (0.1506 in.)	When worn or damaged
		No. 5	3.850 mm (0.1516 in.)	When worn or damaged
		No. 6	3.875 mm (0.1526 in.)	When worn or damaged
		No. 7	3.900 mm (0.1534 in.)	When worn or damaged
		No. 8	3.925 mm (0.1545 in.)	When worn or damaged
		No. 9	3.950 mm (0.1555 in.)	When worn or damaged
		No. 10	3.975 mm (0.1565 in.)	When worn or damaged
		No. 11	4.000 mm (0.1575 in.)	When worn or damaged
	5th gear collar length		60.4−60.5 mm (2.380−2.381 in.)	———
	5th gear collar flange thickness		3.70−3.85 mm (0.146−0.152 in.)	When worn or damaged
	Sealing ring thickness		1.91−1.97 mm (0.0752−0.0776 in.)	1.86 mm (0.0732 in.)
	Width of sealing ring groove		2.025−2.060 mm (0.0797−0.0811 in.)	2.080 mm (0.0819 in.)
	3rd clutch feed pipe O.D.		7.97−7.98 mm (0.3138−0.3142 in.)	7.95 mm (0.313 in.)
	Feed pipe bushing I.D.		8.000−8.015 mm (0.3150−0.3156 in.)	8.030 mm (0.3161 in.)

Secondary shaft - 1/2

Item	Measurement	Qualification	Standard or New	Service Limit
Secondary shaft - 1/2	Diameter of needle bearing contact area	1st gear	30.986−30.999 mm (1.2199−1.2204 in.)	When worn or damaged
		2nd gear	42.986−42.999 mm (1.6924−1.6929 in.)	When worn or damaged
		4th gear collar	34.975−34.991 mm (1.3770−1.3776 in.)	When worn or damaged
	I.D. of gears	1st gear	38.000−38.016 mm (1.4961−1.4967 in.)	When worn or damaged
		2nd gear	49.000−49.016 mm (1.9291−1.9298 in.)	When worn or damaged
		4th gear	41.000−41.016 mm (1.6142−1.6148 in.)	When worn or damaged
	End play	1st gear	0.04−0.12 mm (0.002−0.005 in.)	———
		2nd gear	0.04−0.12 mm (0.002−0.005 in.)	———
		4th gear	0.10−0.22 mm (0.004−0.009 in.)	———
	31 x 50 mm thrust washer thickness	No. 1	3.925 mm (0.1545 in.)	When worn or damaged
		No. 2	3.950 mm (0.1555 in.)	When worn or damaged
		No. 3	3.975 mm (0.1565 in.)	When worn or damaged
		No. 4	4.000 mm (0.1575 in.)	When worn or damaged
		No. 5	4.025 mm (0.1585 in.)	When worn or damaged
		No. 6	4.050 mm (0.1594 in.)	When worn or damaged
		No. 7	4.075 mm (0.1604 in.)	When worn or damaged
		No. 8	4.100 mm (0.1614 in.)	When worn or damaged
		No. 9	4.125 mm (0.1624 in.)	When worn or damaged
		No. 10	4.150 mm (0.1634 in.)	When worn or damaged
		No. 11	4.175 mm (0.1644 in.)	When worn or damaged
		No. 12	4.200 mm (0.1654 in.)	When worn or damaged
		No. 13	4.225 mm (0.1663 in.)	When worn or damaged
		No. 14	4.250 mm (0.1673 in.)	When worn or damaged
		No. 15	4.275 mm (0.1683 in.)	When worn or damaged
		No. 16	4.300 mm (0.1693 in.)	When worn or damaged
		No. 17	4.325 mm (0.1703 in.)	When worn or damaged
	43 x 54.5 mm thrust washer thickness	No. 1	2.900 mm (0.114 in.)	When worn or damaged
		No. 2	2.925 mm (0.115 in.)	When worn or damaged
		No. 3	2.950 mm (0.116 in.)	When worn or damaged
		No. 4	2.975 mm (0.117 in.)	When worn or damaged
		No. 5	3.000 mm (0.118 in.)	When worn or damaged
		No. 6	3.025 mm (0.119 in.)	When worn or damaged
		No. 7	3.050 mm (0.120 in.)	When worn or damaged
		No. 8	3.075 mm (0.121 in.)	When worn or damaged
		No. 9	3.100 mm (0.122 in.)	When worn or damaged
		No. 10	3.125 mm (0.123 in.)	When worn or damaged
		No. 11	3.150 mm (0.124 in.)	When worn or damaged
		No. 12	3.175 mm (0.125 in.)	When worn or damaged
		No. 13	3.200 mm (0.126 in.)	When worn or damaged

Secondary shaft - 2/2

Item	Measurement	Qualification	Standard or New	Service Limit
Secondary shaft - 2/2	4th gear collar length		32.9−33.0 mm (1.295−1.299 in.)	———
	4th gear collar flange thickness		3.75−3.90 mm (0.148−0.154 in.)	When worn or damaged
	Sealing ring thickness		1.87−1.97 mm (0.074−0.078 in.)	1.82 mm (0.072 in.)
	Width of sealing ring groove		2.025−2.060 mm (0.0797−0.0811 in.)	2.080 mm (0.0819 in.)
	Clutch feed pipe O.D.	2nd clutch	6.97−6.98 mm (0.2744−0.2748 in.)	6.95 mm (0.2736 in.)
		4th clutch	11.47−11.48 mm (0.4516−0.4520 in.)	11.45 mm (0.4508 in.)
	Clutch feed pipe bushing O.D.	2nd clutch	7.018−7.030 mm (0.2763−0.2768 in.)	7.045 mm (0.2774 in.)
		4th clutch	11.500−11.518 mm (0.4528−0.4553 in.)	11.530 mm (0.4539 in.)
	ATF guide collar I.D. at sealing ring contact area		21.200−21.221 mm (0.8346−0.8355 in.)	21.25 mm (0.8366 in.)

Clutch

Item	Measurement	Qualification	Standard or New	Service Limit
Clutch	Clutch between clutch end-plate and top disc	1st	———	1.62−1.82 mm (0.064−0.072 in.)
		2nd	———	0.5−0.7 mm (0.020−0.028 in.)
		3rd	———	0.73−0.93 mm (0.029−0.037 in.)
		4th	———	0.7−0.9 mm (0.028−0.035 in.)
		5th	———	0.73−0.93 mm (0.029−0.037 in.)
	Clutch return spring free length	1st	35.2 mm (1.39 in.)	34.5 mm (1.36 in.)
		2nd	39.5 mm (1.56 in.)	37.4 mm (1.47 in.)
		3rd	45.15 mm (1.778 in.)	43.0 mm (1.69 in.)
		4th	39.5 mm (1.56 in.)	37.4 mm (1.47 in.)
		5th	45.15 mm (1.778 in.)	43.0 mm (1.69 in.)
	Clutch disc thickness	1st	1.94 mm (0.076 in.)	———
		2nd	1.96 mm (0.077 in.)	———
		3rd	1.94 mm (0.076 in.)	———
		4th	1.96 mm (0.077 in.)	———
		5th	1.94 mm (0.076 in.)	———
	Clutch plate thickness	1st	1.6 mm (0.063 in.)	When discolored
		2nd	2.3 mm (0.091 in.)	When discolored
		3rd	2.0 mm (0.079 in.)	When discolored
		4th	1.6 mm (0.063 in.)	When discolored
		5th	2.0 mm (0.079 in.)	When discolored
	Clutch waved-plate height 1st, 3rd, and 5th clutches		0.07−0.20 mm (0.003−0.008 in.)	0.05 mm (0.002 in.)
	1st, 3rd, and 5th clutch end-plate thickness	Mark 1	2.1 mm (0.082 in.)	When discolored
		Mark 2	2.2 mm (0.087 in.)	When discolored
		Mark 3	2.3 mm (0.091 in.)	When discolored
		Mark 4	2.4 mm (0.094 in.)	When discolored
		Mark 5	2.5 mm (0.098 in.)	When discolored
		Mark 6	2.6 mm (0.102 in.)	When discolored
		Mark 7	2.7 mm (0.106 in.)	When discolored
		Mark 8	2.8 mm (0.110 in.)	When discolored
		Mark 9	2.9 mm (0.114 in.)	When discolored
	2nd and 4th clutch end-plate thickness	Mark AC or AM	2.1 mm (0.082 in.)	When discolored
		Mark AD or AN	2.2 mm (0.087 in.)	When discolored
		Mark AE or AP	2.3 mm (0.091 in.)	When discolored
		Mark AF or AQ	2.4 mm (0.094 in.)	When discolored
		Mark AG or AR	2.5 mm (0.098 in.)	When discolored
		Mark AH or AS	2.6 mm (0.102 in.)	When discolored
		Mark AJ or AT	2.7 mm (0.106 in.)	When discolored
		Mark AK or AU	2.8 mm (0.110 in.)	When discolored
		Mark AL or AV	2.9 mm (0.114 in.)	When discolored

A/T differential carrier

Item	Measurement	Qualification	Standard or New	Service Limit
A/T differential carrier	Pinion shaft contact area I.D.		18.010−18.028 mm (0.709−0.710 in.)	———
	Clearance between carrier and pinion shaft		0.023−0.057 mm (0.001−0.002 in.)	0.1 mm (0.004 in.)
	Driveshaft contact area I.D.		26.025−26.045 mm (1.024−1.025 in.)	———
	Clearance between carrier and driveshaft		0.045−0.086 mm (0.002−0.003 in.)	0.12 mm (0.005 in.)
	Intermediate shaft contact area I.D.		26.025−26.045 mm (1.024−1.025 in.)	———
	Clearance between carrier and Intermediate shaft		0.045−0.086 mm (0.002−0.003 in.)	0.12 mm (0.005 in.)
	Tapered roller bearing starting torque (preload)	For new bearing	2.7−3.9 N·m(28−40 kgf·cm, 24−35 lbf·in.)	Adjust
		For reused bearing	2.5−3.5 N·m(25−37 kgf·cm, 21−32 lbf·in.)	Adjust
	Final driven gear backlash	(Reference)	0.085−0.144 mm (0.003−0.006 in.)	0.2 mm (0.008 in.)

A/T differential pinion gear

Item	Measurement	Qualification	Standard or New	Service Limit
A/T differential pinion gear	Backlash		0.05−0.15 mm (0.002−0.006 in.)	———
	I.D.		18.042−18.066 mm (0.7103−0.7113 in.)	———
	Clearance between pinion gear and pinion shaft		0.055−0.095 mm (0.002−0.004 in.)	0.12 mm (0.005 in.)

Idler gear shaft

Item	Measurement	Qualification	Standard or New	Service Limit
Idler gear shaft	End cover bearing contact area		30.003−30.013 mm (1.1812−1.1816 in.)	When worn or damaged
	Cotters thickness		1.39−1.42 mm (0.055−0.056 in.)	———

Torque converter

Item	Measurement	Qualification	Standard or New	Service Limit
Torque converter	Stall speed Check with vehicle on level ground		2,200 rpm (min $^{-1}$)	2,050−2,350 rpm (min $^{-1}$)

ATF pump

Item	Measurement	Qualification	Standard or New	Service Limit
ATF pump	ATF pump thrust clearance		0.03−0.06 mm (0.001−0.002 in.)	0.07 mm (0.003 in.)
	Clearance between ATF pump gear and body	Drive gear	0.210−0.265 mm (0.008−0.010 in.)	———
		Driven gear	0.070−0.125 mm (0.003−0.005 in.)	———
	ATF pump driven gear I.D.		14.016−14.034 mm (0.5518−0.5525 in.)	When worn or damaged
	ATF pump driven gear shaft O.D.		13.980−13.990 mm (0.5504−0.5508 in.)	When worn or damaged

Main valve body spring

Item	Measurement	Qualification	Standard or New			
			Wire Diameter	O.D.	Free Length	No. of Coil
Main valve body spring	Cut valve B spring		0.8 mm (0.031 in.)	9.9 mm (0.290 in.)	27.3 mm (1.075 in.)	8.0
	Shift valve A spring		0.8 mm (0.031 in.)	7.1 mm (0.280 in.)	23.7 mm (0.933 in.)	9.7
	Shift valve C spring		0.8 mm (0.031 in.)	7.1 mm (0.280 in.)	23.7 mm (0.933 in.)	9.7
	Relief valve spring		1.0 mm (0.039 in.)	9.6 mm (0.378 in.)	34.1 mm (1.343 in.)	10.2
	Lock-up control valve spring		0.6 mm (0.024 in.)	7.1 mm (0.280 in.)	29.6 mm (1.165 in.)	11.2
	Cooler check valve spring		0.85 mm (0.033 in.)	6.6 mm (0.260 in.)	27.0 mm (1.063 in.)	11.3
	Shift valve D spring		0.8 mm (0.031 in.)	5.6 mm (0.220 in.)	28.1 mm (1.106 in.)	15.9
	Servo control valve spring		0.8 mm (0.031 in.)	9.9 mm (0.290 in.)	27.3 mm (1.075 in.)	8.0

Regulator valve body

Item	Measurement	Qualification	Standard or New	Service Limit
Regulator valve body	Sealing ring contact I.D.		29.000−29.021 mm (1.1417−1.1426 in.)	29.05 mm (1.144 in.)

Regulator valve body spring

Item	Measurement	Qualification	Standard or New			
			Wire Diameter	O.D.	Free Length	No. of Coil
Regulator valve body spring	Stator reaction spring		4.5 mm (0.177 in.)	35.4 mm (1.394 in.)	30.3 mm (1.193 in.)	1.92
	Regulator valve spring A		1.9 mm (0.075 in.)	14.7 mm (0.579 in.)	80.6 mm (3.173 in.)	16.1
	Regulator valve spring B		1.6 mm (0.063 in.)	9.2 mm (0.362 in.)	44.0 mm (1.732 in.)	12.5
	Torque converter check valve spring		1.2 mm (0.047 in.)	8.6 mm (0.339 in.)	33.8 mm (1.331 in.)	12.2
	Lock-up shift valve spring		1.0 mm (0.039 in.)	6.6 mm (0.260 in.)	35.5 mm (1.398 in.)	18.2
	1st accumulator spring B		2.4 mm (0.094 in.)	12.2 mm (0.480 in.)	35.0 mm (1.378 in.)	7.7
	1st accumulator spring A		2.4 mm (0.094 in.)	18.6 mm (0.732 in.)	50.1 mm (1.972 in.)	6.7
	4th accumulator spring		2.5 mm (0.098 in.)	14.6 mm (0.575 in.)	29.9 mm (1.177 in.)	4.9

Servo body

Item	Measurement	Qualification	Standard or New	Service Limit
Servo body	Shift fork shaft bore I.D.		14.000−14.010 mm (0.5512−0.5526 in.)	When worn or damaged
	Shift fork shaft valve bore I.D.		37.000−37.039 mm (1.4567−1.4582 in.)	37.045 mm (1.4585 in.)

Servo body spring

Item	Measurement	Qualification	Standard or New			
			Wire Diameter	O.D.	Free Length	No. of Coil
Servo body spring	Cut valve A spring		0.9 mm (0.035 in.)	9.9 mm (0.390 in.)	22.3 mm (0.878 in.)	6.9
	Shift valve B spring		0.8 mm (0.031 in.)	7.1 mm (0.280 in.)	23.7 mm (0.933 in.)	9.7
	5th accumulator spring A		2.5 mm (0.098 in.)	16.6 mm (0.654 in.)	46.9 mm (1.846 in.)	7.8
	5th accumulator spring B		1.9 mm (0.075 in.)	10.0 mm (0.394 in.)	38.5 mm (1.516 in.)	10.6
	2nd accumulator spring A		1.8 mm (0.071 in.)	14.6 mm (0.575 in.)	43.8 mm (1.724 in.)	7.9
	2nd accumulator spring B		1.85 mm (0.073 in.)	9.4 mm (0.370 in.)	32.5 mm(1.280 in.)	8.7
	3rd accumulator spring A		1.8 mm (0.071 in.)	14.6 mm (0.575 in.)	43.8 mm (1.724 in.)	7.9
	3rd accumulator spring B		1.85 mm (0.073 in.)	9.4 mm (0.370 in.)	32.5 mm (1.280 in.)	8.7

Stator shaft

Item	Measurement	Qualification	Standard or New	Service Limit
Stator shaft	Needle bearing contact I.D.	Torque converter side	27.000−27.021 mm (1.063−1.064 in.)	When worn or damaged
		ATF pump side	29.000−29.021 mm (1.1417−1.1426 in.)	———
	Sealing ring contact area I.D.		29.000−29.021 mm (1.1417−1.1426 in.)	29.05 mm (1.144 in.)

Automatic Transmission and A/T Differential

Item	Measurement	Qualification	Standard or New	Service Limit
Automatic transmission fluid	Capacity Use genuine Honda ATF-Z1	Fluid change	2.5 L (2.6 US qt, 2.2 Imp qt)	
		Overhaul	5.85 L (6.18 US qt, 5.15 Imp qt)	
Pressure (Seven-position transmission)	Line pressure	At 2,000 rpm (min^{-1}) in P or N	900–960 kPa (9.2–9.8 kgf/cm^2, 130–140 psi)	850 kPa (8.7 kgf/cm^2, 120 psi)
	1st clutch pressure	At 2,000 rpm (min^{-1}) in 1	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	2nd clutch pressure	At 2,000 rpm (min^{-1}) in 2	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	3rd clutch pressure	At 2,000 rpm (min^{-1}) in 3rd gear in D3	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	4th clutch pressure	At 2,000 rpm (min^{-1}) in 4th gear in D	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	5th clutch pressure	At 2,000 rpm (min^{-1}) in 5th gear in D	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
Pressure (Five-position transmission)	Line pressure	At 2,000 rpm (min^{-1}) in P or N	900–960 kPa (9.2–9.8 kgf/cm^2, 130–140 psi)	850 kPa (8.7 kgf/cm^2, 120 psi)
	1st clutch pressure	At 2,000 rpm (min^{-1}) in 1st gear in S	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	2nd clutch pressure	At 2,000 rpm (min^{-1}) in 2nd gear in S	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	3rd clutch pressure	At 2,000 rpm (min^{-1}) in 3rd gear in S	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	4th clutch pressure	At 2,000 rpm (min^{-1}) in 4th gear in S	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	5th clutch pressure	At 2,000 rpm (min^{-1}) in 5th gear in S	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
Torque converter	Stall speed Check with vehicle on level ground		2,200 rpm (min^{-1})	2,050–2,350 rpm (min^{-1})

Automatic Transmission and A/T Differential (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit
Clutch	Clutch between clutch end-plate and top disc	1st	———	1.62–1.82 mm (0.064–0.072 in.)
		2nd	———	0.5–0.7 mm (0.020–0.028 in.)
		3rd	———	0.73–0.93 mm (0.029–0.037 in.)
		4th	———	0.7–0.9 mm (0.028–0.035 in.)
		5th	———	0.73–0.93 mm (0.029–0.037 in.)
	Clutch return spring free length	1st	35.2 mm (1.39 in.)	34.5 mm (1.36 in.)
		2nd	39.5 mm (1.56 in.)	37.4 mm (1.47 in.)
		3rd	45.15 mm (1.778 in.)	43.0 mm (1.69 in.)
		4th	39.5 mm (1.56 in.)	37.4 mm (1.47 in.)
		5th	45.15 mm (1.778 in.)	43.0 mm (1.69 in.)
	Clutch disc thickness	1st	1.94 mm (0.076 in.)	———
		2nd	1.96 mm (0.077 in.)	———
		3rd	1.94 mm (0.076 in.)	———
		4th	1.96 mm (0.077 in.)	———
		5th	1.94 mm (0.076 in.)	———
	Clutch plate thickness	1st	1.6 mm (0.063 in.)	When discolored
		2nd	2.3 mm (0.091 in.)	When discolored
		3rd	2.0 mm (0.079 in.)	When discolored
		4th	1.6 mm (0.063 in.)	When discolored
		5th	2.0 mm (0.079 in.)	When discolored
	Clutch waved-plate height 1st, 3rd, and 5th clutches		0.07–0.20 mm (0.003–0.008 in.)	0.05 mm (0.002 in.)
	1st, 3rd, and 5th clutch end-plate thickness	Mark 1	2.1 mm (0.083 in.)	When discolored
		Mark 2	2.2 mm (0.087 in.)	When discolored
		Mark 3	2.3 mm (0.091 in.)	When discolored
		Mark 4	2.4 mm (0.094 in.)	When discolored
		Mark 5	2.5 mm (0.098 in.)	When discolored

Item	Measurement	Qualification	Standard or New	Service Limit
		Mark 6	2.6 mm (0.102 in.)	When discolored
		Mark 7	2.7 mm (0.106 in.)	When discolored
		Mark 8	2.8 mm (0.110 in.)	When discolored
		Mark 9	2.9 mm (0.114 in.)	When discolored
	2nd and 4th clutch end-plate thickness	Mark AC or AM	2.1 mm (0.083 in.)	When discolored
		Mark AD or AN	2.2 mm (0.087 in.)	When discolored
		Mark AE or AP	2.3 mm (0.091 in.)	When discolored
		Mark AF or AQ	2.4 mm (0.094 in.)	When discolored
		Mark AG or AR	2.5 mm (0.098 in.)	When discolored
		Mark AH or AS	2.6 mm (0.102 in.)	When discolored
		Mark AJ or AT	2.7 mm (0.106 in.)	When discolored
		Mark AK or AU	2.8 mm (0.110 in.)	When discolored
		Mark AL or AV	2.9 mm (0.114 in.)	When discolored

Item	Measurement	Qualification	Standard or New	Service Limit
ATF pump	ATF pump thrust clearance		0.03–0.06 mm (0.001–0.002 in.)	0.07 mm (0.003 in.)
	Clearance between ATF pump gear and body	Drive gear	0.210–0.265 mm (0.0083–0.0104 in.)	———
		Driven gear	0.070–0.125 mm (0.0028–0.0049 in.)	———
	ATF pump driven gear I.D.		14.016–14.034 mm (0.5518–0.5525 in.)	When worn or damaged
	ATF pump driven gear shaft O.D.		13.980–13.990 mm (0.5504–0.5508 in.)	When worn or damaged
Stator shaft	Needle bearing contact I.D.	Torque converter side	27.000–27.021 mm (1.063–1.064 in.)	When worn or damaged
		ATF pump side	29.000–29.021 mm (1.1417–1.1426 in.)	———
	Sealing ring contact area I.D.		29.000–29.021 mm (1.1417–1.1426 in.)	29.05 mm (1.144 in.)
Reverse shift fork	Fork finger thickness		5.90–6.00 mm (0.232–0.236 in.)	5.40 mm (0.213 in.)
Park gear and pawl			———	When worn or damaged
Servo body	Shift fork shaft bore I.D.		14.000–14.010 mm (0.5512–0.5526 in.)	When worn or damaged
	Shift fork shaft valve bore I.D.		37.000–37.039 mm (1.4567–1.4582 in.)	37.045 mm (1.4585 in.)
Regulator valve body	Sealing ring contact I.D.		29.000–29.021 mm (1.1417–1.1426 in.)	29.05 mm (1.144 in.)
Mainshaft	Diameter of needle bearing contact area	At stator shaft	22.984–23.000 mm (0.9049–0.9055 in.)	When worn or damaged
		At 5th gear collar	32.975–32.991 mm (1.2982–1.2989 in.)	When worn or damaged
		At 3rd gear	46.986–46.999 mm (1.8498–1.8503 in.)	When worn or damaged
	I.D. of gears	5th gear	37.000–37.016 mm (1.4567–1.4573 in.)	When worn or damaged
		3rd gear	52.000–52.013 mm (2.0472–2.0478 in.)	When worn or damaged
	End play	5th gear	0.15–0.27 mm (0.006–0.106 in.)	———
		3rd gear	0.04–0.10 mm (0.002–0.004 in.)	———
	40 x 63 mm thrust washer thickness	No. 1	3.750 mm (0.1476 in.)	When worn or damaged
		No. 2	3.775 mm (0.1486 in.)	When worn or damaged
		No. 3	3.800 mm (0.1496 in.)	When worn or damaged
		No. 4	3.825 mm (0.1506 in.)	When worn or damaged
		No. 5	3.850 mm (0.1516 in.)	When worn or damaged
		No. 6	3.875 mm (0.1526 in.)	When worn or damaged
		No. 7	3.900 mm (0.1535 in.)	When worn or damaged
		No. 8	3.925 mm (0.1545 in.)	When worn or damaged
		No. 9	3.950 mm (0.1555 in.)	When worn or damaged
		No. 10	3.975 mm (0.1565 in.)	When worn or damaged
		No. 11	4.000 mm (0.1575 in.)	When worn or damaged
	5th gear collar length		60.4–60.5 mm (2.380–2.381 in.)	———
	5th gear collar flange thickness		3.70–3.85 mm (0.146–0.152 in.)	When worn or damaged
	Sealing ring thickness		1.91–1.97 mm (0.0752–0.0776 in.)	1.86 mm (0.0732 in.)
	Width of sealing ring groove		2.025–2.060 mm (0.0797–0.0811 in.)	2.080 mm (0.0819 in.)
	3rd clutch feed pipe O.D.		7.97–7.98 mm (0.3138–0.3142 in.)	7.95 mm (0.313 in.)
	Feed pipe bushing I.D.		8.000–8.015 mm (0.3150–0.3156 in.)	8.030 mm (0.3161 in.)

Automatic Transmission and A/T Differential (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft	Diameter of needle bearing contact area	At torque converter housing	33.504–33.517 mm (1.3191–1.3196 in.)	When worn or damaged
		At 5th gear	32.986–32.999 mm (1.2987–1.2991 in.)	When worn or damaged
		Reverse selector hub	35.983–35.999 mm (1.4167–1.4173 in.)	When worn or damaged
	I.D. of gears	5th gear	39.000–39.016 mm (1.5354–1.5361 in.)	When worn or damaged

Item	Measurement	Qualification	Standard or New	Service Limit
		Reverse gear	42.000−42.016 mm (1.6535−1.6542 in.)	When worn or damaged
	End play	5th gear	0.04−0.27 mm (0.002−0.011 in.)	———
		Reverse gear	0.10−0.25 mm (0.004−0.010 in.)	———
	Reverse selector hub width		29.25−29.45 mm (1.152−1.160 in.)	———
	Collar, 33.2 x 40 x 26 mm length		25.95−26.00 mm (1.022−1.024 in.)	———
	Reverse selector hub O.D.		51.87−51.90 mm (2.042−2.043 in.)	When worn or damaged
Secondary shaft - 1/2	Diameter of needle bearing contact area	1st gear	30.986−30.999 mm (1.2199−1.2204 in.)	When worn or damaged
		2nd gear	42.986−42.999 mm (1.6924−1.6929 in.)	When worn or damaged
		4th gear collar	34.975−34.991 mm (1.3770−1.3776 in.)	When worn or damaged
	I.D. of gears	1st gear	38.000−38.016 mm (1.4961−1.4967 in.)	When worn or damaged
		2nd gear	49.000−49.016 mm (1.9291−1.9298 in.)	When worn or damaged
		4th gear	41.000−41.016 mm (1.6142−1.6148 in.)	When worn or damaged
	End play	1st gear	0.04−0.12 mm (0.002−0.005 in.)	———
		2nd gear	0.04−0.12 mm (0.002−0.005 in.)	———
		4th gear	0.10−0.22 mm (0.004−0.009 in.)	———
	31 x 50 mm thrust washer thickness	No. 1	3.925 mm (0.1545 in.)	When worn or damaged
		No. 2	3.950 mm (0.1555 in.)	When worn or damaged
		No. 3	3.975 mm (0.1565 in.)	When worn or damaged
		No. 4	4.000 mm (0.1575 in.)	When worn or damaged
		No. 5	4.025 mm (0.1585 in.)	When worn or damaged
		No. 6	4.050 mm (0.1594 in.)	When worn or damaged
		No. 7	4.075 mm (0.1604 in.)	When worn or damaged
		No. 8	4.100 mm (0.1614 in.)	When worn or damaged
		No. 9	4.125 mm (0.1624 in.)	When worn or damaged
		No. 10	4.150 mm (0.1634 in.)	When worn or damaged
		No. 11	4.175 mm (0.1644 in.)	When worn or damaged
		No. 12	4.200 mm (0.1654 in.)	When worn or damaged
		No. 13	4.225 mm (0.1663 in.)	When worn or damaged
		No. 14	4.250 mm (0.1673 in.)	When worn or damaged
		No. 15	4.275 mm (0.1683 in.)	When worn or damaged
		No. 16	4.300 mm (0.1693 in.)	When worn or damaged
		No. 17	4.325 mm (0.1703 in.)	When worn or damaged
	43 x 54.5 mm thrust washer thickness	No. 1	2.900 mm (0.114 in.)	When worn or damaged
		No. 2	2.925 mm (0.115 in.)	When worn or damaged
		No. 3	2.950 mm (0.116 in.)	When worn or damaged
		No. 4	2.975 mm (0.117 in.)	When worn or damaged
		No. 5	3.000 mm (0.118 in.)	When worn or damaged
		No. 6	3.025 mm (0.119 in.)	When worn or damaged
		No. 7	3.050 mm (0.120 in.)	When worn or damaged
		No. 8	3.075 mm (0.121 in.)	When worn or damaged
		No. 9	3.100 mm (0.122 in.)	When worn or damaged
		No. 10	3.125 mm (0.123 in.)	When worn or damaged
		No. 11	3.150 mm (0.124 in.)	When worn or damaged
		No. 12	3.175 mm (0.125 in.)	When worn or damaged
		No. 13	3.200 mm (0.126 in.)	When worn or damaged

Item	Measurement	Qualification	Standard or New	Service Limit
Secondary shaft - 2/2	4th gear collar length		32.9−33.0 mm (1.295−1.299 in.)	———
	4th gear collar flange thickness		3.75−3.90 mm (0.148−0.154 in.)	When worn or damaged
	Sealing ring thickness		1.87−1.97 mm (0.074−0.078 in.)	1.82 mm (0.072 in.)
	Width of sealing ring groove		2.025−2.060 mm (0.0797−0.0811 in.)	2.080 mm (0.0819 in.)
	Clutch feed pipe O.D.	2nd clutch	6.97−6.98 mm (0.2744−0.2748 in.)	6.95 mm (0.2736 in.)
		4th clutch	11.47−11.48 mm (0.4516−0.4520 in.)	11.45 mm (0.4508 in.)
	Clutch feed pipe bushing O.D.	2nd clutch	7.018−7.030 mm (0.2763−0.2768 in.)	7.045 mm (0.2774 in.)
		4th clutch	11.500−11.518 mm (0.4528−0.4553 in.)	11.530 mm (0.4539 in.)
	ATF guide collar I.D. at sealing ring contact area		21.200−21.221 mm (0.8346−0.8355 in.)	21.25 mm (0.8366 in.)
Idler gear shaft	End cover bearing contact area		30.003−30.013 mm (1.1812−1.1816 in.)	When worn or damaged
	Cotters thickness		1.39−1.42 mm (0.055−0.056 in.)	———
Reverse idler gear	Reverse idler gear shaft O.D. at needle bearing contact area		14.99−15.00 mm (0.590−0.591 in.)	When worn or damaged
	I.D.		20.001−20.014 mm (0.7874−0.7880 in.)	When worn or damaged
	I.D. of reverse idler gear shaft contact area on transmission housing		14.800−14.818 mm (0.5827−0.5834 in.)	———
	I.D. of reverse idler gear shaft holder		14.800−14.824 mm (0.5827−0.5836 in.)	When worn or damaged

Item	Measurement	Qualification	Standard or New			
			Wire Diameter	O.D.	Free Length	No. of Coils
Main valve body spring	Cut valve B spring		0.8 mm (0.031 in.)	9.9 mm (0.290 in.)	27.3 mm (1.075 in.)	8.0
	Shift valve A spring		0.8 mm (0.031 in.)	7.1 mm (0.280 in.)	23.7 mm (0.933 in.)	9.7
	Shift valve C spring		0.8 mm (0.031 in.)	7.1 mm (0.280 in.)	23.7 mm (0.933 in.)	9.7
	Relief valve spring		1.0 mm (0.039 in.)	9.6 mm (0.378 in.)	34.1 mm (1.343 in.)	10.2
	Lock-up control valve spring		0.6 mm (0.024 in.)	7.1 mm (0.280 in.)	29.6 mm (1.165 in.)	11.2
	Cooler check valve spring		0.85 mm (0.033 in.)	6.6 mm (0.260 in.)	27.0 mm (1.063 in.)	11.3
	Shift valve D spring		0.8 mm (0.031 in.)	5.6 mm (0.220 in.)	28.1 mm (1.106 in.)	15.9
	Servo control valve spring		0.8 mm (0.031 in.)	9.9 mm (0.290 in.)	27.3 mm (1.075 in.)	8.0
Regulator valve body spring	Stator reaction spring		4.5 mm (0.177 in.)	35.4 mm (1.394 in.)	30.3 mm (1.193 in.)	1.92
	Regulator valve spring A		1.9 mm (0.075 in.)	14.7 mm (0.579 in.)	80.6 mm (3.173 in.)	16.1
	Regulator valve spring B		1.6 mm (0.063 in.)	9.2 mm (0.362 in.)	44.0 mm (1.732 in.)	12.5
	Torque converter check valve spring		1.2 mm (0.047 in.)	8.6 mm (0.339 in.)	33.8 mm (1.331 in.)	12.2
	Lock-up shift valve spring		1.0 mm (0.039 in.)	6.6 mm (0.260 in.)	35.5 mm (1.398 in.)	18.2
	1st accumulator spring B		2.4 mm (0.094 in.)	12.2 mm (0.480 in.)	35.0 mm (1.378 in.)	7.7
	1st accumulator spring A		2.4 mm (0.094 in.)	18.6 mm (0.732 in.)	50.1 mm (1.972 in.)	6.7
	4th accumulator spring		2.5 mm (0.098 in.)	14.6 mm (0.575 in.)	29.9 mm (1.177 in.)	4.9

Automatic Transmission and A/T Differential (cont'd)

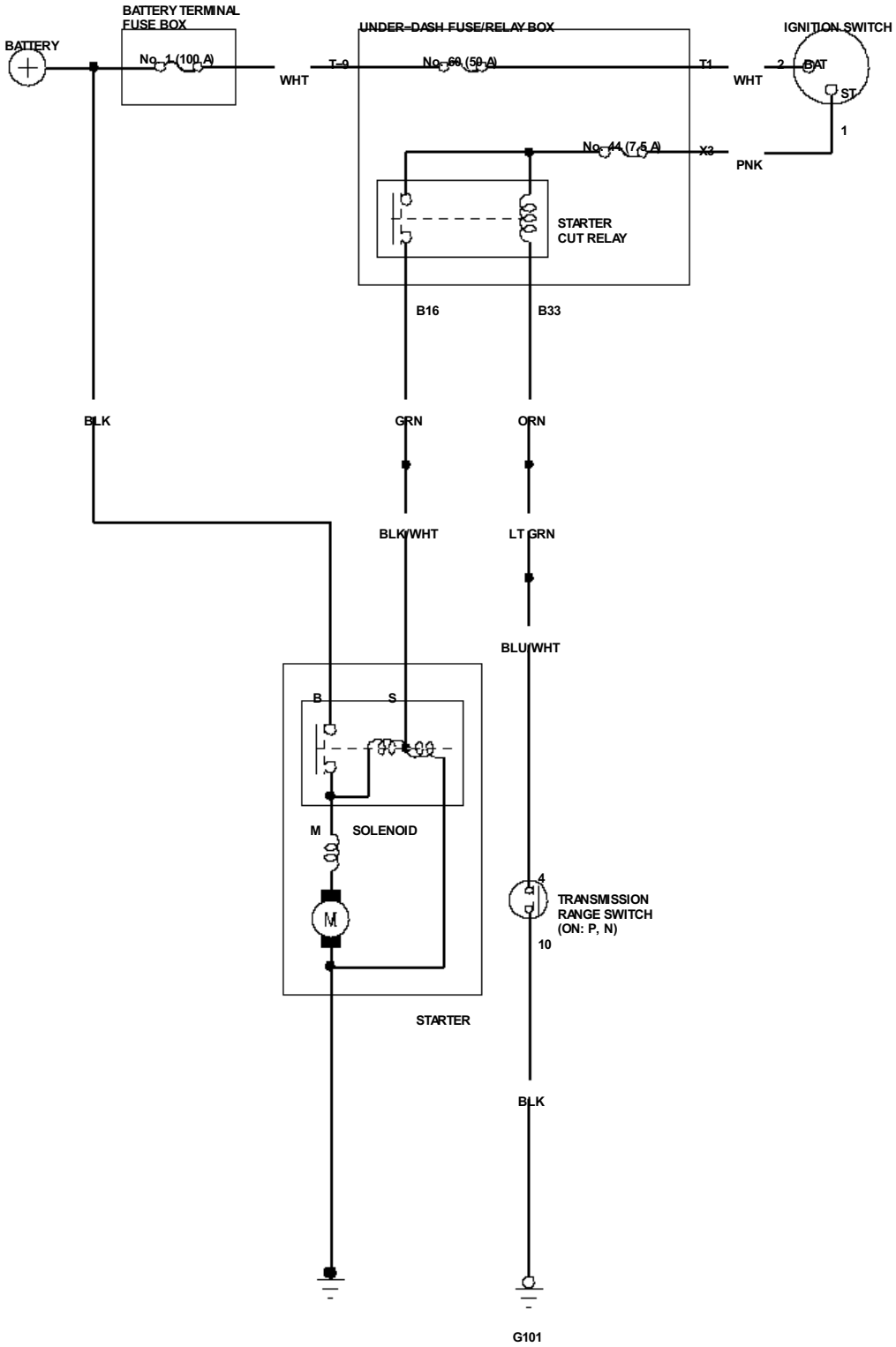
Item	Measurement	Qualification	Standard or New			
			Wire Diameter	O.D.	Free Length	No. of Coils
Servo body spring	Cut valve A spring		0.9 mm (0.035 in.)	9.9 mm (0.390 in.)	22.3 mm (0.878 in.)	6.9
	Shift valve B spring		0.8 mm (0.031 in.)	7.1 mm (0.280 in.)	23.7 mm (0.933 in.)	9.7
	5th accumulator spring A		2.5 mm (0.098 in.)	16.6 mm (0.654 in.)	46.9 mm (1.846 in.)	7.8
	5th accumulator spring B		1.9 mm (0.075 in.)	10.0 mm (0.394 in.)	38.5 mm (1.516 in.)	10.6
	2nd accumulator spring A		1.8 mm (0.071 in.)	14.6 mm (0.575 in.)	43.8 mm (1.724 in.)	7.9
	2nd accumulator spring B		1.85 mm (0.073 in.)	9.4 mm (0.370 in.)	32.5 mm(1.280 in.)	8.7
	3rd accumulator spring A		1.8 mm (0.071 in.)	14.6 mm (0.575 in.)	43.8 mm (1.724 in.)	7.9
	3rd accumulator spring B		1.85 mm (0.073 in.)	9.4 mm (0.370 in.)	32.5 mm (1.280 in.)	8.7

Item	Measurement	Qualification	Standard or New	Service Limit
A/T differential carrier	Pinion shaft contact area I.D.		18.010−18.028 mm (0.709−0.710 in.)	———
	Clearance between carrier and pinion shaft		0.023−0.057 mm (0.001−0.002 in.)	0.1 mm (0.004 in.)
	Driveshaft contact area I.D.		26.025−26.045 mm (1.024−1.025 in.)	———
	Clearance between carrier and driveshaft		0.045−0.086 mm (0.002−0.003 in.)	0.12 mm (0.005 in.)
	Intermediate shaft contact area I.D.		26.025−26.045 mm (1.024−1.025 in.)	———
	Clearance between carrier and Intermediate shaft		0.045−0.086 mm (0.002−0.003 in.)	0.12 mm (0.005 in.)
	Tapered roller bearing starting torque (preload)	For new bearing	2.7−3.9 N·m(28−40 kgf·cm, 24−35 lbf·in.)	Adjust
		For reused bearing	2.5−3.6 N·m(25−37 kgf·cm, 22−32 lbf·in.)	Adjust
	Final driven gear backlash	Reference	0.085−0.144 mm (0.003−0.006 in.)	0.2 mm (0.008 in.)

Item	Measurement	Qualification	Standard or New	Service Limit
A/T differential pinion gear	Backlash		0.05−0.15 mm (0.002−0.006 in.)	———
	I.D.		18.042−18.066 mm (0.7103−0.7113 in.)	———
	Clearance between pinion gear and pinion shaft		0.055−0.095 mm (0.002−0.004 in.)	0.12 mm (0.005 in.)

Starting System Circuit Diagram

A/T model



Automatic transmission fluid

Item	Measurement	Qualification	Standard or New	Service Limit
Automatic transmission fluid	Capacity Use genuine Honda ATF-Z1	Fluid change	2.5 L (2.6 US qt, 2.2 Imp qt)	
		Overhaul	5.85 L (6.18 US qt, 5.15 Imp qt)	

A/T Assembly Removal

Special Tools Required

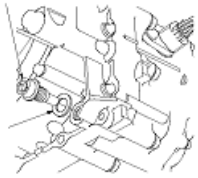
Hanger plate
07MAK-PY30100

Engine support hanger
AAR-T1256-J00
This special tool is available from Snap-on Tools International, LLC.
NOTE:

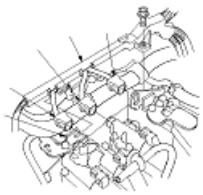
- Use fender covers to avoid damaging painted surfaces.
- Engine support hanger (AAR-T1256-J00) must be used with the side engine mount installed.

1. Remove the windshield wiper arms.
2. Do the battery terminal disconnect procedure.
3. Do the battery removal procedure.
4. Remove the battery base.
5. Remove the cowl cover.
6. Fix the hood in a vertical position.
7. Remove the cowl cover stiffener (A), and remove the windshield wiper motor and center-front cowl cover (B).
8. Remove the air cleaner assembly.
9. Raise the vehicle on a lift, and make sure it is securely supported.
10. Remove the wheels.
11. Remove the splash shield.

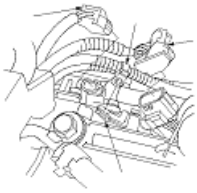
12. Remove the drain plug (A), and drain the automatic transmission fluid (ATF).
13. Reinstall the drain plug with a new sealing washer (B).



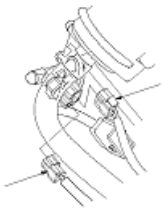
14. Disconnect the A/T clutch pressure control solenoid valve A connector (A), A/T clutch pressure control solenoid valve B connector (B), and A/T clutch pressure control solenoid valve C connector (C).
15. Remove the bolt securing the harness cover (D), and remove the harness cover from its bracket (E).



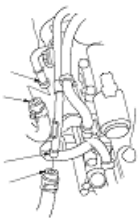
16. Disconnect the transmission range switch connector (A).
17. Disconnect the output shaft (countershaft) speed sensor connector (B), and remove the harness clamp (C) from its bracket (D).



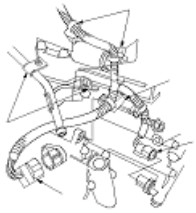
18. Disconnect the input shaft (mainshaft) speed sensor connector (A) and 2nd clutch transmission fluid pressure switch connector (B).



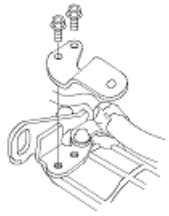
19. Remove the ATF cooler hoses (A) from the ATF cooler lines (B). Turn the ends of the cooler hoses up to prevent ATF from flowing out, then plug the cooler hoses and lines.
20. Check for any signs of leakage at the hose joints.



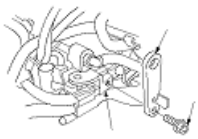
21. Remove the bolt securing the harness clamp bracket (A).
22. Disconnect the shift solenoid harness connector (B) and 3rd clutch transmission fluid pressure switch connector (C), and remove the harness clamps (D) from the clamp brackets (E).



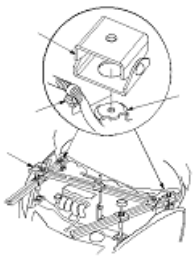
23. Remove the air cleaner housing mounting bracket from the transmission hanger.



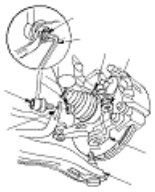
24. Install the hanger plate (07MAK-PY30100) (A) to the air cleaner housing mounting bracket (B) with the 8 x 1.25 mm bolt (C).



25. Remove the harness clamp (A) from its clamp bracket (B) located in front of the left damper top.
26. Set up the engine support hanger (AAR-T1256-J00). Carefully position the engine support hanger to the vehicle; position both cross-arm foot bases (C) over the harness clamp brackets on both sides, and position both front stands on the front bulkhead. Attach the hook to the hanger plate, tighten the wing nut by hand, and lift and support the engine.

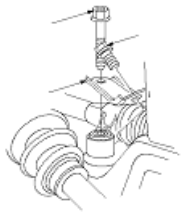


27. Insert a 5 mm Allen wrench (A) in the top of the ball joint pin (B), and remove the nuts (C), then separate the stabilizer link (D) from the stabilizer ends (E).
28. With HID lamp model: If removing the left side lower arm, disconnect the suspension stroke sensor, and the lower arm.
29. Remove the lock pin (F) and castle nuts (G), and separate the lower arms (H) from the knuckles (I).

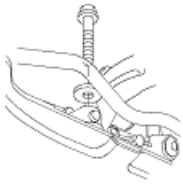


30. Remove the steering gearbox mounting bolt (A), bolt (B), and stiffener (C) on the right.

31. Remove the steering gearbox mounting bolt (A), bolt (B), and stiffener (C) on the left.

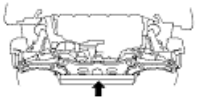


32. Remove the steering gearbox mounting bolt on the middle.

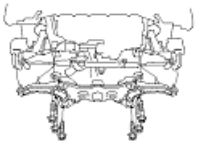


33. Place a jack under the transmission, raise it just enough to take it off of the lower torque rod, and remove the lower torque rod bolt (A) on the transmission.
34. Remove the lower torque rod nut (B) and bolt (C) on the front subframe, and remove the lower torque rod (D).
35. Remove the jack.

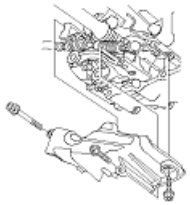
36. Support the front subframe with a wood piece and a jack.



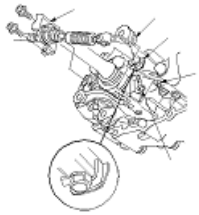
37. Remove the six bolts securing the front subframe.
38. Hang the steering gearbox to the body with a strap.



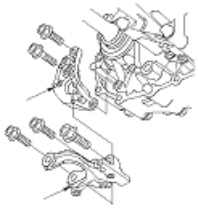
39. Remove the shift cable cover.



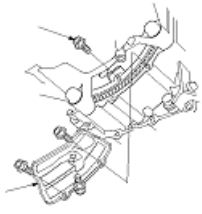
40. Pry up the lock tab of the lock washer (A), and remove the lock bolt (B) and lock washer.
41. Remove the bolts securing the shift cable holder (C), and separate the shift cable (D) from the selector control shaft end (E). Do not bend the shift cable excessively.



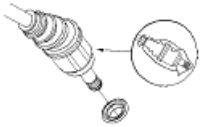
42. Remove the lower torque rod mounting bracket (A) and shift cable holder bracket (B).



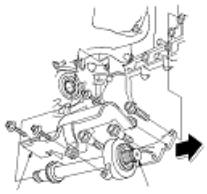
43. Remove the torque converter cover (A), and remove the drive plate bolts (B) (eight bolts) while rotating the crankshaft pulley.



44. Pry out the driveshafts from the differential and the intermediate shaft.
45. Coat all precision machined surfaces with clean engine oil, then put plastic bags over driveshaft ends.

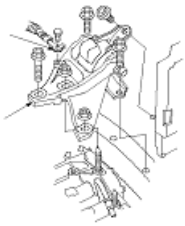


46. Remove the bolts securing the heat shield (A).
47. Remove the intermediate shaft (B) and heat shield.
48. Coat all precision finished surfaces with clean engine oil, then put plastic bags over intermediate shaft ends.

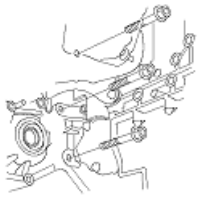


49. Remove the front and upper transmission housing mounting bolts.

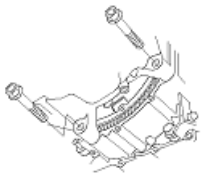
50. Remove the transmission ground cable terminal (A) from the transmission mount bracket (B).
51. Place a jack under the transmission, raise it just enough to take it off of the mount, and remove the transmission mount and mount bracket.
52. Remove the jack.



53. Remove the rear transmission housing mounting bolts.
54. Lower the transmission by loosening the wing nut on the engine support hanger, and tilt the engine just enough for the end of the transmission to clear the side frame.
55. Place a jack under the transmission.



56. Remove the lower transmission housing mounting bolts.
57. Slide the transmission away from the engine to remove it from the vehicle.



58. Remove the torque converter and dowel pins.
59. Inspect the drive plate, and replace it if it's damaged.

A/T Assembly Installation

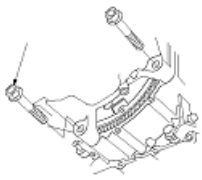
Special Tools Required

Hanger plate
07MAK-PY30100

Engine support hanger
AAR-T1256-J00
This special tool is available from Snap-on Tools International, LLC.
NOTE: Use fender covers to avoid damaging painted surfaces.

1. Install the torque converter (A) on the mainshaft (B) with the new O-ring (C).
2. Install the 14 mm dowel pins (D) in the torque converter housing.
3. Place the transmission on the jack, and raise the transmission to the engine level.

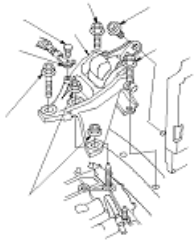
4. Attach the transmission to the engine, and install the lower transmission housing mounting bolts.



5. Install the rear transmission housing mounting bolt.

6. Install the front and upper transmission housing mounting bolts.

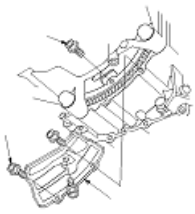
7. Place a jack under the transmission, raise it and secure the transmission mount and mount bracket (A) on the body and transmission housing with the new mounting bolts and new nuts loose.
8. Tighten the transmission mount bolts to the specified torque in the following order; on the middle (B), on the front (C), and on the rear (D).
9. Remove the jack, and tighten the bolt (E) and nuts (F) on the transmission mount bracket to the specified torque.
10. Install the transmission ground cable terminal (G).



11. Install the new set ring (A) on the intermediate shaft (B).
12. Clean the areas where the intermediate shaft contacts the transmission (differential) with solvent, and dry with compressed air. Apply ATF to the intermediate shaft splines, put the heat shield (C) on the intermediate shaft, then install the intermediate shaft; be sure not to allow dust or other foreign particles to enter the transmission.
13. Secure the heat shield with the mounting bolts.

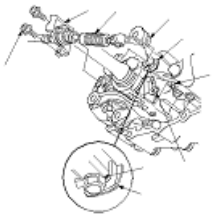
14. Install the new set ring (A) on the left driveshaft (B).
15. Clean the areas where the left driveshaft contacts the transmission (differential) with solvent, and dry with compressed air. Then install the left driveshaft; be sure not to allow dust or other foreign particles to enter the transmission. Turn the steering knuckle fully outward, and slide the driveshaft into the differential until you feel its set ring fully engage the side gear.
16. Apply right driveshaft inboard-joint splines with the recommended grease.
17. Slide the right driveshaft over the intermediate shaft splines until you feel the driveshaft fully engage the intermediate shaft set ring.

18. Attach the torque converter to the drive plate with eight bolts (A). Rotate the crankshaft pulley as necessary to tighten the bolts to 1/2 of the specified torque, then to the final torque, in a crisscross pattern. After tightening the last bolt, check that the crankshaft rotate freely.
19. Install the torque converter cover (B).

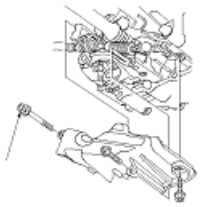


20. Install the shift cable holder bracket (A) and lower torque rod mounting bracket (B) on the transmission.

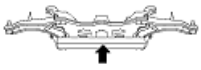
21. Install the control lever (A) over the control shaft (B). Do not twist the boot (C).
22. Secure the shift cable bracket (D) with the bolts.
23. Secure the control lever with the new lock washer (E) and the lock bolt (F); install the flange (G) of the lock washer with facing to transmission housing, then bend the lock tab (H) of the lock washer against the bolt head securely.



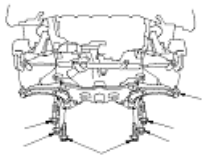
24. Install the shift cable cover.



25. Support the front subframe with a wood piece and a jack.

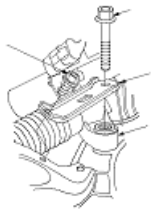


26. Lift the front subframe (A) up to body, and secure it with the new mounting bolts loose.
27. Tighten the right middle mounting bolt (B) first, then the left middle bolt (C), and the four remaining bolts (D) to the specified torque.

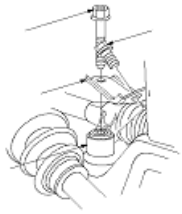


28. Place a jack under the transmission, raise it and attach the lower torque rod (A) in the mounting bracket and front subframe.
29. Install the new mounting bolt (B), and set the bolt tongue (C) into the stop (D) through the guide (E), then loosely install the new nut (F).
30. Loosely install the new mounting bolt (G).
31. Remove the jack, and tighten the bolt and nut to the specified torque.

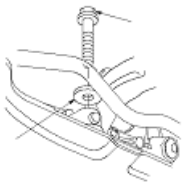
32. On the right side of the steering gearbox, secure the steering gear box (A) and stiffener (B) with the new mounting bolt (C) and the new bolt (D) loose.



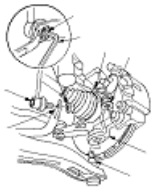
33. On the left side of the steering gearbox, secure the steering gear box (A) and stiffener (B) with the new mounting bolt (C) and the new bolt (D) loose.



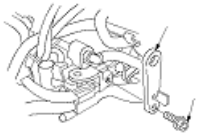
34. Loosely install the steering gearbox mounting bolt (A) and washer (B) on the middle.
35. Tighten the steering gearbox mounting bolts to the specified torque in the following order; on the right side, on the left side, and on the middle.
36. Tighten the bolts to the specified torque securing the right side stiffener, then left side stiffener.



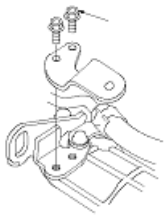
37. Connect the ball joints (A) to both knuckles (B), and install the new ball joint nuts (C). Tighten the nuts, then secure the nuts with the lock pin (D).
38. Connect the stabilizer links (E) to the stabilizer ends (F), and install the nuts (G). Insert a 5 mm Allen wrench (H) in the top of the ball joint pins (I), and tighten the nuts.
39. With HID lamp model: If the left side lower arm was removed, connect the suspension stroke sensor, to the lower arm.
40. Remove the engine support hanger, and install the harness clamp in its bracket located in front of the left damper top.



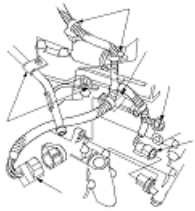
41. Remove the hanger plate (07MAK-PY30100) (A) and bolt (B).



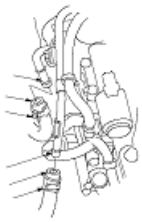
42. Install the air cleaner housing mounting bracket on the transmission hanger.



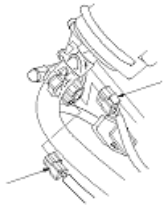
43. Secure the harness clamp bracket (A) with the bolt.
44. Connect the shift solenoid harness connector (B) and 3rd clutch transmission fluid pressure switch connector (C), and install the harness clamps (D) in the clamp brackets (E).



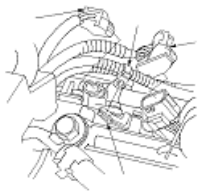
45. Connect the ATF cooler hoses (A) to the ATF cooler lines (B), and secure the hoses with the clips (C).



46. Connect the input shaft (mainshaft) speed sensor connector (A) and 2nd clutch transmission fluid pressure switch connector (B).



47. Connect the output shaft (countershaft) speed sensor connector (A), and install the harness clamp (B) on its bracket (C).
48. Connect the transmission range switch connector (D).



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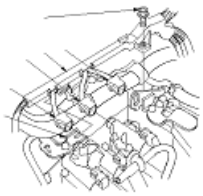
49. Install the harness cover (A) on its bracket (B), and secure the cover with the bolt.
50. Connect the A/T clutch pressure control solenoid valve A connector (C), A/T clutch pressure control solenoid valve C connector (D), and A/T clutch pressure control solenoid valve B connector (E).
51. Install the air cleaner assembly.



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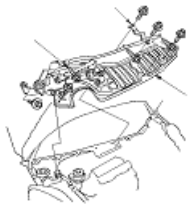
52. Install the windshield wiper motor and center-front cowl cover (A), and install the cowl cover stiffener (B).
53. Install the cowl cover.
54. Install the windshield wiper arms.
55. Refill the transmission with ATF.
56. Install the battery base.
57. Do the battery installation procedure.
58. Install the splash shield.
59. Install the wheels.
60. Set the parking brake. Start the engine, and shift the transmission through all positions three times. Check the shift lever operation, A/T gear position indicator operation, and shift cable adjustment.
61. Check and adjust the front wheel alignment.
62. Check the ATF level.
63. With HID lamp model: If the left side lower arm was removed, do the headlight initial position learning procedure.
64. Do the road test.



Reverse idler gear

Item	Measurement	Qualification	Standard or New	Service Limit
Reverse idler gear	Reverse idler gear shaft O.D. at needle bearing contact area		14.99−15.00 mm (0.590−0.591 in.)	When worn or damaged
	I.D.		20.001−20.014 mm (0.7874−0.7880 in.)	When worn or damaged
	I.D. of reverse idler gear shaft contact area on transmission housing		14.800−14.818 mm (0.5827−0.5834 in.)	———
	I.D. of reverse idler gear shaft holder		14.800−14.824 mm (0.5827−0.5836 in.)	When worn or damaged

Reverse shift fork

Item	Measurement	Qualification	Standard or New	Service Limit
Reverse shift fork	Fork finger thickness		5.90−6.00 mm (0.232−0.236 in.)	5.40 mm (0.213 in.)

Park gear and pawl

Item	Measurement	Qualification	Standard or New	Service Limit
Park gear and pawl			———	When worn or damaged

Pressure (Seven-position transmission)

Item	Measurement	Qualification	Standard or New	Service Limit
Pressure (Seven-position transmission)	Line pressure	At 2,000 rpm (min^{-1}) in P or N	900−960 kPa (9.2−9.8 kgf/cm^2, 130−140 psi)	850 kPa (8.7 kgf/cm^2, 120 psi)
	1st clutch pressure	At 2,000 rpm (min^{-1}) in 1	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	2nd clutch pressure	At 2,000 rpm (min^{-1}) in 2	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	3rd clutch pressure	At 2,000 rpm (min^{-1}) in 3rd gear in D3	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	4th clutch pressure	At 2,000 rpm (min^{-1}) in 4th gear in D	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	5th clutch pressure	At 2,000 rpm (min^{-1}) in 5th gear in D	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)

Pressure (Five-position transmission)

Item	Measurement	Qualification	Standard or New	Service Limit
Pressure (Five-position transmission)	Line pressure	At 2,000 rpm (min^{-1}) in P or N	900−960 kPa (9.2−9.8 kgf/cm^2, 130−140 psi)	850 kPa (8.7 kgf/cm^2, 120 psi)
	1st clutch pressure	At 2,000 rpm (min^{-1}) in 1st gear in S	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	2nd clutch pressure	At 2,000 rpm (min^{-1}) in 2nd gear in S	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	3rd clutch pressure	At 2,000 rpm (min^{-1}) in 3rd gear in S	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	4th clutch pressure	At 2,000 rpm (min^{-1}) in 4th gear in S	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	5th clutch pressure	At 2,000 rpm (min^{-1}) in 5th gear in S	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)

Countershaft

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft	Diameter of needle bearing contact area	At torque converter housing	33.504−33.517 mm (1.3191−1.3196 in.)	When worn or damaged
		At 5th gear	32.986−32.999 mm (1.2987−1.2991 in.)	When worn or damaged
		Reverse selector hub	35.983−35.999 mm (1.4167−1.4173 in.)	When worn or damaged
	I.D. of gears	5th gear	39.000−39.016 mm (1.5354−1.5361 in.)	When worn or damaged
		Reverse gear	42.000−42.016 mm (1.6535−1.6542 in.)	When worn or damaged
	End play	5th gear	0.04−0.27 mm (0.002−0.011 in.)	———
		Reverse gear	0.10−0.25 mm (0.004−0.010 in.)	———
	Reverse selector hub width		29.25−29.45 mm (1.152−1.160 in.)	———
	Collar, 33.2 x 40 x 26 mm length		25.95−26.00 mm (1.022−1.024 in.)	———
	Reverse selector hub O.D.		51.87−51.90 mm (2.042−2.043 in.)	When worn or damaged

Mainshaft

Item	Measurement	Qualification	Standard or New	Service Limit
Mainshaft	Diameter of needle bearing contact area	At stator shaft	22.984−23.000 mm (0.9049−0.9055 in.)	When worn or damaged
		At 5th gear collar	32.975−32.991 mm (1.2982−1.2989 in.)	When worn or damaged
		At 3rd gear	46.986−46.999 mm (1.8498−1.8503 in.)	When worn or damaged
	I.D. of gears	5th gear	37.000−37.016 mm (1.4567−1.4573 in.)	When worn or damaged
		3rd gear	52.000−52.013 mm (2.0472−2.0478 in.)	When worn or damaged
	End play	5th gear	0.15−0.27 mm (0.006−0.106 in.)	———
		3rd gear	0.04−0.10 mm (0.002−0.004 in.)	———
	40 x 63 mm thrust washer thickness	No. 1	3.750 mm (0.1476 in.)	When worn or damaged
		No. 2	3.775 mm (0.1486 in.)	When worn or damaged
		No. 3	3.800 mm (0.1496 in.)	When worn or damaged
		No. 4	3.825 mm (0.1506 in.)	When worn or damaged
		No. 5	3.850 mm (0.1516 in.)	When worn or damaged
		No. 6	3.875 mm (0.1526 in.)	When worn or damaged
		No. 7	3.900 mm (0.1535 in.)	When worn or damaged
		No. 8	3.925 mm (0.1545 in.)	When worn or damaged
		No. 9	3.950 mm (0.1555 in.)	When worn or damaged
		No. 10	3.975 mm (0.1565 in.)	When worn or damaged
		No. 11	4.000 mm (0.1575 in.)	When worn or damaged
	5th gear collar length		60.4−60.5 mm (2.380−2.381 in.)	———
	5th gear collar flange thickness		3.70−3.85 mm (0.146−0.152 in.)	When worn or damaged
	Sealing ring thickness		1.91−1.97 mm (0.0752−0.0776 in.)	1.86 mm (0.0732 in.)
	Width of sealing ring groove		2.025−2.060 mm (0.0797−0.0811 in.)	2.080 mm (0.0819 in.)
	3rd clutch feed pipe O.D.		7.97−7.98 mm (0.3138−0.3142 in.)	7.95 mm (0.313 in.)
	Feed pipe bushing I.D.		8.000−8.015 mm (0.3150−0.3156 in.)	8.030 mm (0.3161 in.)

Secondary shaft - 1/2

Item	Measurement	Qualification	Standard or New	Service Limit
Secondary shaft - 1/2	Diameter of needle bearing contact area	1st gear	30.986−30.999 mm (1.2199−1.2204 in.)	When worn or damaged
		2nd gear	42.986−42.999 mm (1.6924−1.6929 in.)	When worn or damaged
		4th gear collar	34.975−34.991 mm (1.3770−1.3776 in.)	When worn or damaged
	I.D. of gears	1st gear	38.000−38.016 mm (1.4961−1.4967 in.)	When worn or damaged
		2nd gear	49.000−49.016 mm (1.9291−1.9298 in.)	When worn or damaged
		4th gear	41.000−41.016 mm (1.6142−1.6148 in.)	When worn or damaged
	End play	1st gear	0.04−0.12 mm (0.002−0.005 in.)	———
		2nd gear	0.04−0.12 mm (0.002−0.005 in.)	———
		4th gear	0.10−0.22 mm (0.004−0.009 in.)	———
	31 x 50 mm thrust washer thickness	No. 1	3.925 mm (0.1545 in.)	When worn or damaged
		No. 2	3.950 mm (0.1555 in.)	When worn or damaged
		No. 3	3.975 mm (0.1565 in.)	When worn or damaged
		No. 4	4.000 mm (0.1575 in.)	When worn or damaged
		No. 5	4.025 mm (0.1585 in.)	When worn or damaged
		No. 6	4.050 mm (0.1594 in.)	When worn or damaged
		No. 7	4.075 mm (0.1604 in.)	When worn or damaged
		No. 8	4.100 mm (0.1614 in.)	When worn or damaged
		No. 9	4.125 mm (0.1624 in.)	When worn or damaged
		No. 10	4.150 mm (0.1634 in.)	When worn or damaged
		No. 11	4.175 mm (0.1644 in.)	When worn or damaged
		No. 12	4.200 mm (0.1654 in.)	When worn or damaged
		No. 13	4.225 mm (0.1663 in.)	When worn or damaged
		No. 14	4.250 mm (0.1673 in.)	When worn or damaged
		No. 15	4.275 mm (0.1683 in.)	When worn or damaged
		No. 16	4.300 mm (0.1693 in.)	When worn or damaged
		No. 17	4.325 mm (0.1703 in.)	When worn or damaged
	43 x 54.5 mm thrust washer thickness	No. 1	2.900 mm (0.114 in.)	When worn or damaged
		No. 2	2.925 mm (0.115 in.)	When worn or damaged
		No. 3	2.950 mm (0.116 in.)	When worn or damaged
		No. 4	2.975 mm (0.117 in.)	When worn or damaged
		No. 5	3.000 mm (0.118 in.)	When worn or damaged
		No. 6	3.025 mm (0.119 in.)	When worn or damaged
		No. 7	3.050 mm (0.120 in.)	When worn or damaged
		No. 8	3.075 mm (0.121 in.)	When worn or damaged
		No. 9	3.100 mm (0.122 in.)	When worn or damaged
		No. 10	3.125 mm (0.123 in.)	When worn or damaged
		No. 11	3.150 mm (0.124 in.)	When worn or damaged
		No. 12	3.175 mm (0.125 in.)	When worn or damaged
		No. 13	3.200 mm (0.126 in.)	When worn or damaged

Secondary shaft - 2/2

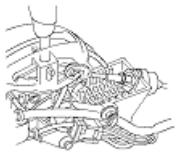
Item	Measurement	Qualification	Standard or New	Service Limit
Secondary shaft - 2/2	4th gear collar length		32.9−33.0 mm (1.295−1.299 in.)	———
	4th gear collar flange thickness		3.75−3.90 mm (0.148−0.154 in.)	When worn or damaged
	Sealing ring thickness		1.87−1.97 mm (0.074−0.078 in.)	1.82 mm (0.072 in.)
	Width of sealing ring groove		2.025−2.060 mm (0.0797−0.0811 in.)	2.080 mm (0.0819 in.)
	Clutch feed pipe O.D.	2nd clutch	6.97−6.98 mm (0.2744−0.2748 in.)	6.95 mm (0.2736 in.)
		4th clutch	11.47−11.48 mm (0.4516−0.4520 in.)	11.45 mm (0.4508 in.)
	Clutch feed pipe bushing O.D.	2nd clutch	7.018−7.030 mm (0.2763−0.2768 in.)	7.045 mm (0.2774 in.)
		4th clutch	11.500−11.518 mm (0.4528−0.4553 in.)	11.530 mm (0.4539 in.)
	ATF guide collar I.D. at sealing ring contact area		21.200−21.221 mm (0.8346−0.8355 in.)	21.25 mm (0.8366 in.)

Clutch

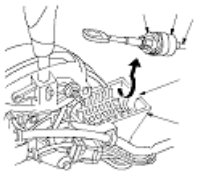
Item	Measurement	Qualification	Standard or New	Service Limit
Clutch	Clutch between clutch end-plate and top disc	1st	———	1.62−1.82 mm (0.064−0.072 in.)
		2nd	———	0.5−0.7 mm (0.020−0.028 in.)
		3rd	———	0.73−0.93 mm (0.029−0.037 in.)
		4th	———	0.7−0.9 mm (0.028−0.035 in.)
		5th	———	0.73−0.93 mm (0.029−0.037 in.)
	Clutch return spring free length	1st	35.2 mm (1.39 in.)	34.5 mm (1.36 in.)
		2nd	39.5 mm (1.56 in.)	37.4 mm (1.47 in.)
		3rd	45.15 mm (1.778 in.)	43.0 mm (1.69 in.)
		4th	39.5 mm (1.56 in.)	37.4 mm (1.47 in.)
		5th	45.15 mm (1.778 in.)	43.0 mm (1.69 in.)
	Clutch disc thickness	1st	1.94 mm (0.076 in.)	———
		2nd	1.96 mm (0.077 in.)	———
		3rd	1.94 mm (0.076 in.)	———
		4th	1.96 mm (0.077 in.)	———
		5th	1.94 mm (0.076 in.)	———
	Clutch plate thickness	1st	1.6 mm (0.063 in.)	When discolored
		2nd	2.3 mm (0.091 in.)	When discolored
		3rd	2.0 mm (0.079 in.)	When discolored
		4th	1.6 mm (0.063 in.)	When discolored
		5th	2.0 mm (0.079 in.)	When discolored
	Clutch waved-plate height 1st, 3rd, and 5th clutches		0.07−0.20 mm (0.003−0.008 in.)	0.05 mm (0.002 in.)
	1st, 3rd, and 5th clutch end-plate thickness	Mark 1	2.1 mm (0.083 in.)	When discolored
		Mark 2	2.2 mm (0.087 in.)	When discolored
		Mark 3	2.3 mm (0.091 in.)	When discolored
		Mark 4	2.4 mm (0.094 in.)	When discolored
		Mark 5	2.5 mm (0.098 in.)	When discolored
		Mark 6	2.6 mm (0.102 in.)	When discolored
		Mark 7	2.7 mm (0.106 in.)	When discolored
		Mark 8	2.8 mm (0.110 in.)	When discolored
		Mark 9	2.9 mm (0.114 in.)	When discolored
	2nd and 4th clutch end-plate thickness	Mark AC or AM	2.1 mm (0.083 in.)	When discolored
		Mark AD or AN	2.2 mm (0.087 in.)	When discolored
		Mark AE or AP	2.3 mm (0.091 in.)	When discolored
		Mark AF or AQ	2.4 mm (0.094 in.)	When discolored
		Mark AG or AR	2.5 mm (0.098 in.)	When discolored
		Mark AH or AS	2.6 mm (0.102 in.)	When discolored
		Mark AJ or AT	2.7 mm (0.106 in.)	When discolored
		Mark AK or AU	2.8 mm (0.110 in.)	When discolored
		Mark AL or AV	2.9 mm (0.114 in.)	When discolored

A/T Shift Cable Replacement

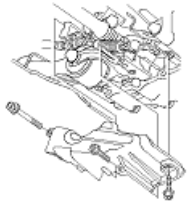
1. Raise the vehicle on a lift, or apply the parking brake, block rear wheels, and raise the front of the vehicle. Make sure it is securely supported.
2. Remove the splash shield.
3. Remove the center console.
4. Shift the transmission to N.
5. Remove the nut securing the shift cable end.



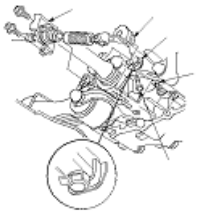
6. Rotate the socket holder (A) on the shift cable (B) a quarter turn; the corner (C) on the socket holder will be in the opening (D) of the shift lever bracket base (E). Then slide the holder to remove the shift cable from the bracket.



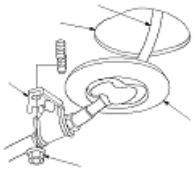
7. Remove the shift cable cover.



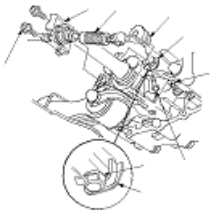
8. Pry up the lock tab of the lock washer (A), and remove the lock bolt (B) and lock washer.
9. Remove the bolts securing the shift cable holder (C), and separate the shift cable (D) from the selector control shaft end (E).
10. Remove the heat shield under the body.



11. Remove the nut securing the shift cable bracket (A).
12. Remove the shift cable grommet (B), and pull out the shift cable (C).
13. Insert the new shift cable through the grommet hole (D), and install the grommet in its hole. Do not bend the shift cable excessively.
14. Secure the shift cable bracket with the nut.
15. Install the heat shield.

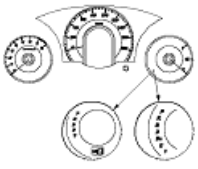


16. Install the control lever (A) over the control shaft (B). Do not twist the boot (C).
17. Secure the shift cable bracket (D) with the bolts.
18. Secure the control lever with the new lock washer (E) and the lock bolt (F); install the flange (G) of the lock washer with facing to the transmission housing, then bend the lock tab (H) of the lock washer against the bolt head securely.

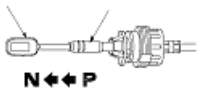


19. Install the shift cable cover.

20. Turn the ignition switch to ON (II), and check that the N indicator comes on.



21. If necessary, push the shift cable (A) until it stops, then release it. Pull the shift cable back two steps so that the shift position is in N. Do not hold the shift cable guide (B) to adjust the shift cable.
22. Turn the ignition switch to LOCK (0).



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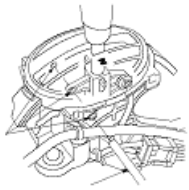
23. Insert a 6.0 mm (0.24 in.) pin (A) through the positioning holes (B) on the shift lever bracket base and into the positioning hole on the shift lever. Use only the 6.0 mm pin.
24. Check that the shift lever is secured in N.



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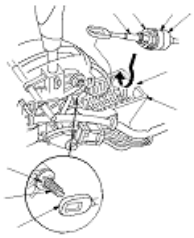
25. Rotate the socket holder (A) on the shift cable (B) to place the corner (C) on the holder opposite the opening (D) in the shift lever bracket base (E). Align the holder with the opening in the bracket, then slide the holder into the bracket. Install the shift cable end (F) over the mounting stud (G) by aligning its square hole with the square fitting (H) at the bottom of the stud. Rotate the holder a quarter turn until the holder stops to secure the shift cable. Do not install the shift cable by twisting the shift cable guide (I).



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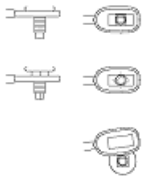
26. Check that the shift cable end is properly installed on the mounting stud.
27. If the cable end is out of position on the mounting stud, remove the shift cable from the bracket, and reinstall the shift cable. Do not install the shift cable end on the mounting stud while the shift cable in on the bracket. If the cable end rides on the bottom of the mounting stud, rotate the stud and align the square fitting with the hole.



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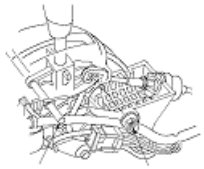
28. Secure the shift cable end with the nut (A).
29. Remove the 6.0 mm (0.24 in.) pin (B) that was installed to hold the shift lever.
30. Turn the ignition switch to ON (II). Move the shift lever to each position, and check that the A/T gear position indicator follows the transmission range switch.
31. Shift to P, and check that the shift lock works properly. Push the shift lock release, and check that the shift lever releases, and also check that the shift lever locks when it is shifted back into P.
32. Reinstall the center console.



A/T differential carrier

Item	Measurement	Qualification	Standard or New	Service Limit
A/T differential carrier	Pinion shaft contact area I.D.		18.010−18.028 mm (0.709−0.710 in.)	———
	Clearance between carrier and pinion shaft		0.023−0.057 mm (0.001−0.002 in.)	0.1 mm (0.004 in.)
	Driveshaft contact area I.D.		26.025−26.045 mm (1.024−1.025 in.)	———
	Clearance between carrier and driveshaft		0.045−0.086 mm (0.002−0.003 in.)	0.12 mm (0.005 in.)
	Intermediate shaft contact area I.D.		26.025−26.045 mm (1.024−1.025 in.)	———
	Clearance between carrier and Intermediate shaft		0.045−0.086 mm (0.002−0.003 in.)	0.12 mm (0.005 in.)
	Tapered roller bearing starting torque (preload)	For new bearing	2.7−3.9 N·m(28−40 kgf·cm, 24−35 lbf·in.)	Adjust
		For reused bearing	2.5−3.6 N·m(25−37 kgf·cm, 22−32 lbf·in.)	Adjust
	Final driven gear backlash	Reference	0.085−0.144 mm (0.003−0.006 in.)	0.2 mm (0.008 in.)

A/T differential pinion gear

Item	Measurement	Qualification	Standard or New	Service Limit
A/T differential pinion gear	Backlash		0.05−0.15 mm (0.002−0.006 in.)	———
	I.D.		18.042−18.066 mm (0.7103−0.7113 in.)	———
	Clearance between pinion gear and pinion shaft		0.055−0.095 mm (0.002−0.004 in.)	0.12 mm (0.005 in.)

Idler gear shaft

Item	Measurement	Qualification	Standard or New	Service Limit
Idler gear shaft	End cover bearing contact area		30.003−30.013 mm (1.1812−1.1816 in.)	When worn or damaged
	Cotters thickness		1.39−1.42 mm (0.055−0.056 in.)	———

Torque converter

Item	Measurement	Qualification	Standard or New	Service Limit
Torque converter	Stall speed Check with vehicle on level ground		2,200 rpm (min $^{-1}$)	2,050−2,350 rpm (min $^{-1}$)

ATF pump

Item	Measurement	Qualification	Standard or New	Service Limit
ATF pump	ATF pump thrust clearance		0.03−0.06 mm (0.001−0.002 in.)	0.07 mm (0.003 in.)
	Clearance between ATF pump gear and body	Drive gear	0.210−0.265 mm (0.0083−0.0104 in.)	———
		Driven gear	0.070−0.125 mm (0.0028−0.0049 in.)	———
	ATF pump driven gear I.D.		14.016−14.034 mm (0.5518−0.5525 in.)	When worn or damaged
	ATF pump driven gear shaft O.D.		13.980−13.990 mm (0.5504−0.5508 in.)	When worn or damaged

Main valve body spring

Item	Measurement	Qualification	Standard or New			
			Wire Diameter	O.D.	Free Length	No. of Coils
Main valve body spring	Cut valve B spring		0.8 mm (0.031 in.)	9.9 mm (0.290 in.)	27.3 mm (1.075 in.)	8.0
	Shift valve A spring		0.8 mm (0.031 in.)	7.1 mm (0.280 in.)	23.7 mm (0.933 in.)	9.7
	Shift valve C spring		0.8 mm (0.031 in.)	7.1 mm (0.280 in.)	23.7 mm (0.933 in.)	9.7
	Relief valve spring		1.0 mm (0.039 in.)	9.6 mm (0.378 in.)	34.1 mm (1.343 in.)	10.2
	Lock-up control valve spring		0.6 mm (0.024 in.)	7.1 mm (0.280 in.)	29.6 mm (1.165 in.)	11.2
	Cooler check valve spring		0.85 mm (0.033 in.)	6.6 mm (0.260 in.)	27.0 mm (1.063 in.)	11.3
	Shift valve D spring		0.8 mm (0.031 in.)	5.6 mm (0.220 in.)	28.1 mm (1.106 in.)	15.9
	Servo control valve spring		0.8 mm (0.031 in.)	9.9 mm (0.290 in.)	27.3 mm (1.075 in.)	8.0

Regulator valve body

Item	Measurement	Qualification	Standard or New	Service Limit
Regulator valve body	Sealing ring contact I.D.		29.000−29.021 mm (1.1417−1.1426 in.)	29.05 mm (1.144 in.)

Regulator valve body spring

Item	Measurement	Qualification	Standard or New			
			Wire Diameter	O.D.	Free Length	No. of Coils
Regulator valve body spring	Stator reaction spring		4.5 mm (0.177 in.)	35.4 mm (1.394 in.)	30.3 mm (1.193 in.)	1.92
	Regulator valve spring A		1.9 mm (0.075 in.)	14.7 mm (0.579 in.)	80.6 mm (3.173 in.)	16.1
	Regulator valve spring B		1.6 mm (0.063 in.)	9.2 mm (0.362 in.)	44.0 mm (1.732 in.)	12.5
	Torque converter check valve spring		1.2 mm (0.047 in.)	8.6 mm (0.339 in.)	33.8 mm (1.331 in.)	12.2
	Lock-up shift valve spring		1.0 mm (0.039 in.)	6.6 mm (0.260 in.)	35.5 mm (1.398 in.)	18.2
	1st accumulator spring B		2.4 mm (0.094 in.)	12.2 mm (0.480 in.)	35.0 mm (1.378 in.)	7.7
	1st accumulator spring A		2.4 mm (0.094 in.)	18.6 mm (0.732 in.)	50.1 mm (1.972 in.)	6.7
	4th accumulator spring		2.5 mm (0.098 in.)	14.6 mm (0.575 in.)	29.9 mm (1.177 in.)	4.9

Servo body

Item	Measurement	Qualification	Standard or New	Service Limit
Servo body	Shift fork shaft bore I.D.		14.000−14.010 mm (0.5512−0.5526 in.)	When worn or damaged
	Shift fork shaft valve bore I.D.		37.000−37.039 mm (1.4567−1.4582 in.)	37.045 mm (1.4585 in.)

Servo body spring

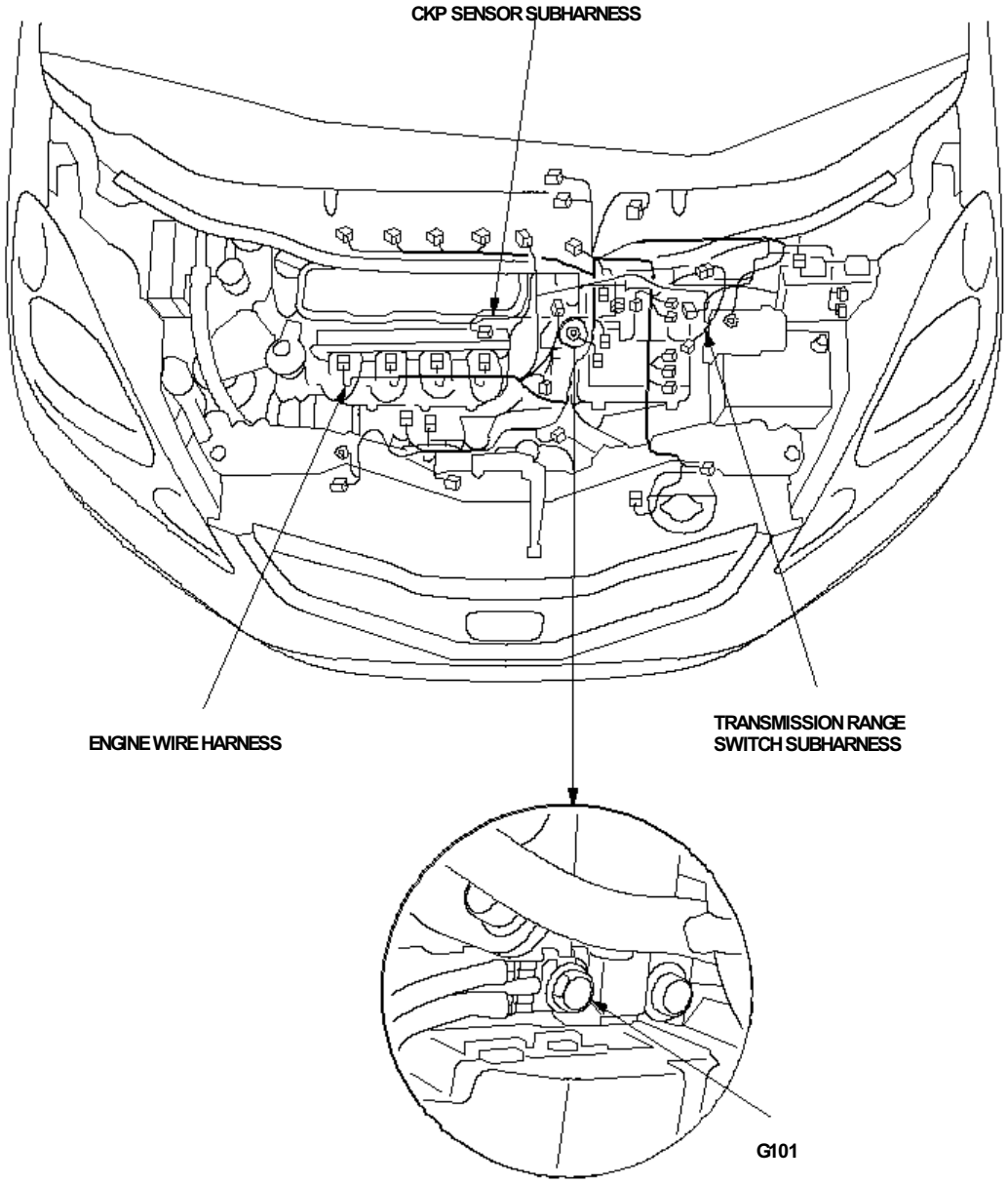
Item	Measurement	Qualification	Standard or New			
			Wire Diameter	O.D.	Free Length	No. of Coils
Servo body spring	Cut valve A spring		0.9 mm (0.035 in.)	9.9 mm (0.390 in.)	22.3 mm (0.878 in.)	6.9
	Shift valve B spring		0.8 mm (0.031 in.)	7.1 mm (0.280 in.)	23.7 mm (0.933 in.)	9.7
	5th accumulator spring A		2.5 mm (0.098 in.)	16.6 mm (0.654 in.)	46.9 mm (1.846 in.)	7.8
	5th accumulator spring B		1.9 mm (0.075 in.)	10.0 mm (0.394 in.)	38.5 mm (1.516 in.)	10.6
	2nd accumulator spring A		1.8 mm (0.071 in.)	14.6 mm (0.575 in.)	43.8 mm (1.724 in.)	7.9
	2nd accumulator spring B		1.85 mm (0.073 in.)	9.4 mm (0.370 in.)	32.5 mm(1.280 in.)	8.7
	3rd accumulator spring A		1.8 mm (0.071 in.)	14.6 mm (0.575 in.)	43.8 mm (1.724 in.)	7.9
	3rd accumulator spring B		1.85 mm (0.073 in.)	9.4 mm (0.370 in.)	32.5 mm (1.280 in.)	8.7

Stator shaft

Item	Measurement	Qualification	Standard or New	Service Limit
Stator shaft	Needle bearing contact I.D.	Torque converter side	27.000−27.021 mm (1.063−1.064 in.)	When worn or damaged
		ATF pump side	29.000−29.021 mm (1.1417−1.1426 in.)	———
	Sealing ring contact area I.D.		29.000−29.021 mm (1.1417−1.1426 in.)	29.05 mm (1.144 in.)

Engine Wire Harness, CKP Sensor Subharness, Transmission Range Switch Subharness Locations

A/T



RHD model is shown, LHD model is similar.

Automatic Transmission and A/T Differential

Item	Measurement	Qualification	Standard or New	Service Limit
Automatic transmission fluid	Capacity Use genuine Honda ATF-Z1	Fluid change	2.5 L (2.6 US qt, 2.2 Imp qt)	
		Overhaul	5.85 L (6.18 US qt, 5.15 Imp qt)	
Pressure (Seven-position transmission)	Line pressure	At 2,000 rpm (min^{-1}) in P or N	900–960 kPa (9.2–9.8 kgf/cm^2, 130–140 psi)	850 kPa (8.7 kgf/cm^2, 120 psi)
	1st clutch pressure	At 2,000 rpm (min^{-1}) in 1	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	2nd clutch pressure	At 2,000 rpm (min^{-1}) in 2	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	3rd clutch pressure	At 2,000 rpm (min^{-1}) in 3rd gear in D3	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	4th clutch pressure	At 2,000 rpm (min^{-1}) in 4th gear in D	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	5th clutch pressure	At 2,000 rpm (min^{-1}) in 5th gear in D	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
Pressure (Five-position transmission)	Line pressure	At 2,000 rpm (min^{-1}) in P or N	900–960 kPa (9.2–9.8 kgf/cm^2, 130–140 psi)	850 kPa (8.7 kgf/cm^2, 120 psi)
	1st clutch pressure	At 2,000 rpm (min^{-1}) in 1st gear in S	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	2nd clutch pressure	At 2,000 rpm (min^{-1}) in 2nd gear in S	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	3rd clutch pressure	At 2,000 rpm (min^{-1}) in 3rd gear in S	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	4th clutch pressure	At 2,000 rpm (min^{-1}) in 4th gear in S	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	5th clutch pressure	At 2,000 rpm (min^{-1}) in 5th gear in S	890–970 kPa (9.1–9.9 kgf/cm^2, 130–140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
Torque converter	Stall speed Check with vehicle on level ground		2,200 rpm (min^{-1})	2,050–2,350 rpm (min^{-1})

Automatic Transmission and A/T Differential (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit
Clutch	Clutch between clutch end-plate and top disc	1st	———	1.62–1.82 mm (0.064–0.072 in.)
		2nd	———	0.5–0.7 mm (0.020–0.028 in.)
		3rd	———	0.73–0.93 mm (0.029–0.037 in.)
		4th	———	0.7–0.9 mm (0.028–0.035 in.)
		5th	———	0.73–0.93 mm (0.029–0.037 in.)
	Clutch return spring free length	1st	35.2 mm (1.39 in.)	34.5 mm (1.36 in.)
		2nd	39.5 mm (1.56 in.)	37.4 mm (1.47 in.)
		3rd	45.15 mm (1.778 in.)	43.0 mm (1.69 in.)
		4th	39.5 mm (1.56 in.)	37.4 mm (1.47 in.)
		5th	45.15 mm (1.778 in.)	43.0 mm (1.69 in.)
	Clutch disc thickness	1st	1.94 mm (0.076 in.)	———
		2nd	1.96 mm (0.077 in.)	———
		3rd	1.94 mm (0.076 in.)	———
		4th	1.96 mm (0.077 in.)	———
		5th	1.94 mm (0.076 in.)	———
	Clutch plate thickness	1st	1.6 mm (0.063 in.)	When discolored
		2nd	2.3 mm (0.091 in.)	When discolored
		3rd	2.0 mm (0.079 in.)	When discolored
		4th	1.6 mm (0.063 in.)	When discolored
		5th	2.0 mm (0.079 in.)	When discolored
	Clutch waved-plate height 1st, 3rd, and 5th clutches		0.07–0.20 mm (0.003–0.008 in.)	0.05 mm (0.002 in.)
	1st, 3rd, and 5th clutch end-plate thickness	Mark 1	2.1 mm (0.082 in.)	When discolored
		Mark 2	2.2 mm (0.087 in.)	When discolored
		Mark 3	2.3 mm (0.091 in.)	When discolored
		Mark 4	2.4 mm (0.094 in.)	When discolored
		Mark 5	2.5 mm (0.098 in.)	When discolored

Item	Measurement	Qualification	Standard or New	Service Limit
		Mark 6	2.6 mm (0.102 in.)	When discolored
		Mark 7	2.7 mm (0.106 in.)	When discolored
		Mark 8	2.8 mm (0.110 in.)	When discolored
		Mark 9	2.9 mm (0.114 in.)	When discolored
	2nd and 4th clutch end-plate thickness	Mark AC or AM	2.1 mm (0.082 in.)	When discolored
		Mark AD or AN	2.2 mm (0.087 in.)	When discolored
		Mark AE or AP	2.3 mm (0.091 in.)	When discolored
		Mark AF or AQ	2.4 mm (0.094 in.)	When discolored
		Mark AG or AR	2.5 mm (0.098 in.)	When discolored
		Mark AH or AS	2.6 mm (0.102 in.)	When discolored
		Mark AJ or AT	2.7 mm (0.106 in.)	When discolored
		Mark AK or AU	2.8 mm (0.110 in.)	When discolored
		Mark AL or AV	2.9 mm (0.114 in.)	When discolored

Item	Measurement	Qualification	Standard or New	Service Limit
ATF pump	ATF pump thrust clearance		0.03−0.06 mm (0.001−0.002 in.)	0.07 mm (0.003 in.)
	Clearance between ATF pump gear and body	Drive gear	0.210−0.265 mm (0.008−0.010 in.)	———
		Driven gear	0.070−0.125 mm (0.003−0.005 in.)	———
	ATF pump driven gear I.D.		14.016−14.034 mm (0.5518−0.5525 in.)	When worn or damaged
	ATF pump driven gear shaft O.D.		13.980−13.990 mm (0.5504−0.5508 in.)	When worn or damaged
Stator shaft	Needle bearing contact I.D.	Torque converter side	27.000−27.021 mm (1.063−1.064 in.)	When worn or damaged
		ATF pump side	29.000−29.021 mm (1.1417−1.1426 in.)	———
	Sealing ring contact area I.D.		29.000−29.021 mm (1.1417−1.1426 in.)	29.05 mm (1.144 in.)
Reverse shift fork	Fork finger thickness		5.90−6.00 mm (0.232−0.236 in.)	5.40 mm (0.213 in.)
Park gear and pawl			———	When worn or damaged
Servo body	Shift fork shaft bore I.D.		14.000−14.010 mm (0.5512−0.5526 in.)	When worn or damaged
	Shift fork shaft valve bore I.D.		37.000−37.039 mm (1.4567−1.4582 in.)	37.045 mm (1.4585 in.)
Regulator valve body	Sealing ring contact I.D.		29.000−29.021 mm (1.1417−1.1426 in.)	29.05 mm (1.144 in.)
Mainshaft	Diameter of needle bearing contact area	At stator shaft	22.984−23.000 mm (0.9049−0.9055 in.)	When worn or damaged
		At 5th gear collar	32.975−32.991 mm (1.2982−1.2989 in.)	When worn or damaged
		At 3rd gear	46.986−46.999 mm (1.8498−1.8503 in.)	When worn or damaged
	I.D. of gears	5th gear	37.000−37.016 mm (1.4567−1.4573 in.)	When worn or damaged
		3rd gear	52.000−52.013 mm (2.0472−2.0478 in.)	When worn or damaged
	End play	5th gear	015−0.27 mm (0.006−0.106 in.)	———
		3rd gear	0.04−0.10 mm (0.002−0.004 in.)	———
	40 x 63 mm thrust washer thickness	No. 1	3.750 mm (0.1476 in.)	When worn or damaged
		No. 2	3.775 mm (0.1486 in.)	When worn or damaged
		No. 3	3.800 mm (0.1496 in.)	When worn or damaged
		No. 4	3.825 mm (0.1506 in.)	When worn or damaged
		No. 5	3.850 mm (0.1516 in.)	When worn or damaged
		No. 6	3.875 mm (0.1526 in.)	When worn or damaged
		No. 7	3.900 mm (0.1534 in.)	When worn or damaged
		No. 8	3.925 mm (0.1545 in.)	When worn or damaged
		No. 9	3.950 mm (0.1555 in.)	When worn or damaged
		No. 10	3.975 mm (0.1565 in.)	When worn or damaged
		No. 11	4.000 mm (0.1575 in.)	When worn or damaged
	5th gear collar length		60.4−60.5 mm (2.380−2.381 in.)	———
	5th gear collar flange thickness		3.70−3.85 mm (0.146−0.152 in.)	When worn or damaged
	Sealing ring thickness		1.91−1.97 mm (0.0752−0.0776 in.)	1.86 mm (0.0732 in.)
	Width of sealing ring groove		2.025−2.060 mm (0.0797−0.0811 in.)	2.080 mm (0.0819 in.)
	3rd clutch feed pipe O.D.		7.97−7.98 mm (0.3138−0.3142 in.)	7.95 mm (0.313 in.)
	Feed pipe bushing I.D.		8.000−8.015 mm (0.3150−0.3156 in.)	8.030 mm (0.3161 in.)

Automatic Transmission and A/T Differential (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft	Diameter of needle bearing contact area	At torque converter housing	33.504−33.517 mm (1.3191−1.3196 in.)	When worn or damaged
		At 5th gear	32.986−32.999 mm (1.2987−1.2991 in.)	When worn or damaged
		Reverse selector hub	35.983−35.999 mm (1.4167−1.4173 in.)	When worn or damaged
	I.D. of gears	5th gear	39.000−39.016 mm (1.5354−1.5361 in.)	When worn or damaged

Item	Measurement	Qualification	Standard or New	Service Limit
		Reverse gear	42.000−42.016 mm (1.6535−1.6542 in.)	When worn or damaged
	End play	5th gear	0.04−0.27 mm (0.002−0.011 in.)	———
		Reverse gear	0.10−0.25 mm (0.004−0.010 in.)	———
	Reverse selector hub width		29.25−29.45 mm (1.152−1.160 in.)	———
	Collar, 33.2 x 40 x 26 mm length		25.95−26.00 mm (1.022−1.024 in.)	———
	Reverse selector hub O.D.		51.87−51.90 mm (2.042−2.043 in.)	When worn or damaged
Secondary shaft - 1/2	Diameter of needle bearing contact area	1st gear	30.986−30.999 mm (1.2199−1.2204 in.)	When worn or damaged
		2nd gear	42.986−42.999 mm (1.6924−1.6929 in.)	When worn or damaged
		4th gear collar	34.975−34.991 mm (1.3770−1.3776 in.)	When worn or damaged
	I.D. of gears	1st gear	38.000−38.016 mm (1.4961−1.4967 in.)	When worn or damaged
		2nd gear	49.000−49.016 mm (1.9291−1.9298 in.)	When worn or damaged
		4th gear	41.000−41.016 mm (1.6142−1.6148 in.)	When worn or damaged
	End play	1st gear	0.04−0.12 mm (0.002−0.005 in.)	———
		2nd gear	0.04−0.12 mm (0.002−0.005 in.)	———
		4th gear	0.10−0.22 mm (0.004−0.009 in.)	———
	31 x 50 mm thrust washer thickness	No. 1	3.925 mm (0.1545 in.)	When worn or damaged
		No. 2	3.950 mm (0.1555 in.)	When worn or damaged
		No. 3	3.975 mm (0.1565 in.)	When worn or damaged
		No. 4	4.000 mm (0.1575 in.)	When worn or damaged
		No. 5	4.025 mm (0.1585 in.)	When worn or damaged
		No. 6	4.050 mm (0.1594 in.)	When worn or damaged
		No. 7	4.075 mm (0.1604 in.)	When worn or damaged
		No. 8	4.100 mm (0.1614 in.)	When worn or damaged
		No. 9	4.125 mm (0.1624 in.)	When worn or damaged
		No. 10	4.150 mm (0.1634 in.)	When worn or damaged
		No. 11	4.175 mm (0.1644 in.)	When worn or damaged
		No. 12	4.200 mm (0.1654 in.)	When worn or damaged
		No. 13	4.225 mm (0.1663 in.)	When worn or damaged
		No. 14	4.250 mm (0.1673 in.)	When worn or damaged
		No. 15	4.275 mm (0.1683 in.)	When worn or damaged
		No. 16	4.300 mm (0.1693 in.)	When worn or damaged
		No. 17	4.325 mm (0.1703 in.)	When worn or damaged
	43 x 54.5 mm thrust washer thickness	No. 1	2.900 mm (0.114 in.)	When worn or damaged
		No. 2	2.925 mm (0.115 in.)	When worn or damaged
		No. 3	2.950 mm (0.116 in.)	When worn or damaged
		No. 4	2.975 mm (0.117 in.)	When worn or damaged
		No. 5	3.000 mm (0.118 in.)	When worn or damaged
		No. 6	3.025 mm (0.119 in.)	When worn or damaged
		No. 7	3.050 mm (0.120 in.)	When worn or damaged
		No. 8	3.075 mm (0.121 in.)	When worn or damaged
		No. 9	3.100 mm (0.122 in.)	When worn or damaged
		No. 10	3.125 mm (0.123 in.)	When worn or damaged
		No. 11	3.150 mm (0.124 in.)	When worn or damaged
		No. 12	3.175 mm (0.125 in.)	When worn or damaged
		No. 13	3.200 mm (0.126 in.)	When worn or damaged

Item	Measurement	Qualification	Standard or New	Service Limit
Secondary shaft - 2/2	4th gear collar length		32.9−33.0 mm (1.295−1.299 in.)	———
	4th gear collar flange thickness		3.75−3.90 mm (0.148−0.154 in.)	When worn or damaged
	Sealing ring thickness		1.87−1.97 mm (0.074−0.078 in.)	1.82 mm (0.072 in.)
	Width of sealing ring groove		2.025−2.060 mm (0.0797−0.0811 in.)	2.080 mm (0.0819 in.)
	Clutch feed pipe O.D.	2nd clutch	6.97−6.98 mm (0.2744−0.2748 in.)	6.95 mm (0.2736 in.)
		4th clutch	11.47−11.48 mm (0.4516−0.4520 in.)	11.45 mm (0.4508 in.)
	Clutch feed pipe bushing O.D.	2nd clutch	7.018−7.030 mm (0.2763−0.2768 in.)	7.045 mm (0.2774 in.)
		4th clutch	11.500−11.518 mm (0.4528−0.4553 in.)	11.530 mm (0.4539 in.)
	ATF guide collar I.D. at sealing ring contact area		21.200−21.221 mm (0.8346−0.8355 in.)	21.25 mm (0.8366 in.)
Idler gear shaft	End cover bearing contact area		30.003−30.013 mm (1.1812−1.1816 in.)	When worn or damaged
	Cotters thickness		1.39−1.42 mm (0.055−0.056 in.)	———
Reverse idler gear	Reverse idler gear shaft O.D. at needle bearing contact area		14.99−15.00 mm (0.590−0.591 in.)	When worn or damaged
	I.D.		20.001−20.014 mm (0.7874−0.7880 in.)	When worn or damaged
	I.D. of reverse idler gear shaft contact area on transmission housing		14.800−14.818 mm (0.5827−0.5834 in.)	———
	I.D. of reverse idler gear shaft holder		14.800−14.824 mm (0.5827−0.5836 in.)	When worn or damaged

Item	Measurement	Qualification	Standard or New			
			Wire Diameter	O.D.	Free Length	No. of Coils
Main valve body spring	Cut valve B spring		0.8 mm (0.031 in.)	9.9 mm (0.290 in.)	27.3 mm (1.075 in.)	8.0
	Shift valve A spring		0.8 mm (0.031 in.)	7.1 mm (0.280 in.)	23.7 mm (0.933 in.)	9.7
	Shift valve C spring		0.8 mm (0.031 in.)	7.1 mm (0.280 in.)	23.7 mm (0.933 in.)	9.7
	Relief valve spring		1.0 mm (0.039 in.)	9.6 mm (0.378 in.)	34.1 mm (1.343 in.)	10.2
	Lock-up control valve spring		0.6 mm (0.024 in.)	7.1 mm (0.280 in.)	29.6 mm (1.165 in.)	11.2
	Cooler check valve spring		0.85 mm (0.033 in.)	6.6 mm (0.260 in.)	27.0 mm (1.063 in.)	11.3
	Shift valve D spring		0.8 mm (0.031 in.)	5.6 mm (0.220 in.)	28.1 mm (1.106 in.)	15.9
	Servo control valve spring		0.8 mm (0.031 in.)	9.9 mm (0.290 in.)	27.3 mm (1.075 in.)	8.0
Regulator valve body spring	Stator reaction spring		4.5 mm (0.177 in.)	35.4 mm (1.394 in.)	30.3 mm (1.193 in.)	1.92
	Regulator valve spring A		1.9 mm (0.075 in.)	14.7 mm (0.579 in.)	80.6 mm (3.173 in.)	16.1
	Regulator valve spring B		1.6 mm (0.063 in.)	9.2 mm (0.362 in.)	44.0 mm (1.732 in.)	12.5
	Torque converter check valve spring		1.2 mm (0.047 in.)	8.6 mm (0.339 in.)	33.8 mm (1.331 in.)	12.2
	Lock-up shift valve spring		1.0 mm (0.039 in.)	6.6 mm (0.260 in.)	35.5 mm (1.398 in.)	18.2
	1st accumulator spring B		2.4 mm (0.094 in.)	12.2 mm (0.480 in.)	35.0 mm (1.378 in.)	7.7
	1st accumulator spring A		2.4 mm (0.094 in.)	18.6 mm (0.732 in.)	50.1 mm (1.972 in.)	6.7
	4th accumulator spring		2.5 mm (0.098 in.)	14.6 mm (0.575 in.)	29.9 mm (1.177 in.)	4.9

Automatic Transmission and A/T Dirrerential (cont'd)

Item	Measurement	Qualification	Standard or New			
			Wire Diameter	O.D.	Free Length	No. of Coils
Servo body spring	Cut valve A spring		0.9 mm (0.035 in.)	9.9 mm (0.390 in.)	22.3 mm (0.878 in.)	6.9
	Shift valve B spring		0.8 mm (0.031 in.)	7.1 mm (0.280 in.)	23.7 mm (0.933 in.)	9.7
	5th accumulator spring A		2.5 mm (0.098 in.)	16.6 mm (0.654 in.)	46.9 mm (1.846 in.)	7.8
	5th accumulator spring B		1.9 mm (0.075 in.)	10.0 mm (0.394 in.)	38.5 mm (1.516 in.)	10.6
	2nd accumulator spring A		1.8 mm (0.071 in.)	14.6 mm (0.575 in.)	43.8 mm (1.724 in.)	7.9
	2nd accumulator spring B		1.85 mm (0.073 in.)	9.4 mm (0.370 in.)	32.5 mm(1.280 in.)	8.7
	3rd accumulator spring A		1.8 mm (0.071 in.)	14.6 mm (0.575 in.)	43.8 mm (1.724 in.)	7.9
	3rd accumulator spring B		1.85 mm (0.073 in.)	9.4 mm (0.370 in.)	32.5 mm (1.280 in.)	8.7

Item	Measurement	Qualification	Standard or New	Service Limit
A/T differential carrier	Pinion shaft contact area I.D.		18.010−18.028 mm (0.709−0.710 in.)	———
	Clearance between carrier and pinion shaft		0.023−0.057 mm (0.001−0.002 in.)	0.1 mm (0.004 in.)
	Driveshaft contact area I.D.		26.025−26.045 mm (1.024−1.025 in.)	———
	Clearance between carrier and driveshaft		0.045−0.086 mm (0.002−0.003 in.)	0.12 mm (0.005 in.)
	Intermediate shaft contact area I.D.		26.025−26.045 mm (1.024−1.025 in.)	———
	Clearance between carrier and Intermediate shaft		0.045−0.086 mm (0.002−0.003 in.)	0.12 mm (0.005 in.)
	Tapered roller bearing starting torque (preload)	For new bearing	2.7−3.9 N·m(28−40 kgf·cm, 24−35 lbf·in.)	Adjust
		For reused bearing	2.5−3.5 N·m(25−37 kgf·cm, 21−32 lbf·in.)	Adjust
	Final driven gear backlash	(Reference)	0.085−0.144 mm (0.003−0.006 in.)	0.2 mm (0.008 in.)

Item	Measurement	Qualification	Standard or New	Service Limit
A/T differential pinion gear	Backlash		0.05−0.15 mm (0.002−0.006 in.)	———
	I.D.		18.042−18.066 mm (0.7103−0.7113 in.)	———
	Clearance between pinion gear and pinion shaft		0.055−0.095 mm (0.002−0.004 in.)	0.12 mm (0.005 in.)

Automatic transmission fluid

Item	Measurement	Qualification	Standard or New	Service Limit
Automatic transmission fluid	Capacity Use genuine Honda ATF-Z1	Fluid change	2.5 L (2.6 US qt, 2.2 Imp qt)	
		Overhaul	5.85 L (6.18 US qt, 5.15 Imp qt)	

Reverse idler gear

Item	Measurement	Qualification	Standard or New	Service Limit
Reverse idler gear	Reverse idler gear shaft O.D. at needle bearing contact area		14.99−15.00 mm (0.590−0.591 in.)	When worn or damaged
	I.D.		20.001−20.014 mm (0.7874−0.7880 in.)	When worn or damaged
	I.D. of reverse idler gear shaft contact area on transmission housing		14.800−14.818 mm (0.5827−0.5834 in.)	———
	I.D. of reverse idler gear shaft holder		14.800−14.824 mm (0.5827−0.5836 in.)	When worn or damaged

Reverse shift fork

Item	Measurement	Qualification	Standard or New	Service Limit
Reverse shift fork	Fork finger thickness		5.90−6.00 mm (0.232−0.236 in.)	5.40 mm (0.213 in.)

Park gear and pawl

Item	Measurement	Qualification	Standard or New	Service Limit
Park gear and pawl			———	When worn or damaged

Pressure (Seven-position transmission)

Item	Measurement	Qualification	Standard or New	Service Limit
Pressure (Seven-position transmission)	Line pressure	At 2,000 rpm (min^{-1}) in P or N	900−960 kPa (9.2−9.8 kgf/cm^2, 130−140 psi)	850 kPa (8.7 kgf/cm^2, 120 psi)
	1st clutch pressure	At 2,000 rpm (min^{-1}) in 1	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	2nd clutch pressure	At 2,000 rpm (min^{-1}) in 2	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	3rd clutch pressure	At 2,000 rpm (min^{-1}) in 3rd gear in D3	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	4th clutch pressure	At 2,000 rpm (min^{-1}) in 4th gear in D	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	5th clutch pressure	At 2,000 rpm (min^{-1}) in 5th gear in D	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)

Pressure (Five-position transmission)

Item	Measurement	Qualification	Standard or New	Service Limit
Pressure (Five-position transmission)	Line pressure	At 2,000 rpm (min^{-1}) in P or N	900−960 kPa (9.2−9.8 kgf/cm^2, 130−140 psi)	850 kPa (8.7 kgf/cm^2, 120 psi)
	1st clutch pressure	At 2,000 rpm (min^{-1}) in 1st gear in S	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	2nd clutch pressure	At 2,000 rpm (min^{-1}) in 2nd gear in S	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	3rd clutch pressure	At 2,000 rpm (min^{-1}) in 3rd gear in S	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	4th clutch pressure	At 2,000 rpm (min^{-1}) in 4th gear in S	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)
	5th clutch pressure	At 2,000 rpm (min^{-1}) in 5th gear in S	890−970 kPa (9.1−9.9 kgf/cm^2, 130−140 psi)	840 kPa (8.6 kgf/cm^2, 120 psi)

Countershaft

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft	Diameter of needle bearing contact area	At torque converter housing	33.504−33.517 mm (1.3191−1.3196 in.)	When worn or damaged
		At 5th gear	32.986−32.999 mm (1.2987−1.2991 in.)	When worn or damaged
		Reverse selector hub	35.983−35.999 mm (1.4167−1.4173 in.)	When worn or damaged
	I.D. of gears	5th gear	39.000−39.016 mm (1.5354−1.5361 in.)	When worn or damaged
		Reverse gear	42.000−42.016 mm (1.6535−1.6542 in.)	When worn or damaged
	End play	5th gear	0.04−0.27 mm (0.002−0.011 in.)	———
		Reverse gear	0.10−0.25 mm (0.004−0.010 in.)	———
	Reverse selector hub width		29.25−29.45 mm (1.152−1.160 in.)	———
	Collar, 33.2 x 40 x 26 mm length		25.95−26.00 mm (1.022−1.024 in.)	———
	Reverse selector hub O.D.		51.87−51.90 mm (2.042−2.043 in.)	When worn or damaged

Mainshaft

Item	Measurement	Qualification	Standard or New	Service Limit
Mainshaft	Diameter of needle bearing contact area	At stator shaft	22.984−23.000 mm (0.9049−0.9055 in.)	When worn or damaged
		At 5th gear collar	32.975−32.991 mm (1.2982−1.2989 in.)	When worn or damaged
		At 3rd gear	46.986−46.999 mm (1.8498−1.8503 in.)	When worn or damaged
	I.D. of gears	5th gear	37.000−37.016 mm (1.4567−1.4573 in.)	When worn or damaged
		3rd gear	52.000−52.013 mm (2.0472−2.0478 in.)	When worn or damaged
	End play	5th gear	015−0.27 mm (0.006−0.106 in.)	———
		3rd gear	0.04−0.10 mm (0.002−0.004 in.)	———
	40 x 63 mm thrust washer thickness	No. 1	3.750 mm (0.1476 in.)	When worn or damaged
		No. 2	3.775 mm (0.1486 in.)	When worn or damaged
		No. 3	3.800 mm (0.1496 in.)	When worn or damaged
		No. 4	3.825 mm (0.1506 in.)	When worn or damaged
		No. 5	3.850 mm (0.1516 in.)	When worn or damaged
		No. 6	3.875 mm (0.1526 in.)	When worn or damaged
		No. 7	3.900 mm (0.1534 in.)	When worn or damaged
		No. 8	3.925 mm (0.1545 in.)	When worn or damaged
		No. 9	3.950 mm (0.1555 in.)	When worn or damaged
		No. 10	3.975 mm (0.1565 in.)	When worn or damaged
		No. 11	4.000 mm (0.1575 in.)	When worn or damaged
	5th gear collar length		60.4−60.5 mm (2.380−2.381 in.)	———
	5th gear collar flange thickness		3.70−3.85 mm (0.146−0.152 in.)	When worn or damaged
	Sealing ring thickness		1.91−1.97 mm (0.0752−0.0776 in.)	1.86 mm (0.0732 in.)
	Width of sealing ring groove		2.025−2.060 mm (0.0797−0.0811 in.)	2.080 mm (0.0819 in.)
	3rd clutch feed pipe O.D.		7.97−7.98 mm (0.3138−0.3142 in.)	7.95 mm (0.313 in.)
	Feed pipe bushing I.D.		8.000−8.015 mm (0.3150−0.3156 in.)	8.030 mm (0.3161 in.)

Secondary shaft - 1/2

Item	Measurement	Qualification	Standard or New	Service Limit
Secondary shaft - 1/2	Diameter of needle bearing contact area	1st gear	30.986−30.999 mm (1.2199−1.2204 in.)	When worn or damaged
		2nd gear	42.986−42.999 mm (1.6924−1.6929 in.)	When worn or damaged
		4th gear collar	34.975−34.991 mm (1.3770−1.3776 in.)	When worn or damaged
	I.D. of gears	1st gear	38.000−38.016 mm (1.4961−1.4967 in.)	When worn or damaged
		2nd gear	49.000−49.016 mm (1.9291−1.9298 in.)	When worn or damaged
		4th gear	41.000−41.016 mm (1.6142−1.6148 in.)	When worn or damaged
	End play	1st gear	0.04−0.12 mm (0.002−0.005 in.)	———
		2nd gear	0.04−0.12 mm (0.002−0.005 in.)	———
		4th gear	0.10−0.22 mm (0.004−0.009 in.)	———
	31 x 50 mm thrust washer thickness	No. 1	3.925 mm (0.1545 in.)	When worn or damaged
		No. 2	3.950 mm (0.1555 in.)	When worn or damaged
		No. 3	3.975 mm (0.1565 in.)	When worn or damaged
		No. 4	4.000 mm (0.1575 in.)	When worn or damaged
		No. 5	4.025 mm (0.1585 in.)	When worn or damaged
		No. 6	4.050 mm (0.1594 in.)	When worn or damaged
		No. 7	4.075 mm (0.1604 in.)	When worn or damaged
		No. 8	4.100 mm (0.1614 in.)	When worn or damaged
		No. 9	4.125 mm (0.1624 in.)	When worn or damaged
		No. 10	4.150 mm (0.1634 in.)	When worn or damaged
		No. 11	4.175 mm (0.1644 in.)	When worn or damaged
		No. 12	4.200 mm (0.1654 in.)	When worn or damaged
		No. 13	4.225 mm (0.1663 in.)	When worn or damaged
		No. 14	4.250 mm (0.1673 in.)	When worn or damaged
		No. 15	4.275 mm (0.1683 in.)	When worn or damaged
		No. 16	4.300 mm (0.1693 in.)	When worn or damaged
		No. 17	4.325 mm (0.1703 in.)	When worn or damaged
	43 x 54.5 mm thrust washer thickness	No. 1	2.900 mm (0.114 in.)	When worn or damaged
		No. 2	2.925 mm (0.115 in.)	When worn or damaged
		No. 3	2.950 mm (0.116 in.)	When worn or damaged
		No. 4	2.975 mm (0.117 in.)	When worn or damaged
		No. 5	3.000 mm (0.118 in.)	When worn or damaged
		No. 6	3.025 mm (0.119 in.)	When worn or damaged
		No. 7	3.050 mm (0.120 in.)	When worn or damaged
		No. 8	3.075 mm (0.121 in.)	When worn or damaged
		No. 9	3.100 mm (0.122 in.)	When worn or damaged
		No. 10	3.125 mm (0.123 in.)	When worn or damaged
		No. 11	3.150 mm (0.124 in.)	When worn or damaged
		No. 12	3.175 mm (0.125 in.)	When worn or damaged
		No. 13	3.200 mm (0.126 in.)	When worn or damaged

Secondary shaft - 2/2

Item	Measurement	Qualification	Standard or New	Service Limit
Secondary shaft - 2/2	4th gear collar length		32.9−33.0 mm (1.295−1.299 in.)	———
	4th gear collar flange thickness		3.75−3.90 mm (0.148−0.154 in.)	When worn or damaged
	Sealing ring thickness		1.87−1.97 mm (0.074−0.078 in.)	1.82 mm (0.072 in.)
	Width of sealing ring groove		2.025−2.060 mm (0.0797−0.0811 in.)	2.080 mm (0.0819 in.)
	Clutch feed pipe O.D.	2nd clutch	6.97−6.98 mm (0.2744−0.2748 in.)	6.95 mm (0.2736 in.)
		4th clutch	11.47−11.48 mm (0.4516−0.4520 in.)	11.45 mm (0.4508 in.)
	Clutch feed pipe bushing O.D.	2nd clutch	7.018−7.030 mm (0.2763−0.2768 in.)	7.045 mm (0.2774 in.)
		4th clutch	11.500−11.518 mm (0.4528−0.4553 in.)	11.530 mm (0.4539 in.)
	ATF guide collar I.D. at sealing ring contact area		21.200−21.221 mm (0.8346−0.8355 in.)	21.25 mm (0.8366 in.)

Clutch

Item	Measurement	Qualification	Standard or New	Service Limit
Clutch	Clutch between clutch end-plate and top disc	1st	———	1.62−1.82 mm (0.064−0.072 in.)
		2nd	———	0.5−0.7 mm (0.020−0.028 in.)
		3rd	———	0.73−0.93 mm (0.029−0.037 in.)
		4th	———	0.7−0.9 mm (0.028−0.035 in.)
		5th	———	0.73−0.93 mm (0.029−0.037 in.)
	Clutch return spring free length	1st	35.2 mm (1.39 in.)	34.5 mm (1.36 in.)
		2nd	39.5 mm (1.56 in.)	37.4 mm (1.47 in.)
		3rd	45.15 mm (1.778 in.)	43.0 mm (1.69 in.)
		4th	39.5 mm (1.56 in.)	37.4 mm (1.47 in.)
		5th	45.15 mm (1.778 in.)	43.0 mm (1.69 in.)
	Clutch disc thickness	1st	1.94 mm (0.076 in.)	———
		2nd	1.96 mm (0.077 in.)	———
		3rd	1.94 mm (0.076 in.)	———
		4th	1.96 mm (0.077 in.)	———
		5th	1.94 mm (0.076 in.)	———
	Clutch plate thickness	1st	1.6 mm (0.063 in.)	When discolored
		2nd	2.3 mm (0.091 in.)	When discolored
		3rd	2.0 mm (0.079 in.)	When discolored
		4th	1.6 mm (0.063 in.)	When discolored
		5th	2.0 mm (0.079 in.)	When discolored
	Clutch waved-plate height 1st, 3rd, and 5th clutches		0.07−0.20 mm (0.003−0.008 in.)	0.05 mm (0.002 in.)
	1st, 3rd, and 5th clutch end-plate thickness	Mark 1	2.1 mm (0.082 in.)	When discolored
		Mark 2	2.2 mm (0.087 in.)	When discolored
		Mark 3	2.3 mm (0.091 in.)	When discolored
		Mark 4	2.4 mm (0.094 in.)	When discolored
		Mark 5	2.5 mm (0.098 in.)	When discolored
		Mark 6	2.6 mm (0.102 in.)	When discolored
		Mark 7	2.7 mm (0.106 in.)	When discolored
		Mark 8	2.8 mm (0.110 in.)	When discolored
		Mark 9	2.9 mm (0.114 in.)	When discolored
	2nd and 4th clutch end-plate thickness	Mark AC or AM	2.1 mm (0.082 in.)	When discolored
		Mark AD or AN	2.2 mm (0.087 in.)	When discolored
		Mark AE or AP	2.3 mm (0.091 in.)	When discolored
		Mark AF or AQ	2.4 mm (0.094 in.)	When discolored
		Mark AG or AR	2.5 mm (0.098 in.)	When discolored
		Mark AH or AS	2.6 mm (0.102 in.)	When discolored
		Mark AJ or AT	2.7 mm (0.106 in.)	When discolored
		Mark AK or AU	2.8 mm (0.110 in.)	When discolored
		Mark AL or AV	2.9 mm (0.114 in.)	When discolored

A/T differential carrier

Item	Measurement	Qualification	Standard or New	Service Limit
A/T differential carrier	Pinion shaft contact area I.D.		18.010−18.028 mm (0.709−0.710 in.)	———
	Clearance between carrier and pinion shaft		0.023−0.057 mm (0.001−0.002 in.)	0.1 mm (0.004 in.)
	Driveshaft contact area I.D.		26.025−26.045 mm (1.024−1.025 in.)	———
	Clearance between carrier and driveshaft		0.045−0.086 mm (0.002−0.003 in.)	0.12 mm (0.005 in.)
	Intermediate shaft contact area I.D.		26.025−26.045 mm (1.024−1.025 in.)	———
	Clearance between carrier and Intermediate shaft		0.045−0.086 mm (0.002−0.003 in.)	0.12 mm (0.005 in.)
	Tapered roller bearing starting torque (preload)	For new bearing	2.7−3.9 N·m(28−40 kgf·cm, 24−35 lbf·in.)	Adjust
		For reused bearing	2.5−3.5 N·m(25−37 kgf·cm, 21−32 lbf·in.)	Adjust
	Final driven gear backlash	(Reference)	0.085−0.144 mm (0.003−0.006 in.)	0.2 mm (0.008 in.)

A/T differential pinion gear

Item	Measurement	Qualification	Standard or New	Service Limit
A/T differential pinion gear	Backlash		0.05−0.15 mm (0.002−0.006 in.)	———
	I.D.		18.042−18.066 mm (0.7103−0.7113 in.)	———
	Clearance between pinion gear and pinion shaft		0.055−0.095 mm (0.002−0.004 in.)	0.12 mm (0.005 in.)

Idler gear shaft

Item	Measurement	Qualification	Standard or New	Service Limit
Idler gear shaft	End cover bearing contact area		30.003−30.013 mm (1.1812−1.1816 in.)	When worn or damaged
	Cotters thickness		1.39−1.42 mm (0.055−0.056 in.)	———

Torque converter

Item	Measurement	Qualification	Standard or New	Service Limit
Torque converter	Stall speed Check with vehicle on level ground		2,200 rpm (min $^{-1}$)	2,050−2,350 rpm (min $^{-1}$)

ATF pump

Item	Measurement	Qualification	Standard or New	Service Limit
ATF pump	ATF pump thrust clearance		0.03−0.06 mm (0.001−0.002 in.)	0.07 mm (0.003 in.)
	Clearance between ATF pump gear and body	Drive gear	0.210−0.265 mm (0.008−0.010 in.)	———
		Driven gear	0.070−0.125 mm (0.003−0.005 in.)	———
	ATF pump driven gear I.D.		14.016−14.034 mm (0.5518−0.5525 in.)	When worn or damaged
	ATF pump driven gear shaft O.D.		13.980−13.990 mm (0.5504−0.5508 in.)	When worn or damaged

Main valve body spring

Item	Measurement	Qualification	Standard or New			
			Wire Diameter	O.D.	Free Length	No. of Coils
Main valve body spring	Cut valve B spring		0.8 mm (0.031 in.)	9.9 mm (0.290 in.)	27.3 mm (1.075 in.)	8.0
	Shift valve A spring		0.8 mm (0.031 in.)	7.1 mm (0.280 in.)	23.7 mm (0.933 in.)	9.7
	Shift valve C spring		0.8 mm (0.031 in.)	7.1 mm (0.280 in.)	23.7 mm (0.933 in.)	9.7
	Relief valve spring		1.0 mm (0.039 in.)	9.6 mm (0.378 in.)	34.1 mm (1.343 in.)	10.2
	Lock-up control valve spring		0.6 mm (0.024 in.)	7.1 mm (0.280 in.)	29.6 mm (1.165 in.)	11.2
	Cooler check valve spring		0.85 mm (0.033 in.)	6.6 mm (0.260 in.)	27.0 mm (1.063 in.)	11.3
	Shift valve D spring		0.8 mm (0.031 in.)	5.6 mm (0.220 in.)	28.1 mm (1.106 in.)	15.9
	Servo control valve spring		0.8 mm (0.031 in.)	9.9 mm (0.290 in.)	27.3 mm (1.075 in.)	8.0

Regulator valve body

Item	Measurement	Qualification	Standard or New	Service Limit
Regulator valve body	Sealing ring contact I.D.		29.000−29.021 mm (1.1417−1.1426 in.)	29.05 mm (1.144 in.)

Regulator valve body spring

Item	Measurement	Qualification	Standard or New			
			Wire Diameter	O.D.	Free Length	No. of Coils
Regulator valve body spring	Stator reaction spring		4.5 mm (0.177 in.)	35.4 mm (1.394 in.)	30.3 mm (1.193 in.)	1.92
	Regulator valve spring A		1.9 mm (0.075 in.)	14.7 mm (0.579 in.)	80.6 mm (3.173 in.)	16.1
	Regulator valve spring B		1.6 mm (0.063 in.)	9.2 mm (0.362 in.)	44.0 mm (1.732 in.)	12.5
	Torque converter check valve spring		1.2 mm (0.047 in.)	8.6 mm (0.339 in.)	33.8 mm (1.331 in.)	12.2
	Lock-up shift valve spring		1.0 mm (0.039 in.)	6.6 mm (0.260 in.)	35.5 mm (1.398 in.)	18.2
	1st accumulator spring B		2.4 mm (0.094 in.)	12.2 mm (0.480 in.)	35.0 mm (1.378 in.)	7.7
	1st accumulator spring A		2.4 mm (0.094 in.)	18.6 mm (0.732 in.)	50.1 mm (1.972 in.)	6.7
	4th accumulator spring		2.5 mm (0.098 in.)	14.6 mm (0.575 in.)	29.9 mm (1.177 in.)	4.9

Servo body

Item	Measurement	Qualification	Standard or New	Service Limit
Servo body	Shift fork shaft bore I.D.		14.000−14.010 mm (0.5512−0.5526 in.)	When worn or damaged
	Shift fork shaft valve bore I.D.		37.000−37.039 mm (1.4567−1.4582 in.)	37.045 mm (1.4585 in.)

Servo body spring

Item	Measurement	Qualification	Standard or New			
			Wire Diameter	O.D.	Free Length	No. of Coils
Servo body spring	Cut valve A spring		0.9 mm (0.035 in.)	9.9 mm (0.390 in.)	22.3 mm (0.878 in.)	6.9
	Shift valve B spring		0.8 mm (0.031 in.)	7.1 mm (0.280 in.)	23.7 mm (0.933 in.)	9.7
	5th accumulator spring A		2.5 mm (0.098 in.)	16.6 mm (0.654 in.)	46.9 mm (1.846 in.)	7.8
	5th accumulator spring B		1.9 mm (0.075 in.)	10.0 mm (0.394 in.)	38.5 mm (1.516 in.)	10.6
	2nd accumulator spring A		1.8 mm (0.071 in.)	14.6 mm (0.575 in.)	43.8 mm (1.724 in.)	7.9
	2nd accumulator spring B		1.85 mm (0.073 in.)	9.4 mm (0.370 in.)	32.5 mm(1.280 in.)	8.7
	3rd accumulator spring A		1.8 mm (0.071 in.)	14.6 mm (0.575 in.)	43.8 mm (1.724 in.)	7.9
	3rd accumulator spring B		1.85 mm (0.073 in.)	9.4 mm (0.370 in.)	32.5 mm (1.280 in.)	8.7

Stator shaft

Item	Measurement	Qualification	Standard or New	Service Limit
Stator shaft	Needle bearing contact I.D.	Torque converter side	27.000−27.021 mm (1.063−1.064 in.)	When worn or damaged
		ATF pump side	29.000−29.021 mm (1.1417−1.1426 in.)	———
	Sealing ring contact area I.D.		29.000−29.021 mm (1.1417−1.1426 in.)	29.05 mm (1.144 in.)

M/T differential 72 mm shim

Item	Measurement	Qualification	Standard or New	Service Limit
M/T differential 72 mm shim (L13Z1)	72 mm shim-to-bearing outer race clearance in transmission housing		0.01−0.1 mm (0.0004−0.004 in.)	Adjust

M/T differential 72 mm shim

Item	Measurement	Qualification	Standard or New	Service Limit
M/T differential 72 mm shim (L13Z1, L13Z3)	72 mm shim-to-bearing outer race clearance in transmission housing		0.01−0.1 mm (0.0004−0.004 in.)	Adjust

M/T differential 80 mm shim

Item	Measurement	Qualification	Standard or New	Service Limit
M/T differential 80 mm shim (L15A7)	80 mm shim-to-bearing outer race clearance in transmission housing		0.01−0.1 mm (0.0004−0.004 in.)	Adjust

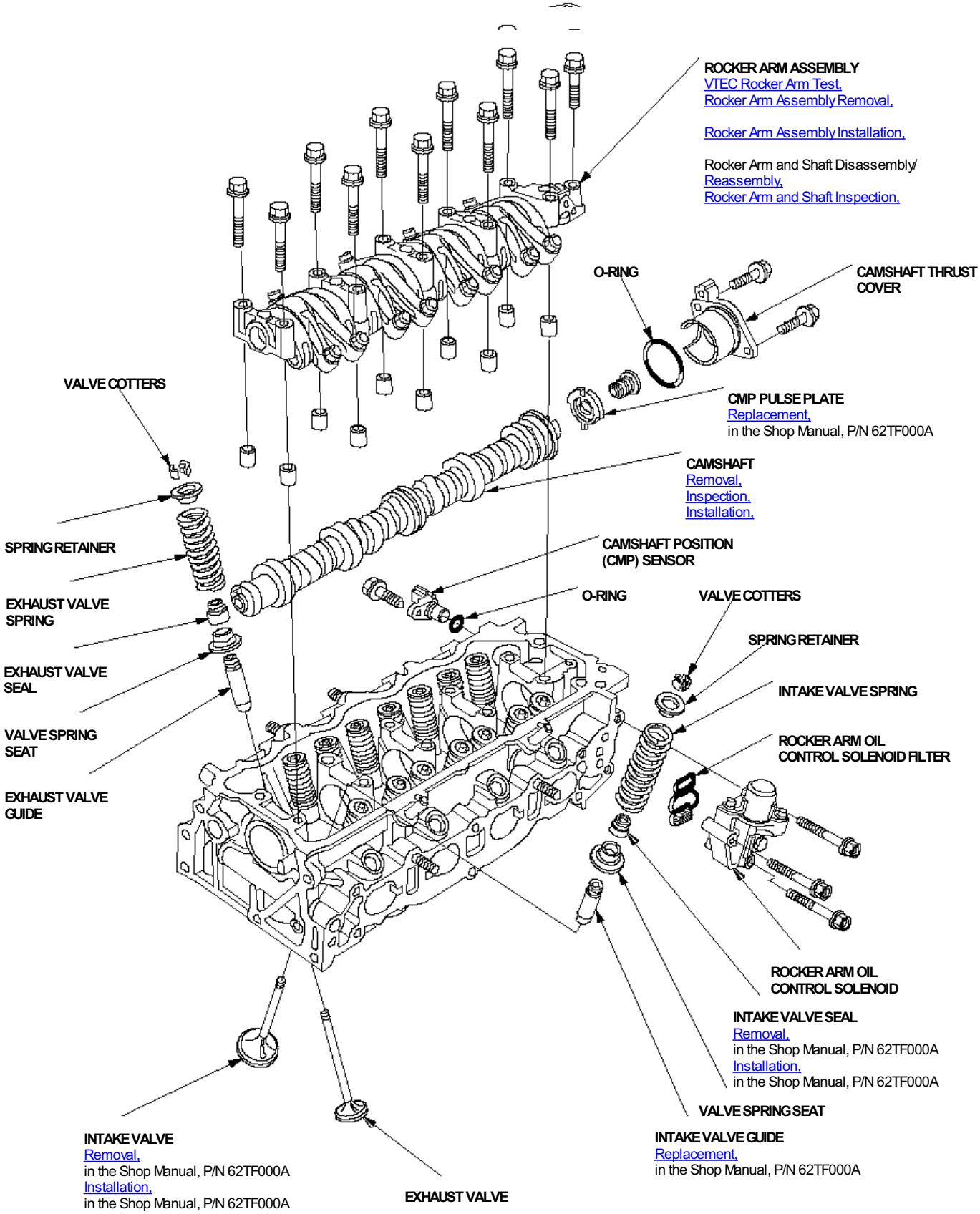
M/T differential 80 mm shim

Item	Measurement	Qualification	Standard or New	Service Limit
M/T differential 80 mm shim (L15A7)	80 mm shim-to-bearing outer race clearance in transmission housing		0.01−0.1 mm (0.0004−0.004 in.)	Adjust

M/T differential 80 mm shim

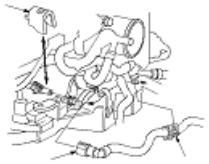
Item	Measurement	Qualification	Standard or New	Service Limit
M/T differential 80 mm shim (L15A7, L15A8)	80 mm shim-to-bearing outer race clearance in transmission housing		0.01−0.1 mm (0.0004−0.004 in.)	Adjust

Cylinder Head Component Location Index



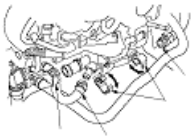
Cylinder Head Removal

NOTE:



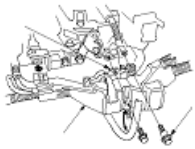
- Use fender covers to avoid damaging painted surfaces.
- To avoid damage, unplug the wiring connectors carefully while holding the connector portion.
- To avoid damaging the cylinder head, wait until the engine coolant temperature drops below 38 °C (100 °F) before loosening the cylinder head bolts.
- Mark all wiring and hoses to avoid misconnection. Also, be sure that they do not contact other wiring or hoses, or interfere with other parts.

1. Relieve fuel pressure.
2. Drain the engine coolant.
3. Do the battery removal procedure.
4. Remove the air cleaner housing assembly.
5. Remove the fuel feed hose clamp (A) and the quick-connect fitting cover (B), then disconnect the fuel feed hose (C).

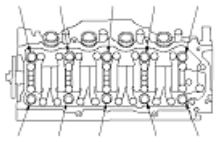


6. Disconnect the upper radiator hose (A), the heater hose (B), and the water bypass hose (C).
7. Remove the heater hose from the clamps (D).
8. Remove the intake manifold bracket C.
9. Remove the subfuel feed line.
10. Remove the intake manifold/chamber assembly.
11. Remove the warm up three way catalytic converter (WU-TWC).
12. Remove the following engine wire harness connectors and wire harness clamps from the cylinder head:
    - Four injector connector
    - Engine coolant temperature (ECT) sensor 1 connector
    - Camshaft position (CMP) sensor connector
    - Secondary heated oxygen sensor (secondary HO2S) connector
    - Rocker arm oil control solenoid connector

13. Remove the harness holder.



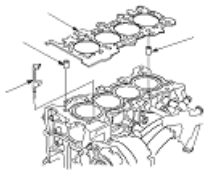
14. Remove the harness holder mounting bolt (A) and the ground cable (B), then remove the harness holder (C) from the bracket.
15. Remove the cylinder head cover.
16. Remove the cam chain.



17. Remove the cylinder head bolts. To prevent warpage, loosen the bolts in sequence 1/3 turn at a time; repeat the sequence until all bolts are loosened.
18. Remove the cylinder head.

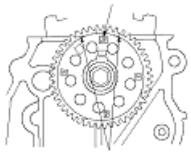
Cylinder Head Installation

1. Clean the cylinder head and the block surface.
2. Install a new coolant separator (A) in the engine block whenever the engine block is replaced.
3. Install the new cylinder head gasket (B) and the dowel pins (C) on the engine block. Always use a new cylinder head gasket.

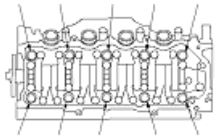


4. Set the crankshaft to top dead center (TDC). Align the TDC mark (A) on the crankshaft sprocket with the pointer (B) on the oil pump.

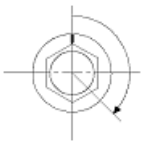
5. Set the camshaft TDC. The ‘‘UP" mark (A) on the camshaft sprocket should be at the top, and the TDC grooves (B) on the camshaft sprocket should line up with the top edge of the head.
6. Install the cylinder head on the engine block.
7. Apply new engine oil to the threads and under the bolt heads of all cylinder head bolts.



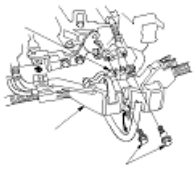
8. Tighten the cylinder head bolts in sequence to 29 N·m (3.0 kgf·m, 22 lbf·ft). Using a beam-type torque wrench. When using a preset-type torque wrench, be sure to tighten slowly and do not overtighten. If a bolt makes any noise while you are torquing it, loosen the bolt and retighten it from the first step.



9. Tighten all cylinder head bolts an additional 130 °.
10. Install the cam chain.
11. Install the cylinder head cover.

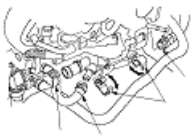


12. Install the harness holder (A), then install the ground cable (B).

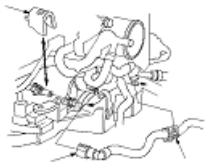


13. Install the harness holder.
14. Connect the engine wire harness connectors, and install the wire harness clamps to the cylinder head.
    - Four injector connector
    - Engine coolant temperature (ECT) sensor 1 connector
    - Camshaft position (CMP) sensor connector
    - Secondary heated oxygen sensor (secondary HO2S) connector
    - Rocker arm oil control solenoid connector
15. Install the warm up three way catalytic converter (WU-TWC).
16. Install the intake manifold bracket C.
17. Install the subfuel feed line.
18. Install the intake manifold/chamber assembly.

19. Install the upper radiator hose (A), the heater hose (B), and the water bypass hose (C).
20. Install the heater hose to the clamps (D).

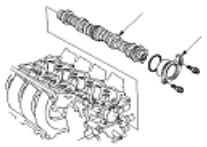


21. Connect the fuel feed hose (A), then install the quick-connect fitting cover (B) and the fuel feed hose clamp (C).



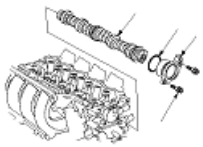
22. Install the air cleaner housing assembly.
23. Do the battery installation procedure.
24. Inspect for fuel leaks. Turn the ignition switch to ON (II) (do not operate the starter) so the fuel pump runs for about 2 seconds and pressurizes the fuel line. Repeat this operation three times, then check for fuel leakage at any point in the fuel line.
25. Refill the radiator with engine coolant, and bleed air from the cooling system with the heater valve open.
26. Do the crankshaft position (CKP) pattern clear/CKP pattern learn procedure.
27. Inspect the idle speed.
28. Inspect the ignition timing.

Camshaft Removal



1. Remove the air cleaner housing assembly.
2. Remove the intake manifold chamber.
3. Remove the following engine wire harness connectors and wire harness clamps from the cylinder head:
   - Four injector connector
   - Engine coolant temperature (ECT) sensor 1 connector
   - Camshaft position (CMP) sensor connector
   - Air fuel ratio (A/F) sensor connector
   - Secondary heated oxygen sensor (secondary HO2S) connector
4. Remove the harness holder mounting bolt and the ground cable, then remove the harness holder from the bracket.
5. Remove the camshaft sprocket.
6. Remove the rocker arm assembly.
7. Remove the CMP sensor.
8. Remove the camshaft thrust cover (A), then remove the camshaft (B).

Camshaft Installation

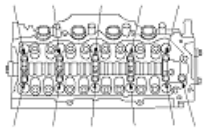


1. Install the camshaft (A), then install the camshaft thrust cover (B) with new O-ring (C).
2. Install the camshaft position (CMP) sensor.
3. Install the rocker arm assembly.
4. Install the camshaft sprocket.
5. Install the harness holder, then install the ground cable.
6. Install the following engine wire harness connectors and wire harness clamps to the cylinder head:
   - Four injector connector
   - Engine coolant temperature (ECT) sensor 1 connector
   - CMP sensor connector
   - Air fuel ratio (A/F) sensor connector
   - Secondary heated oxygen sensor (secondary HO2S) connector
7. Install the intake manifold chamber.
8. Install the air cleaner housing assembly.

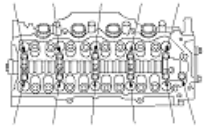
Camshaft Inspection

1. Remove the camshaft sprocket.
2. Remove the rocker arm assembly, then disassemble the rocker arm.
3. Put the rocker shaft holder bridge/rocker shaft holders on the cylinder head, then tighten the bolts to the specified torque.
   Specified Torque
   6 x 1.0 mm
   (1)–(10): 15 N·m (1.5 kgf·m, 11 lbf·ft)
   (11): 10 N·m (1.0 kgf·m, 7.2 lbf·ft)
4. Seat the camshaft by pushing it toward the rear of the cylinder head.

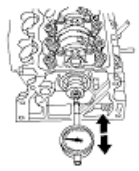
L15A8 engine



L13Z3 engine

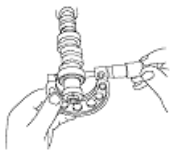


5. Zero the dial indicator against the end of the camshaft. Push the camshaft back and forth, and read the end play. If the end play is beyond the service limit, replace the thrust cover and recheck. If it is still beyond the service limit, replace the camshaft.
   Camshaft End Play
   Standard (New): 0.05–0.25 mm (0.002–0.010 in.)
   Service Limit: 0.5 mm (0.02 in.)



6. Remove the camshaft.
7. Wipe the camshaft clean, then inspect the lift ramps. Replace the camshaft if any lobes are pitted, scored, or excessively worn.

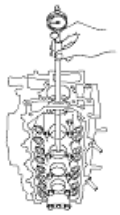
8. Measure the diameter of each camshaft journal.



9. Zero the gauge to the journal diameter.

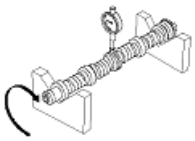
10. Clean the camshaft bearing surfaces in the cylinder head. Measure the inside diameter of each camshaft bearing surface, and check for an out-of-round condition.
    - If the camshaft-to-holder clearance is within limits, go to Step 12 .
    - If the camshaft-to-holder clearance is beyond the service limit, and the camshaft has been replaced, replace the cylinder head.
    - If the camshaft-to-holder clearance is beyond the service limit, and the camshaft has not been replaced, go to Step 11 .

    Camshaft-to-Holder Oil Clearance
    Standard (New): 0.045–0.084 mm (0.0018–0.0033 in.)
    Service Limit: 0.100 mm (0.004 in.)

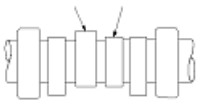


11. Check the total runout with the camshaft supported on V-blocks.
    - If the total runout of the camshaft is within the service limit, replace the cylinder head.
    - If the total runout is beyond the service limit, replace the camshaft, and recheck the oil clearance. If the oil clearance is still out of tolerance, replace the cylinder head.

    Camshaft Total Runout
    Standard (New): 0.03 mm (0.001 in.) max.
    Service Limit: 0.04 mm (0.002 in.)



12. Measure the cam lobe height.



Cam Lobe Height Standard (New):

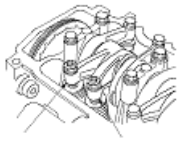
		INTAKE	EXHAUST
L15A8 engine	PRI	35.162 mm (1.3843 in.)	35.614 mm (1.4021 in.)
	SEC	30.529 mm (1.2019 in.)	
L13Z3 engine	PRI	34.290 mm (1.3500 in.)	35.047 mm (1.3798 in.)
	SEC	30.529 mm (1.2019 in.)	

PRI: Primary SEC: Secondary IN: Intake
EX: Exhaust C/C: Cam Chain

VTEC Rocker Arm Test

Special Tools Required

L15A8, L13Z3 engines



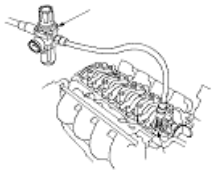
Air supply, 3/8
07LAJ-PR30102

Air adapter, M10 x 1.0
070AJ-0010101

1. Start the engine, and let it run for 5 minutes, then turn the ignition switch to LOCK (0).
2. Remove the cylinder head cover.
3. Rotate the crankshaft clockwise, and visually check that all the primary rocker arms (A) and secondary rocker arms (B) move freely.
   - If the primary rocker arm and secondary rocker arm move together, remove the primary and secondary rocker arms as an assembly, and check that the pistons in the primary and secondary rocker arms move smoothly. If any rocker arm needs replacing, replace the primary and secondary rocker arms as an assembly, then retest.
   - If all the primary rocker arms and secondary rocker arms move freely, go to Step 4 .
4. Check that the air pressure on the shop air compressor gauge indicates over 400 kPa (4 kgf/cm ^{2}, 57 psi).
5. Inspect the valve clearance.

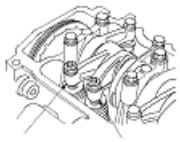
L15A8, L13Z3 engines

6. Install the air adapter (A) to the inspection hole, then connect the valve inspection set (B).
7. Loosen the valve on the regulator, and apply the specified air pressure.
   Specified Air Pressure:
   340 kPa (3.5 kgf/cm ^{2}, 50 psi)



L15A8, L13Z3 engines

8. With the specified air pressure applied, rotate the crankshaft clockwise, and visually check that all the primary rocker arms (A) and secondary rocker arms (B) move together.
   If the primary rocker arm and secondary rocker arm move freely and independently of each other, remove the primary and secondary rocker arms as an assembly, and check that the pistons in the primary and secondary rocker arms move smoothly. If any rocker arm needs replacing, replace the primary and secondary rocker arms as an assembly, and test.

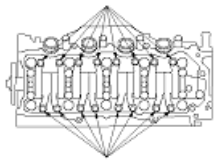


9. Remove the air supply and the VTEC adapter.
10. Install the cylinder head cover.

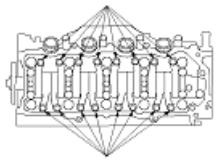
Cylinder Head Rocker Arm Assembly Removal

1. Remove the cylinder head cover.
2. Loosen the rocker arm adjusting screws (A).

L15A8 engine

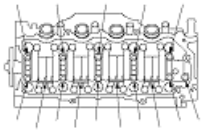


L13Z3 engine

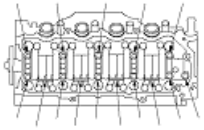


3. Unscrew the rocker shaft mounting bolts two turns at a time, in sequence below.
   NOTE: Bundle the intake rocker arms with rubber bands (A) to keep them together as a set.

L15A8 engine

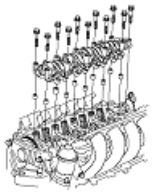


L13Z3 engine

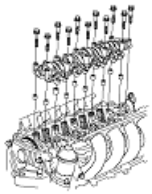


4. Remove the rocker shaft mounting bolts, then remove the rocker arm assembly.

L15A8 engine



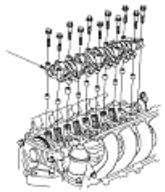
L13Z3 engine



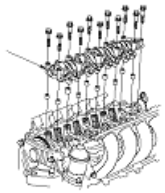
Cylinder Head Rocker Arm Assembly Installation

1. Install the rocker arm assembly (A).

L15A8 engine

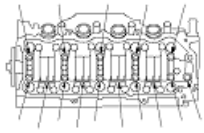


L13Z3 engine

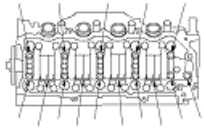


2. Tighten each bolts two turns at a time in sequence.
   NOTE: Remove the rubber bands (A) from the intake rocker arms.
   Specified Torque
   6 x 1.0 mm
   (1)–(10): 15 N·m (1.5 kgf·m, 11 lbf·ft)
   (11): 10 N·m (1.0 kgf·m, 7.2 lbf·ft)

L15A8 engine



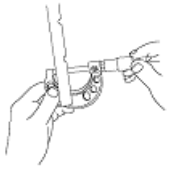
L13Z3 engine



3. Adjust the valve clearance.
4. Install the cylinder head cover.

Cylinder Head Rocker Arm and Shaft Inspection

1. Remove the rocker arm assembly.
2. Disassemble the rocker arm assembly.
3. Measure the diameter of the shaft at the first rocker location.



4. Zero the gauge (A) to the shaft diameter.

5. Measure the inside diameter of the rocker arm, and check it for an out-of-round condition.

Rocker Arm-to-Shaft Clearance

L15A8 engine:	
Intake:	
Standard (New):	**0.017–0.067 mm (0.0007–0.0026 in.)**
Service Limit:	**0.08 mm (0.0031 in.)**
Exhaust:	
Standard (New):	**0.019–0.050 mm (0.0007–0.0020 in.)**
Service Limit:	**0.08 mm (0.0031 in.)**
Intake:	
Standard (New):	**0.019–0.050 mm (0.0007–0.0020 in.)**
Service Limit:	**0.08 mm (0.0031 in.)**
Exhaust:	
Standard (New):	**0.019–0.050 mm (0.0007–0.0020 in.)**
Service Limit:	**0.08 mm (0.0031 in.)**

6. Repeat for all rockers and shaft. If the clearance is beyond the service limit, replace the rocker shaft and all out of service limit rocker arms. If any VTEC rocker arm needs replacement, replace the rocker arms as an assembly.

VTEC Rocker Arms

7. Inspect the rocker arm pistons (A). Push on them manually. If they do not move smoothly, replace the rocker arm set.
   NOTE:
   - Apply new engine oil to the rocker arm pistons when reassembling.
   - When reassembling the secondary rocker arm A, carefully apply air pressure to the oil passage of the rocker arm.
8. Reassemble the rocker arm assembly.
9. Install the rocker arm assembly.

L15A8 engine

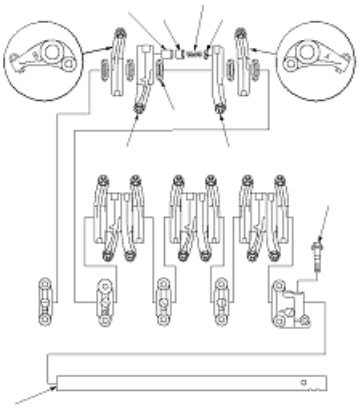
L13Z3 engine

Cylinder Head Rocker Arm and Shaft Disassembly/Reassembly

L15A8 engine

NOTE:

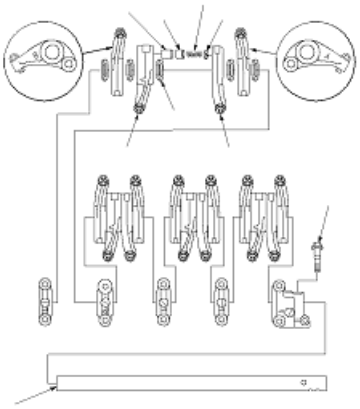
- Identify each part as it is removed so that each item can be reinstalled in its original position.
- Inspect the rocker arm shaft and the rocker arms.
- If reused, the rocker arms must be installed in the their original location.
- Remove the rocker shaft bolt before removing the rocker shaft from the No. 5 rocker shaft holder.
- Prior to reassembling, clean all the parts in solvent, dry them, and apply new engine oil to any contact points.
- When replacing the rocker arm assembly, remove the fastening hardware from the new rocker arm assembly.
- When reassembling the rocker arm and shaft assembly, position the arrows on the rocker shaft holders facing the cam chain side.



L13Z3 engine

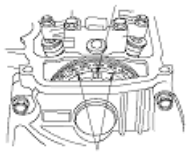
NOTE:

- Identify each part as it is removed so that each item can be reinstalled in its original position.
- Inspect the rocker arm shaft and the rocker arms.
- If reused, the rocker arms must be installed in the their original location.
- Remove the rocker shaft bolt before removing the rocker shaft from the No. 5 rocker shaft holder.
- Prior to reassembling, clean all the parts in solvent, dry them, and apply new engine oil to any contact points.
- When replacing the rocker arm assembly, remove the fastening hardware from the new rocker arm assembly.
- When reassembling the rocker arm and shaft assembly, position the arrows on the rocker shaft holders facing the cam chain side.

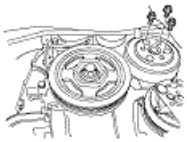


Cam Chain Removal

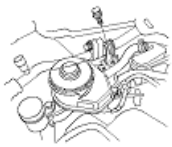
NOTE: Keep the cam chain away from magnetic fields.



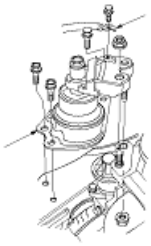
1. Remove the cylinder head cover.
2. Set the No. 1 piston at top dead center (TDC). The ‘‘UP" mark (A) on the camshaft sprocket should be at the top, and the TDC grooves (B) on the camshaft sprocket should line up with the top edge of the head.
3. Remove the right front wheel.
4. Remove the right side splash shield.
5. Loosen the water pump pulley mounting bolts.
6. Remove the drive belt.



7. Remove the water pump pulley.
8. Remove the crankshaft pulley.
9. Remove the drive belt auto-tensioner.

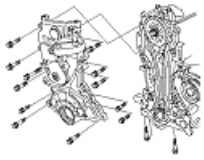


10. Remove the A/C line bracket mounting bolt.
11. Support the engine with a jack and wood block under the oil pan.

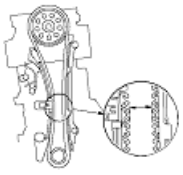


12. Remove the ground cable (A), then remove the side engine mount/bracket assembly (B).

L15A8, L13Z3 engines



13. Remove the chain case.



14. Measure the cam chain separation. If the distance is less than the service limit, replace the cam chain and cam chain tensioner.
    Standard Distance: 19 mm (0.75 in.)
    Service Limit: 15 mm (0.59 in.)

15. Apply new engine oil to the sliding surface of the cam chain tensioner slider (A).
16. Hold the cam chain tensioner slider with the screwdriver, then remove the bolt (B), and loosen the bolt (C).

17. Remove the cam chain tensioner slider.

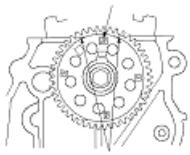
18. Remove the cam chain tensioner (A) and the cam chain guide (B).
19. Remove the cam chain.

Cam Chain Installation

NOTE: Keep the cam chain away from magnetic fields.

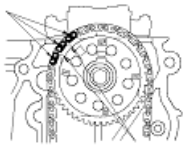
1. Set the crankshaft to top dead center (TDC). Align the TDC mark (A) on the crankshaft sprocket with the pointer (B) on the oil pump.
2. Remove the crankshaft sprocket.

3. Set the camshaft to TDC. The “UP" mark (A) on the camshaft sprocket should be at the top, and the TDC grooves (B) on the camshaft sprocket should line up with the top edge of the head.

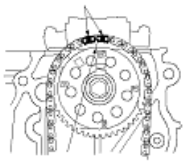


4. Install the cam chain on the crankshaft sprocket with the colored piece (A) aligned with the TDC mark (B) on the crankshaft sprocket, then install the crankshaft sprocket to the crankshaft.

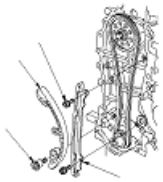
5. With L15A8 engine: Install the cam chain on the camshaft sprocket with the pointers (A) aligned with the three colored pieces (B) as shown.



6. With L13Z3 engine: Install the cam chain on the camshaft sprocket with the pointer (A) aligned with the center of the two colored pieces (B).

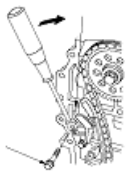


7. Install the cam chain tensioner (A) and the cam chain guide (B).

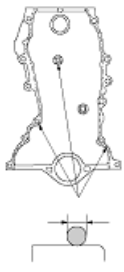


8. Install the cam chain tensioner slider, and tighten the bolt loosely.

9. Apply new engine oil to the sliding surface of the cam chain tensioner slider (A).
10. Rotate the cam chain tensioner slider clockwise to compress the cam chain tensioner, and install the remaining bolt, then tighten the bolts.
11. Check the chain case oil seal for damage. If the oil seal is damaged, replace the chain case oil seal.
12. Remove the all of the old liquid gasket from the chain case mating surfaces, the bolts, and the bolt holes.
13. Clean and dry the chain case mating surfaces.

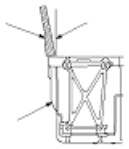


14. Apply liquid gasket (P/N 08C70-K0234M, 08C70-K0334M, or 08C70-X0331S) to the engine block mating surface of the chain case and to the inner threads of the bolt holes.
NOTE: Apply liquid gasket about 2.5 mm (0.098 in.) diameter bead along the broken line (A).



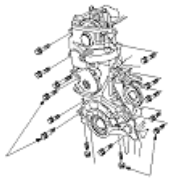
15. Apply liquid gasket (P/N 08C70-K0234M, 08C70-K0334M, or 08C70-X0331S) to the oil pan mating surface of the chain case and to the inner threads of the bolt holes.
NOTE:
    - Apply liquid gasket about 2.5 mm (0.098 in.) diameter bead along the broken line (A).
    - Apply liquid gasket about 5.0 mm (0.20 in.) diameter bead to the shaded area (B).
    - Do not install components if 5 minutes or more have passed after applying the liquid gasket. Instead, remove the old residue and reapply the liquid gasket.

16. Set the edge of the chain case (A) to the edge of the oil pan (B), then install the chain case on the engine block (C).
NOTE:
    - When installing the chain case, do not slide the bottom surface onto the oil pan mounting surface.
    - Wait at least 30 minutes before filling the engine with oil.
    - Do not run the engine for at least 3 hours after installing the chain case.

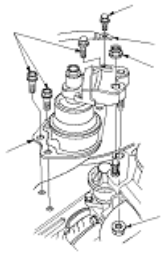


17. Tighten the chain case mounting bolts. Wipe off the excess liquid gasket on the oil pan and the chain case mating area.

L15A8, L13Z3 engines

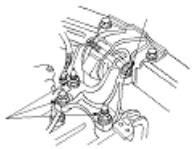


18. Install the side engine mount/bracket assembly (A), then tighten the new side engine mount/bracket assembly mounting bolts (B).
19. Loosely tighten the new side engine mount/bracket assembly mounting nuts (C).
20. Install the ground cable (D).
21. Remove the air cleaner housing assembly.

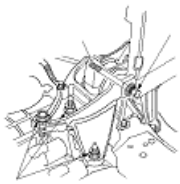


22. Loosen the transmission mount bracket mounting bolts and nuts (A).
23. Raise the vehicle on the lift to full height.

M/T model



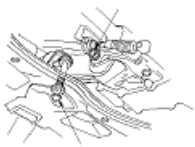
A/T model



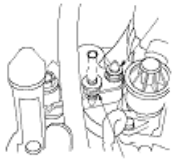
24. Loosen the torque rod mounting bolt and nut (A).
25. Lower the vehicle on the lift.

M/T model

A/T model

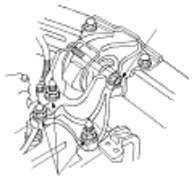


26. Tighten the side engine mount/bracket assembly mounting nuts in the numbered sequence shown.



27. Tighten the transmission mount mounting bolts and nuts in the numbered sequence shown.
28. Raise the vehicle on the lift to full height.

M/T model



A/T model

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29. Tighten the torque rod mounting bolt and nut in the numbered sequence shown.
30. Lower the vehicle on the lift.
31. Install the air cleaner housing assembly.

M/T model

A/T model

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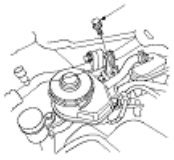
32. Install the A/C line bracket mounting bolt.
33. Install the cylinder head cover.
34. Install the drive belt auto-tensioner.
35. Install the crankshaft pulley.



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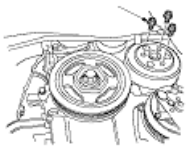
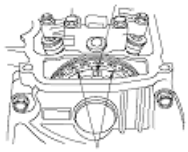
36. Install the water pump pulley.
37. Install the drive belt.
38. Tighten the water pump pulley mounting bolts.
39. Install the right side splash shield.
40. Install the right front wheel.
41. Do the crankshaft position (CKP) pattern clear/CKP pattern learn procedure.



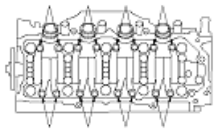
Cylinder Head Valve Clearance Adjustment

NOTE: Adjust the valves only when the cylinder head temperature is less than 38 °C (100 °F).



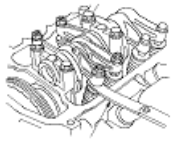
1. Remove the cylinder head cover.
2. Set the No. 1 piston at top dead center (TDC). The ‘‘UP" mark (A) on the camshaft sprocket should be at the top, and the TDC grooves (B) on the camshaft sprocket should line up with the top edge of the head.

L15A8, L13Z3 engines



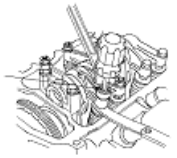
3. Select the correct thickness feeler gauge for the valves you are going to check.
   Valve Clearance
   Intake: 0.15–0.19 mm (0.006–0.007 in.)
   Exhaust: 0.26–0.30 mm (0.010–0.012 in.)

L15A8, L13Z3 engines

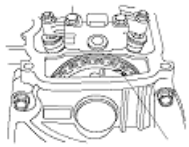


4. Insert the feeler gauge (A) between the adjusting screw and the end of the valve stem on No. 1 cylinder and slide it back and forth; you should feel a slight amount of drag.

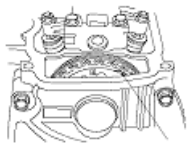
L15A8, L13Z3 engines



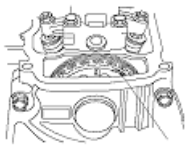
5. If you feel too much or too little drag, loosen the locknut, and turn the adjusting screw (A) until the drag on the feeler gauge is correct.
6. Tighten the locknut and recheck the clearance. Repeat the adjustment, if necessary.
7. Tighten the locknut to the specified torque, and recheck the valve clearance. Repeat the adjustment if necessary.
   Specified Torque
   7 x 0.75 mm 14 N·m (1.4 kgf·m, 10 lbf·ft)
   Apply new engine oil to the nut threads.



8. Rotate the crankshaft clockwise. Align the No. 3 piston TDC groove (A) on the camshaft sprocket with the top edge of the head.
9. Check, and if necessary, adjust the valve clearance on the No. 3 cylinder.



10. Rotate the crankshaft clockwise. Align the No. 4 piston TDC groove (A) on the camshaft sprocket with the top edge of the head.
11. Check, and if necessary, adjust the valve clearance on the No. 4 cylinder.

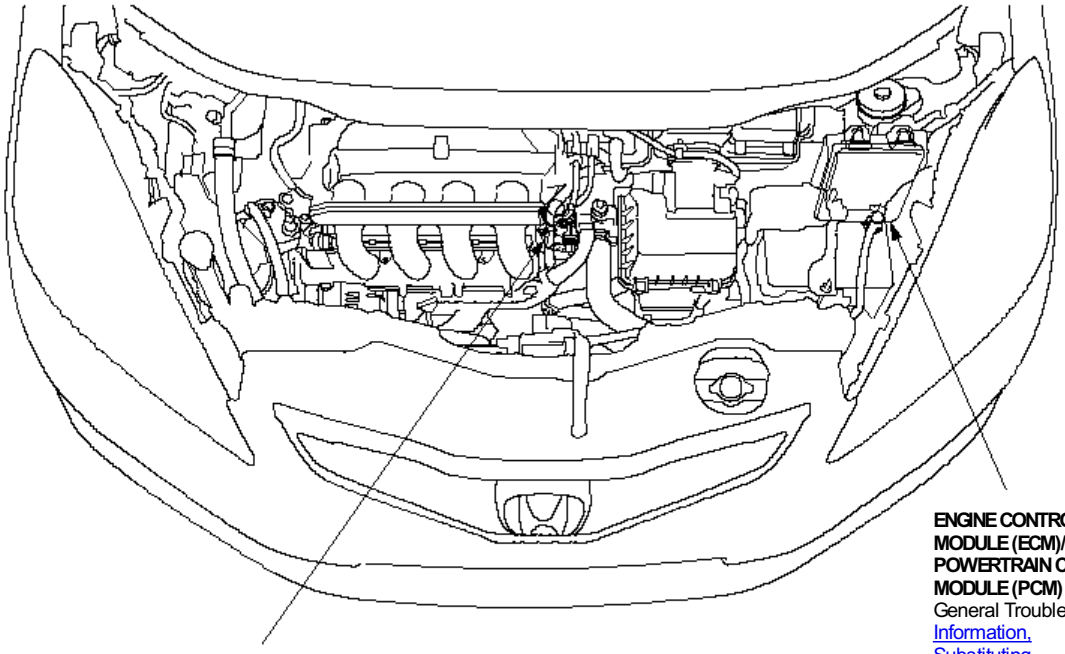


12. Rotate the crankshaft clockwise. Align the No. 2 piston TDC groove (A) on the camshaft sprocket with the top edge of the head.
13. Check, and if necessary, adjust the valve clearance on the No. 2 cylinder.
14. Install the cylinder head cover.

Fuel and Emissions System Description - VTEC System

VTEC System (L13Z3 engine)
Operation (L13Z3 engine)
VTEC System (L15A8 engine)
Operation (L15A8 engine)

VTEC Component Location Index



ENGINE CONTROL MODULE (ECM)/ POWERTRAIN CONTROL MODULE (PCM)
General Troubleshooting Information,
Substituting,
Update,
Replacement,

ROCKER ARM OIL CONTROL VALVE
Removal/Installation,
in the Shop Manual, P/N 62TF000A

VTEC System Oil Pressure Troubleshooting

Special Tools Required

Oil pressure gauge joint attachment
07NAJ-P070100

Low pressure gauge assy. 1,000 kPa
07406-0070002

Oil pressure hose
07ZAJ-S5A0200

NOTE:

- Check for Temporary DTCs or DTCs with the HDS before this procedure. If there are any DTCs indicated, troubleshoot them first, then do this procedure.
- Check that the oil pressure indicator goes off after starting engine before this procedure.

1. Turn the ignition switch to ON (II).
2. Do the VTEC TEST in the INSPECTION MENU with the HDS.

   Can you hear the rocker arm oil control solenoid click?
   YES - Go to Step 6 .
   NO - Go to Step 3 .
3. Turn the ignition switch to LOCK (0).
4. Disconnect the rocker arm oil control solenoid 2P connector.
5. Connect the battery positive terminal (+) to terminal No. 1, and the negative terminal (−) with a wire.

   Is the rocker arm oil control solenoid clicking?
   YES - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■
   NO - Go to Step 22 .
6. Turn the ignition switch to LOCK (0).

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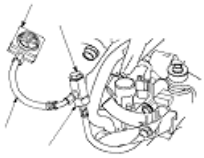
7. Remove the bolt (A) from the rocker arm oil control valve and connect the special tool as shown, the install the bolt (A) that was removed to the oil pressure gauge joint attachment.



8. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
9. Check the oil pressure at the engine speed of 1,000 to 2,000 rpm (min $^{-1}$).
   NOTE: Keep the measuring time as short as possible (less than 1 minute).

   Is the oil pressure below 49 kPa (0.5 kgf/cm ^{2} , 7 psi)?
   YES - Go to Step 10 .
   NO - Go to Step 22 .
10. Turn the ignition switch to LOCK (0).
11. Disconnect the rocker arm oil control solenoid 2P connector.

---

12. Connect the battery positive terminal (+) to terminal No. 1, and the negative terminal (−) with a wire.
13. Start the engine.

14. Check the oil pressure at the engine speed of 3,500 rpm (min $^{-1}$).
    NOTE: Keep the measuring time as short as possible (less than 1 minute).

    Is the oil pressure above 392 kPa (4.0 kgf/cm ^{2} , 56.9 psi)?
    YES - The VTEC system oil pressure is normal.■
    NO - Go to Step 15 .
15. Turn the ignition switch to LOCK (0).
16. Remove the rocker arm oil control valve.
17. Check the rocker arm oil control solenoid filter for dirt and clogging.

    Is the rocker arm oil control solenoid filter dirty or clogged?
    YES - Replace the engine oil, engine oil filter, and the rocker arm oil control solenoid filter, then go to Step 18 .
    NO - Go to Step 22 .

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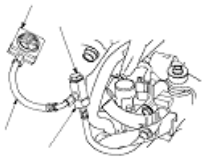
18. Remove the bolt (A) from the rocker arm oil control valve and connect the special tool as shown, the install the bolt that was removed to the oil pressure gauge joint attachment.

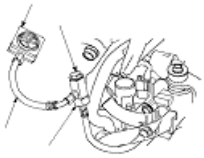


19. Connect the battery positive terminal (+) to terminal No. 1, and the negative terminal (−) with a wire.
20. Start the engine.

21. Check the oil pressure at the engine speed of 3,500 rpm (min $^{-1}$).
    NOTE: Keep the measuring time as short as possible (less than 1 minute).

    Is the oil pressure above 392 kPa (4.0 kgf/cm ^{2}, 56.9 psi)?
    YES - Troubleshooting is complete.■
    NO - Go to Step 22.
22. Replace the rocker arm oil control valve.

23. Remove the bolt (A) from the rocker arm oil control valve and connect the special tool as shown, the install the bolt that was removed to the oil pressure gauge joint attachment.



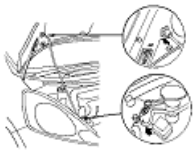
24. Connect the battery positive terminal (+) to terminal No. 1, and the negative terminal (−) with a wire.
25. Start the engine.

26. Check the oil pressure at the engine speed of 3,500 rpm (min $^{-1}$).
    NOTE: Keep the measuring time as short as possible (less than 1 minute).

    Is the oil pressure above 392 kPa (4.0 kgf/cm ^{2}, 56.9 psi)?
    YES - Troubleshooting is complete.■
    NO - Clean the oil passage of the cylinder block or replace the cylinder block.■

Engine Removal

Special Tools Required



Engine tilt hanger set
07KAK-SJ40101

Engine hanger stay
07KAK-SJ40200

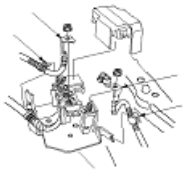
Sub hanger stay
07MAK-PY30100

NOTE:

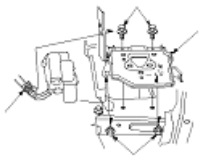
- Use fender covers to avoid damaging painted surfaces.
- To avoid damaging the wiring and terminals, unplug the wiring connectors carefully while holding the connector portion.
- Mark all wiring and hoses to avoid misconnection. Also, be sure that they do not contact other wiring or hoses, or interfere with other parts.

1. Remove the hood support rod, then use it as shown to prop the hood in the wide-open position.
2. Relieve fuel pressure.
3. Do the battery removal procedure.
4. Remove the under-cowl panel.
5. Remove the air cleaner housing assembly.

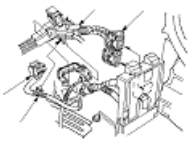
6. Remove the battery cables (A) from the battery terminal fuse box.
7. Remove the harness clamps (B).



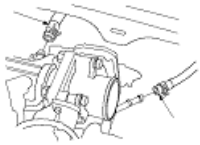
8. With M/T model: Remove the harness clamp (A). Remove the two bolts (B) and loosen the two bolts (C), then remove the battery base (D).



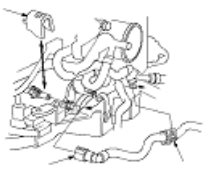
9. Disconnect the engine control module (ECM)/ powertrain control module (PCM) connectors (A) and the engine wire harness connector (B).
10. Remove the harness clamp (C) and harness holder (D).



11. Disconnect the evaporative emission (EVAP) canister hose (A) and brake booster vacuum hose (B).



12. Remove the fuel feed hose clamp (A) and the quick-connect fitting cover (B), then disconnect the fuel feed hose (C).



13. Disconnect the secondary heated oxygen sensor (secondary HO2S) connector (A), then remove the secondary HO2S harness from the clamps (B).
14. M/T model: Remove the shift cable.
15. M/T model: Remove the clutch slave cylinder, and clutch line bracket mounting bolt.
16. Remove the radiator cap.
17. Remove the subfuel fill cap, then retighten the subfuel cap.
18. Remove the bolt, then disconnect the subfuel feed line from the subfuel solenoid holder.
19. Raise the vehicle on the lift to full height.
20. Remove the front wheels.

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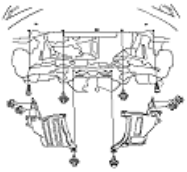
21. Remove the splash shields.
22. Remove the drive belt.
23. Loosen the drain plug in the radiator, and drain the engine coolant.
24. Drain the engine oil.
25. Drain the transmission fluid:
    - Manual transmission
    - Automatic transmission



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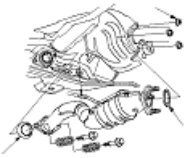
26. Remove the under-floor three way catalytic converter (under-floor TWC).
27. A/T model: Remove the shift cable.
28. Remove the stabilizer links from the stabilizer.
29. Separate the knuckles from the lower arms.



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30. Remove the driveshaft heat shield.
31. Remove the driveshafts. Coat all precision-finished surfaces with clean engine oil. Tie a plastic bags over the driveshaft ends.

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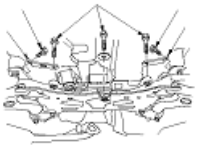
32. Remove the bolts (A) securing the steering gearbox, then remove the steering gearbox stiffeners (B).



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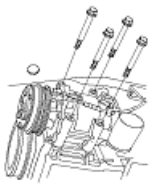
33. Remove the A/C compressor without disconnecting the A/C hoses.
34. Lower the vehicle on the lift.
35. Remove the radiator.



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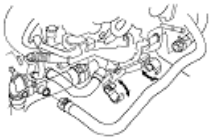
36. Disconnect the heater hoses.
37. Raise the vehicle on the lift to full height.
38. Support the transmission with a jack and wood block under the transmission.



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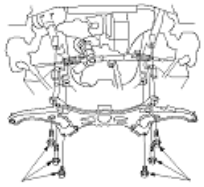
39. Remove the torque rod.
40. Remove the jack.

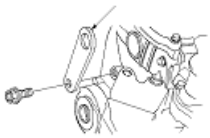
M/T model

A/T model

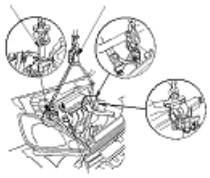
41. Remove the front subframe.
42. Lower the vehicle on the lift.



43. Install the sub hanger stay.

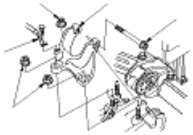


44. Attach the special tools to the engine/transmission as shown.

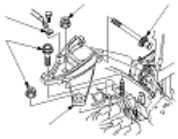


45. Remove the ground cable (A), then remove the transmission mount bracket (B).

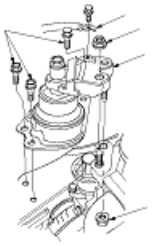
M/T model



A/T model

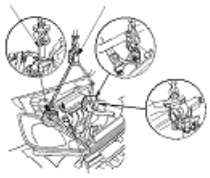


46. Remove the ground cable (A), then remove the side engine mount/bracket assembly (B).
47. Check that the engine/transmission is completely free of vacuum hoses, fuel and coolant hoses, and electrical wiring.
48. Slowly lower the engine/transmission about 150 mm (6 in.). Check once again that all hoses and electrical wiring are disconnected and free from the engine/transmission, then lower it all the way.
49. Disconnect the chain hoist from the engine/transmission.
50. Raise the vehicle, and remove the engine/ transmission from under the vehicle.



Engine Installation

Special Tools Required



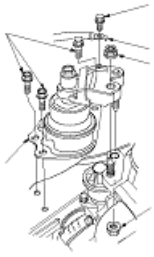
Engine tilt hanger set
07KAK-SJ40101

Engine hanger stay
07KAK-SJ40200

Sub hanger stay
07MAK-PY30100

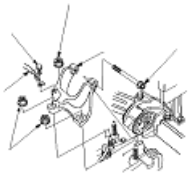
1. Raise the vehicle on the lift, and position the engine/transmission under the vehicle. Lower the vehicle, and attach the special tools to the engine/transmission, then lift the engine/transmission into position in the vehicle.
   NOTE: Reinstall the mounting bolts and support nuts in the sequence given in the following steps. Failure to follow this sequence may cause excessive noise and vibration, and reduce engine mount life.

2. Install the side engine mount/bracket assembly (A), then tighten the new side engine mount/bracket assembly mounting bolts (B) and nuts (C).
3. Loosely tighten the new side engine mount/bracket assembly mounting nuts (C).
4. Install the ground cable (D).



5. Install the transmission mount bracket (A), and loosely tighten the new transmission mount bracket mounting bolts and nuts (B).
6. Install the ground cable (C).
7. Remove the engine tilt hanger set from the engine/transmission.

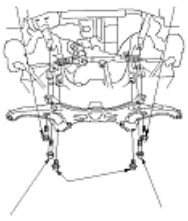
M/T model



A/T model

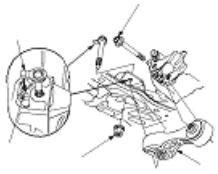
8. Remove the sub hanger stay.
9. Raise the vehicle on the lift to full height.

10. Install the front subframe, then tighten the new front subframe mounting bolts in the numbered sequence shown.



11. Install the torque rod (A). Install the new bolt with the tab (B) on the bolt head aligned with the guide (C) on the front subframe, then loosely tighten the new torque rod mounting bolt and nut (D).
12. Lower the vehicle on the lift.

M/T model



A/T model

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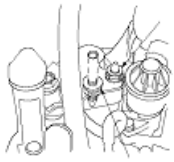
13. Tighten the side engine mount/bracket assembly mounting nuts in the numbered sequence shown.



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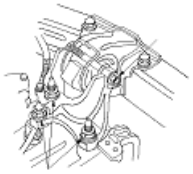
14. Tighten the transmission mount mounting bolts and nuts in the numbered sequence shown.
15. Raise the vehicle on the lift to full height.

M/T model



A/T model

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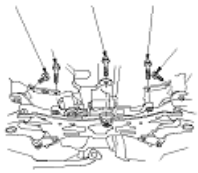
16. Tighten the torque rod mounting bolt and nut in the numbered sequence shown.

M/T model

A/T model

---

17. Install the securing the steering gearbox and the steering gearbox stiffeners, then tighten the new bolts in the numbered sequence shown.
18. Install a new set ring on the end of each driveshaft, then install the driveshafts. Make sure each ring ‘‘clicks" into place in the differential and the intermediate shaft.



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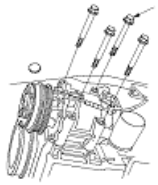
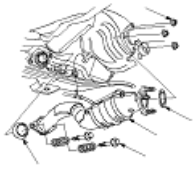
19. Install the driveshaft heat shield.
20. Connect the lower arms to the knuckles.
21. Install the stabilizer links to the stabilizer.
22. A/T model: Install the shift cable.

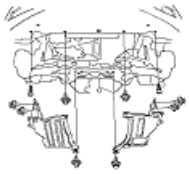
23. Install the A/C compressor.
24. Install the drive belt.



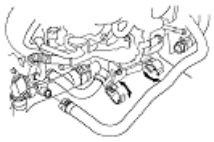
25. Install the under-floor three way catalytic converter (under-floor TWC) (A). Use new gaskets (B) and new self locking nuts (C).



26. Install the splash shields.
27. Lower the vehicle on the lift.

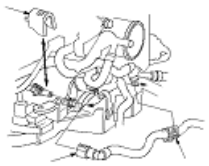


28. Install the heater hoses.
29. Install the radiator.
30. M/T model: Install the clutch slave cylinder, and clutch line bracket mounting bolt.
31. M/T model: Install the shift cable.
32. Install the subfuel fill cap, then retighten the subfuel cap.
33. Connect the subfuel feed line, then install the subfuel solenoid holder bolt.

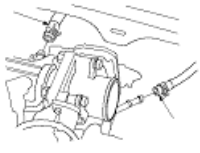


34. Connect the secondary heated oxygen sensor (secondary HO2S) connector (A), then install the secondary HO2S harness to the clamps (B).

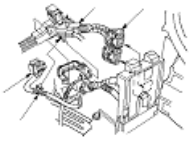
35. Connect the fuel feed hose (A) , then install the quick-connect fitting cover (B) and the fuel feed hose clamp (C).



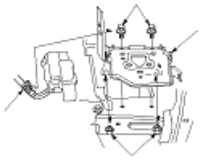
36. Install the evaporative emission (EVAP) canister hose (A) and brake booster vacuum hose (B).



37. Install the harness holder (A), then install the harness clamp (B).
38. Connect the engine wire harness connector (C) and the engine control module (ECM)/powertrain control module (PCM) connectors (D).



39. With M/T model: Install the battery base (A), then install the harness clamp (B).



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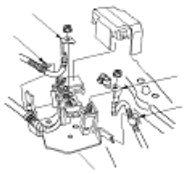
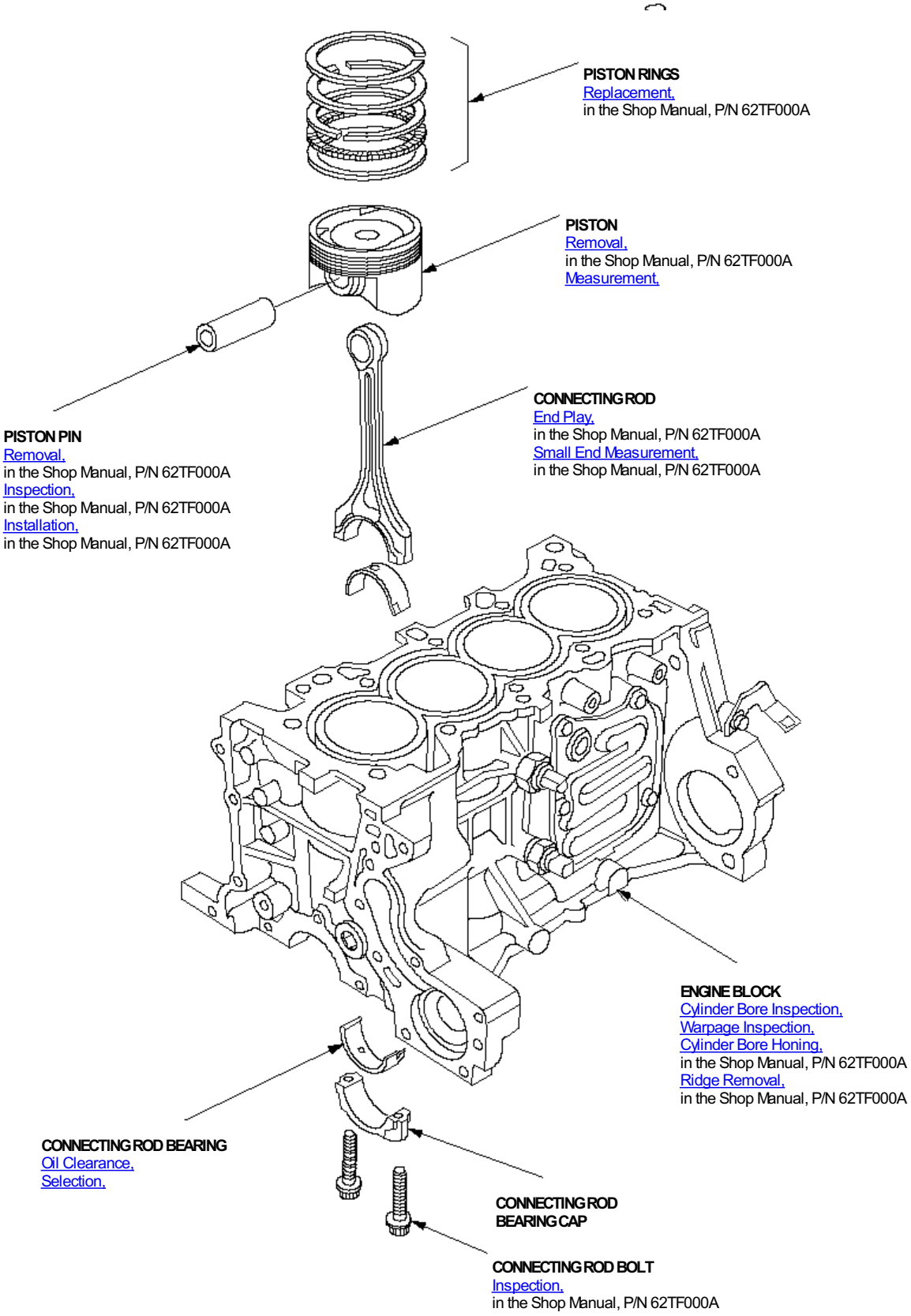
40. Install the battery cables (A) to the battery terminal fuse box.
41. Install the harness clamps (B).
42. Install the front wheels.
43. Install the under-cowl panel.
44. Do the battery installation procedure.
45. Refill the transmission with fluid:
    - Manual transmission
    - Automatic transmission
46. Install the air cleaner housing assembly.
47. A/T model: Move the shift lever to each gear, and verify that the A/T gear position indicator follows the transmission range switch.
48. M/T model: Check that the transmission shifts into all gear smoothly.
49. Inspect for fuel leaks. Turn the ignition switch to ON (II) (do not operate the starter) so the fuel pump runs for about 2 seconds and pressurizes the fuel line. Repeat this operation three times, then check for fuel leakage at any point in the fuel line.
50. Refill the radiator with engine coolant, and bleed air from the cooling system with the heater valve open.
51. Refill the engine with engine oil.
52. Do the ECM/PCM reset procedure.
53. Do the crankshaft position (CKP) pattern clear/CKP pattern learn procedure.
54. Inspect the idle speed.
55. Inspect the ignition timing.



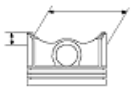
Engine Block Component Location Index

L15A8 engine



Engine Block and Piston Inspection

1. Remove the crankshaft and the pistons.
2. Check the piston for distortion or cracks.

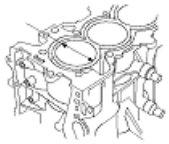


3. Measure the piston diameter (A) at a point 16 mm (0.6 in.) from the bottom of the skirt.

Piston Diameter
L15A8 engine:
Standard (New): **72.980−72.990 mm (2.8732−2.8736 in.)**
Service Limit: **72.97 mm (2.8728 in.)**
L13Z3 engine:
Standard (New): **72.972−72.982 mm (2.8729−2.8733 in.)**
Service Limit: **72.97 mm (2.8728 in.)**

Oversize Piston Diameter
L15A8 engine:
0.25: **73.230−73.240 mm (2.88307−2.88346 in.)**
L13Z3 engine:
0.25: **73.222−73.232 mm (2.88275−2.88314 in.)**

4. Measure wear and taper in direction Y at three levels in each cylinder as shown. If measurements in any cylinder are beyond the Oversize Bore Service Limit, replace the engine block. If the engine block is to be rebored, refer to Step 7 after reboring.



Cylinder Bore Size

Standard (New): **73.000−73.015 mm (2.8740−2.8746 in.)**
Service Limit: **73.065 mm (2.8766 in.)**

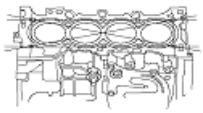
Oversize
0.25: **73.250−73.265 mm (2.8839−2.8844 in.)**

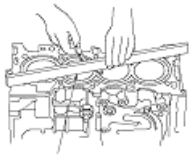
Reboring limit: **0.25 mm (0.01 in.) max.**

Bore Taper
Limit: **(Difference between first and third measurement) 0.05 mm (0.002 in.)**

5. Scored or scratched cylinder bores must be honed.

6. Check the top of the engine block for warpage. Measure along the edges and across the center as shown.

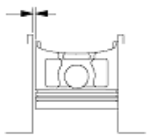




Engine Block Warpage

Standard (New): **0.07 mm (0.003 in.) max.**
Service Limit: **0.10 mm (0.004 in.)**

7. Calculate the difference between the cylinder bore diameter and the piston diameter. If the clearance is near or exceeds the service limit, inspect the piston and engine block for excessive wear.

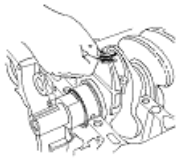


Piston-to-Cylinder Clearance

L15A8 engine:
Standard (New): **0.010−0.035 mm (0.0004−0.0014 in.)**
Service Limit: **0.05 mm (0.002 in.)**
L13Z3 engine:
Standard (New): **0.018−0.043 mm (0.0007−0.0017 in.)**
Service Limit: **0.05 mm (0.002 in.)**

Connecting Rod Bearing Replacement

Rod Bearing Clearance Inspection

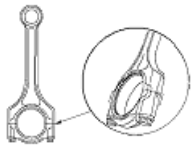


1. To check rod bearing-to-journal oil clearance, remove the bearing cap bridge.
2. Remove the connecting rod cap and bearing half.
3. Clean the crankshaft rod journal and bearing half with a clean shop towel.
4. Place plastigage across the rod journal.
5. Reinstall the bearing half and cap, and torque the bolts to 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft) +90 °.
   NOTE: Do not rotate the crankshaft during inspection.
6. Remove the rod cap and bearing half, and measure the widest part of the plastigage.
   Connecting Rod Bearing-to-Journal Oil Clearance

L15A8 engine:	
Standard (New):	**0.020–0.038 mm (0.0008–0.0015 in.)**
Service Limit:	**0.050 mm (0.0020 in.)**
L13Z3 engine:	
Standard (New):	**0.026–0.044 mm (0.0010–0.0017 in.)**
Service Limit:	**0.050 mm (0.0020 in.)**

7. If the plastigage measures too wide or too narrow, remove the upper half of the bearing, install a new, complete bearing with the same color code(s), and recheck the clearance. Do not file, shim, or scrape the bearings or the caps to adjust clearance.
8. If the plastigage shows the clearance is still incorrect, try the next larger or smaller bearing (the color listed above or below the current one), and check clearance again. If the proper clearance cannot be obtained by using the appropriate larger or smaller bearing, replace the crankshaft and start over.

Rod Bearing Selection



1. Inspect each connecting rod for cracks and heat damage.

Connecting Rod Big End Bore Code Locations

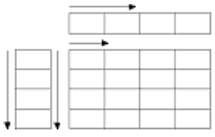
2. Each rod falls into one of four tolerance ranges (from 0 to 0.024 mm (0.0009 in.), in 0.006 mm (0.0002 in.) increments) depending on the size of its big end bore. It's then stamped with a number or bar (1, 2, 3, or 4) indicating the range. You may find any combination of 1, 2, 3, or 4 in any engine.
   If the codes are indecipherable because of an accumulation of dirt and dust, do not scrub them with a wire brush or scraper. Clean them only with solvent or detergent.
   Normal Bore Size: **43.0 mm (1.69 in.)**

Connecting Rod Journal Code Location

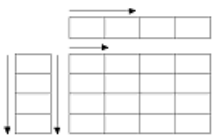
3. The connecting rod journal codes are stamped on the crankshaft.

4. Use the big end bore codes and rod journal codes to select appropriate replacement bearings from the following table.
   NOTE: Color code is on the edge of the bearing.

L15A8 engine

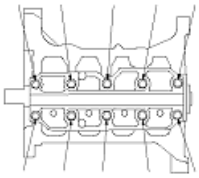


L13Z3 engine



Crankshaft Main Bearing Replacement

Main Bearing Clearance Inspection



1. To check main bearing-to-journal oil clearance, remove the bearing cap bridge and bearing halves.
2. Clean each main journal and bearing half with a clean shop towel.
3. Place one strip of plastigage across each main journal.
4. Reinstall the bearings and bearing cap bridge, then tighten the bearing cap bolts to 25 N·m (2.5 kgf·m, 18 lbf·ft) in the proper sequence.
   NOTE: Do not rotate the crankshaft during inspection.
5. Tighten the bearing cap bolts an additional 40 °.

6. Remove the bearing cap bridge and bearings again, and measure the widest part of the plastigage.

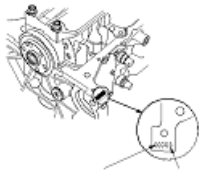
Main Bearing-to-Journal Oil Clearance

Standard (New):	**0.018–0.036 mm (0.0007–0.0014 in.)**
Service Limit:	**0.050 mm (0.0020 in.)**

7. If the plastigage measures too wide or too narrow, remove the crankshaft, and remove the upper half of the bearing. Install a new, complete bearing with the same color code(s), and recheck the clearance. Do not file, shim, or scrape the bearings or the caps to adjust clearance.
8. If the plastigage shows the clearance is still incorrect, try the next larger or smaller bearing (the color listed above or below the current one), and check again. If the proper clearance cannot be obtained by using the appropriate larger or smaller bearings, replace the crankshaft and start over.

Main Bearing Selection

Crankshaft Bore Code Location



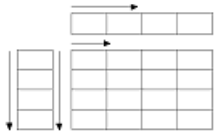
1. Letters have been stamped on the end of the block as a code for the size of each of the five main journal bores. Write down the crank bore codes.
   If you can't read the codes because of accumulated dirt and dust, do not scrub them with a wire brush or scraper. Clean them only with solvent or detergent.

Main Journal Code Location

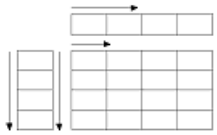
2. The main journal codes are stamped on the crankshaft.

3. Use the crank bore codes and crank journal codes to select the appropriate replacement bearings from the following table.
   NOTE: Color code is on the edge of the bearing.

L15A8 engine

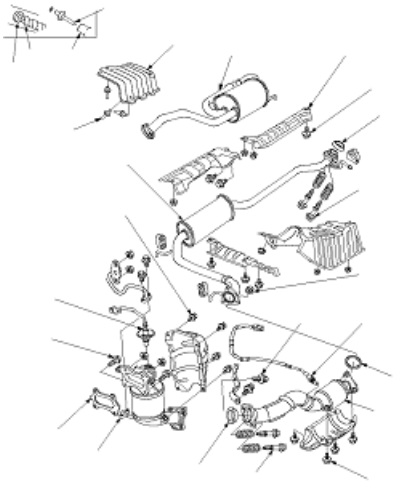


L13Z3 engine



Exhaust Pipe and Muffler Replacement

NOTE: Use new gaskets and self-locking nuts when reassembling.



ECM/PCM Circuit Diagram (cont'd)

ROCKER ARM OIL CONTROL

EVAP CANISTER

No. 1 IGNITION COIL (1)

No. 2 IGNITION COIL (2)

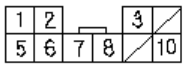
No. 3 IGNITION COIL (3)

No. 4 IGNITION COIL (4)

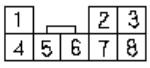
A/F SENSOR (SENSOR 1)

SECONDARY HO2S (SENSOR 2)

UNDER-DASH FUSE/RELAY BOX (K) (1)



UNDER-DASH FUSE/RELAY BOX (N) (2)



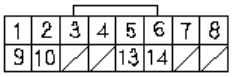
UNDER-DASH FUSE/RELAY BOX (S) (3)

UNDER-DASH FUSE/RELAY BOX (T) (4)

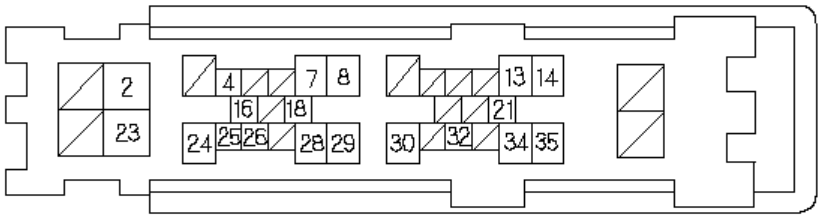
ELD (5)

UNDER-DASH FUSE/RELAY BOX (W) (6)

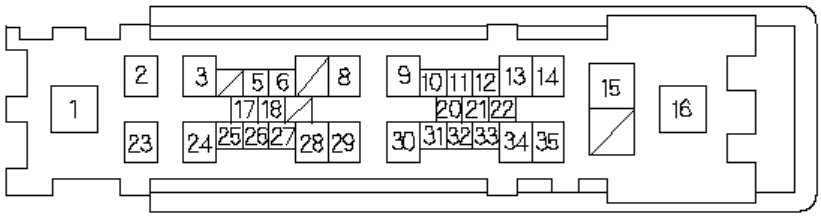
UNDER-DASH FUSE/RELAY BOX (Q) (7)



UNDER-DASH FUSE/RELAY BOX (A) (8)

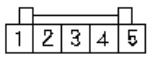


UNDER-DASH FUSE/RELAY BOX (B) (9)

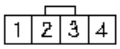


SUBFUEL PUMP (10)

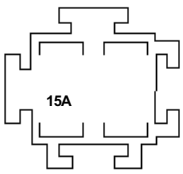
FUEL INDICATOR UNIT (11)



4P CONNECTOR (12)



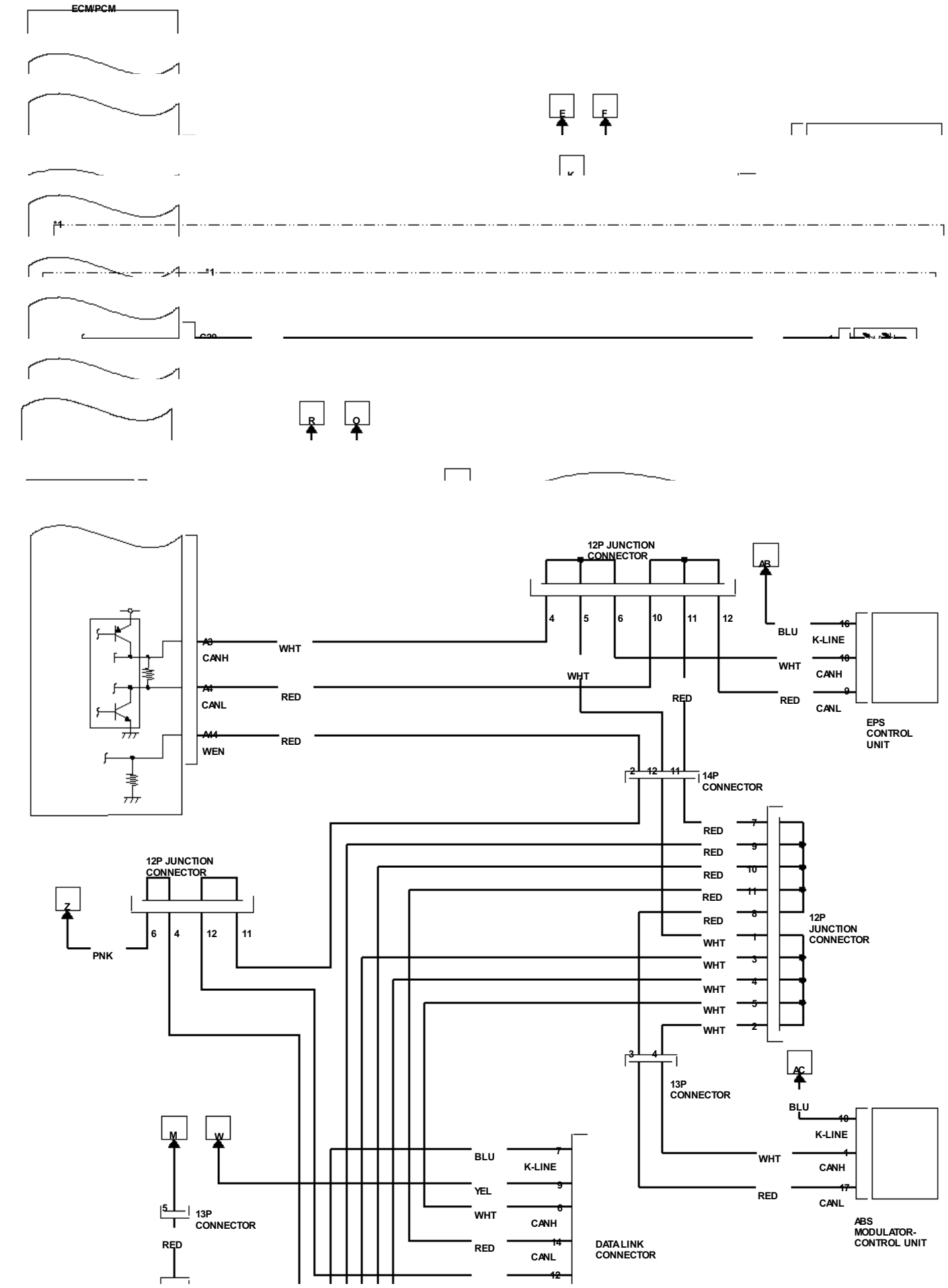
AUXILIARY UNDER-DASH FUSE HOLDER (13)

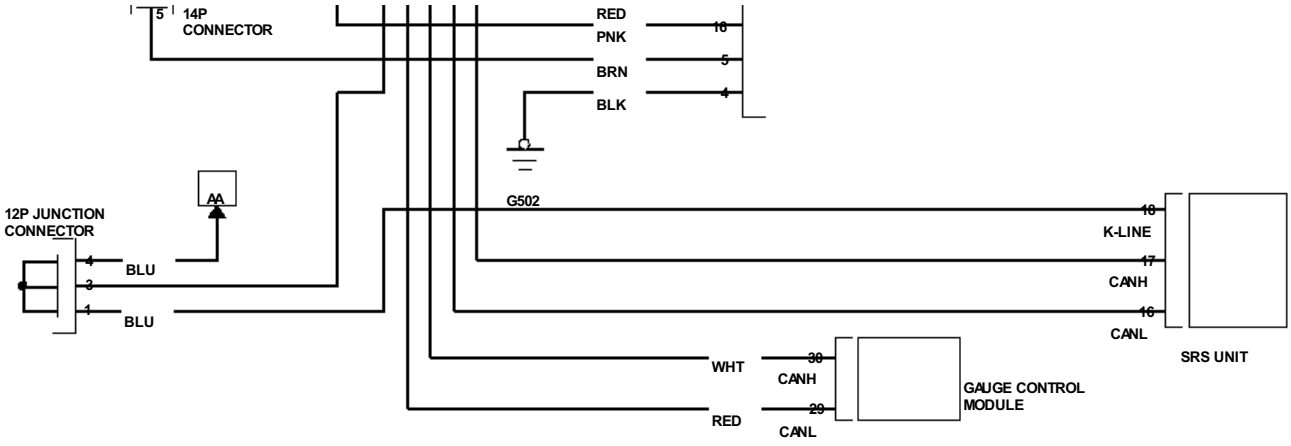


NOTE:
· Connector with male terminals (double outline): view from terminal side
· Connector with female terminals (single outline): view from wire side
*: Connector with female terminals (single outline): view from terminal side

Fuel and Emissions Systems Circuit Diagram

ECM/PCM Circuit Diagram




5
14P
CONNECTOR
RED
PNK
BRN
BLK
16
5
4
G502
AA
12P JUNCTION
CONNECTOR
4
3
1
BLU
BLU
18
K-LINE
17
CANH
16
CANL
SRS UNIT
WHT
30
CANH
RED
29
CANL
GAUGE CONTROL
MODULE

Engine will not start (MIL works OK, no DTCs set)

Diagnostic procedure

1. Test the battery.
2. Test the starter.
3. Check the fuel pressure.
4. Troubleshoot the fuel pump circuit.

Also check for

- Low compression
- No ignition spark
- Intake vacuum leaks
- Locked up engine
- Broken cam chain
- Fuel contamination

Engine will not start (MIL comes on and stays on, no DTCs set)

Diagnostic procedure

1. Troubleshoot the DLC circuit.

Also check for

- Low compression
- No ignition spark
- Intake vacuum leaks
- Locked up engine
- Broken cam chain
- Fuel contamination
- No power to ECM/PCM
- No ground to ECM/PCM
- Shorted reference voltage

MIL comes on and stays on, or never comes on at all, no DTCs set

Diagnostic procedure

1. Troubleshoot the MIL circuit.

Engine will not start (MIL works OK, no DTCs set, immobilizer indicator stays on or flashes)

Diagnostic procedure

1. Check the immobilizer system.

Engine starts but stalls immediately (MIL works OK, no DTCs set, immobilizer indicator stays on or flashes)

Diagnostic procedure

1. Check the immobilizer system.

Also check for

- Camshaft timing
- Low compression
- Intake vacuum leaks
- Fuel contamination
- Weak spark

Engine is hard start (MIL works OK, no DTCs set)

Diagnostic procedure

1. Test the battery.
2. Check the fuel pressure.
3. Test the throttle body.

Also check for

- Low compression
- Intake air leaks
- Fuel contamination
- Weak spark

Engine is hard to start (engine coolant temperature below 20 °C (68 °F) and/or fuel grade (alcohol contained level) above 61 %)

Diagnostic procedure

1. Troubleshoot the subfuel pump circuit.
2. Test the subfuel pressure.
3. Test the subfuel solenoid.

Cold fast idle too low (MIL works OK, no DTCs set)

Diagnostic procedure

1. Do the ECM/PCM idle learn procedure.
2. Check the idle speed.
3. Throttle body cleaning.

Also check for

- Incorrect valve adjustment

Cold fast idle too high (MIL works OK, no DTCs set)

Diagnostic procedure

1. Do the ECM/PCM idle learn procedure.
2. Check the idle speed.
3. Test the throttle body.

Also check for

- Incorrect valve adjustment

After warming up, idle speed is below specifications without load (MIL works OK, no DTCs set)

Diagnostic procedure

1. Troubleshoot the alternator FR signal circuit.
2. Test the throttle body.

Also check for

- Intake vacuum leaks
- Incorrect valve adjustment

After warming up, idle speed is above specifications without load (MIL works OK, no DTCs set)

Diagnostic procedure

1. Troubleshoot the alternator FR signal circuit.
2. Inspect the APP sensor.

Also check for

- Intake vacuum leaks

Idle speed fluctuates (MIL works OK, no DTCs set)

Diagnostic procedure

1. Do the ECM/PCM idle learn procedure.
2. Test the fuel pressure.
3. Test the injectors.
4. Troubleshoot the alternator FR signal circuit.
5. Inspect the PCV valve.
6. Test the throttle body.
7. Troubleshoot the A/C signal circuit.
8. Troubleshoot the VTEC system oil pressure.

Also check for

- Fuel contamination
- Intake vacuum leaks

Misfire or rough running (MIL works OK, no DTCs set)

Diagnostic procedure

1. Check the spark plugs.
2. Test the fuel pressure.
3. Test the injectors.
4. Troubleshoot the fuel pump circuit.
5. Troubleshoot the VTEC system oil pressure.

Also check for

- Low compression
- Valve clearance
- Fuel contamination

Fails emission test (MIL works OK, no DTCs set)

Diagnostic procedure

1. Inspect the three way catalytic converter (TWC).
2. Check the spark plugs.
3. Test the fuel pressure.
4. Test the injectors.
5. Check the EVAP system.
6. Troubleshoot the VTEC system oil pressure.

Also check for

- Fuel contamination
- Low compression
- Broken cam chain

Low power (MIL works OK, no DTCs set)

Diagnostic procedure

1. Test the fuel pressure.
2. Check the air cleaner element.
3. Test the throttle body.
4. Inspect the three way catalytic converter (TWC).
5. Test the injectors.
6. Troubleshoot the VTEC system oil pressure.

Also check for

- Fuel contamination
- Low compression
- Camshaft timing
- Engine oil level

Engine stalls (MIL works OK, no DTCs set)

Diagnostic procedure

1. Do the ECM/PCM idle learn procedure.
2. Test the fuel pressure.
3. Check the idle speed.
4. Troubleshoot the brake pedal position switch signal circuit.
5. Check the spark plugs.
6. Troubleshoot the VTEC system oil pressure.

Also check for

- Intake vacuum leaks
- Faulty harness and sensor connections
- Fuel contamination

Difficult to refuel

Diagnostic procedure

1. Inspect the breather line and the suction line.

HDS does not communicate with the ECM/PCM or the vehicle

Diagnostic procedure

1. Troubleshoot the DLC circuit.

Low subfuel indicator does not come on

Diagnostic procedure

1. Troubleshoot the low fuel indicator unit circuit.

Low subfuel indicator stays on

Diagnostic procedure

1. Troubleshoot the low fuel indicator unit circuit.

Fuel and Emissions Systems Symptom Troubleshooting Index

When the vehicle has one of these symptoms, check for a diagnostic trouble code (DTC) with the HDS. If there is no DTC, do the diagnostic procedure for the symptom, in the sequence listed, until you find the cause.

Symptom	Diagnostic procedure	Also check for
Engine will not start (MIL works OK, no DTCs set)	1.Test the battery. 2.Test the starter. 3.Check the fuel pressure. 4.Troubleshoot the fuel pump circuit.	• Low compression • No ignition spark • Intake vacuum leaks • Locked up engine • Broken cam chain • Fuel contamination
Engine will not start (MIL comes on and stays on, no DTCs set)	Troubleshoot the DLC circuit.	• Low compression • No ignition spark • Intake vacuum leaks • Locked up engine • Broken cam chain • Fuel contamination • No power to ECM/PCM • No ground to ECM/PCM • Shorted reference voltage
MIL comes on and stays on, or never comes on at all, no DTCs set	Troubleshoot the MIL circuit.	
Engine will not start (MIL works OK, no DTCs set, immobilizer indicator stays on or flashes)	Check the immobilizer system.	
Engine starts but stalls immediately (MIL works OK, no DTCs set, immobilizer indicator stays on or flashes)	Check the immobilizer system.	• Camshaft timing • Low compression • Intake vacuum leaks • Fuel contamination • Weak spark
Engine is hard start (MIL works OK, no DTCs set)	1.Test the battery. 2.Check the fuel pressure. 3.Test the throttle body.	• Low compression • Intake air leaks • Fuel contamination • Weak spark
Engine is hard to start (engine coolant temperature below 20 °C (68 °F) and/or fuel grade (alcohol contained level) above 61 %)	1.Troubleshoot the subfuel pump circuit. 2.Test the subfuel pressure. 3.Test the subfuel solenoid.	
Cold fast idle too low (MIL works OK, no DTCs set)	1.Do the ECM/PCM idle learn procedure. 2.Check the idle speed. 3.Throttle body cleaning.	Incorrect valve adjustment
Cold fast idle too high (MIL works OK, no DTCs set)	1.Do the ECM/PCM idle learn procedure. 2.Check the idle speed. 3.Test the throttle body.	Incorrect valve adjustment
After warming up, idle speed is below specifications without load (MIL works OK, no DTCs set)	1.Troubleshoot the alternator FR signal circuit. 2.Test the throttle body.	• Intake vacuum leaks • Incorrect valve adjustment
After warming up, idle speed is above specifications without load (MIL works OK, no DTCs set)	1.Troubleshoot the alternator FR signal circuit. 2.Inspect the APP sensor.	Intake vacuum leaks
Idle speed fluctuates (MIL works OK, no DTCs set)	1.Do the ECM/PCM idle learn procedure. 2.Test the fuel pressure. 3.Test the injectors. 4.Troubleshoot the alternator FR signal circuit. 5.Inspect the PCV valve. 6.Test the throttle body. 7.Troubleshoot the A/C signal circuit. 8.Troubleshoot the VTEC system oil pressure.	• Fuel contamination • Intake vacuum leaks
Misfire or rough running (MIL works OK, no DTCs set)	1.Check the spark plugs. 2.Test the fuel pressure. 3.Test the injectors. 4.Troubleshoot the fuel pump circuit. 5.Troubleshoot the VTEC system oil pressure.	• Low compression • Valve clearance • Fuel contamination
Fails emission test (MIL works OK, no DTCs set)	1.Inspect the three way catalytic converter (TWC). 2.Check the spark plugs. 3.Test the fuel pressure. 4.Test the injectors. 5.Check the EVAP system. 6.Troubleshoot the VTEC system oil pressure.	• Fuel contamination • Low compression • Broken cam chain

Symptom	Diagnostic procedure	Also check for
Low power (MIL works OK, no DTCs set)	1.Test the fuel pressure. 2.Check the air cleaner element. 3.Test the throttle body. 4.Inspect the three way catalytic converter (TWC). 5.Test the injectors. 6.Troubleshoot the VTEC system oil pressure.	• Fuel contamination • Low compression • Camshaft timing • Engine oil level
Engine stalls (MIL works OK, no DTCs set)	1.Do the ECM/PCM idle learn procedure. 2.Test the fuel pressure. 3.Check the idle speed. 4.Troubleshoot the brake pedal position switch signal circuit. 5.Check the spark plugs. 6.Troubleshoot the VTEC system oil pressure.	• Intake vacuum leaks • Faulty harness and sensor connections • Fuel contamination
Difficult to refuel	Inspect the breather line and the suction line.	
HDS does not communicate with the ECM/PCM or the vehicle	Troubleshoot the DLC circuit.	
Low subfuel indicator does not come on	Troubleshoot the low fuel indicator unit circuit.	
Low subfuel indicator stays on	Troubleshoot the low fuel indicator unit circuit.	

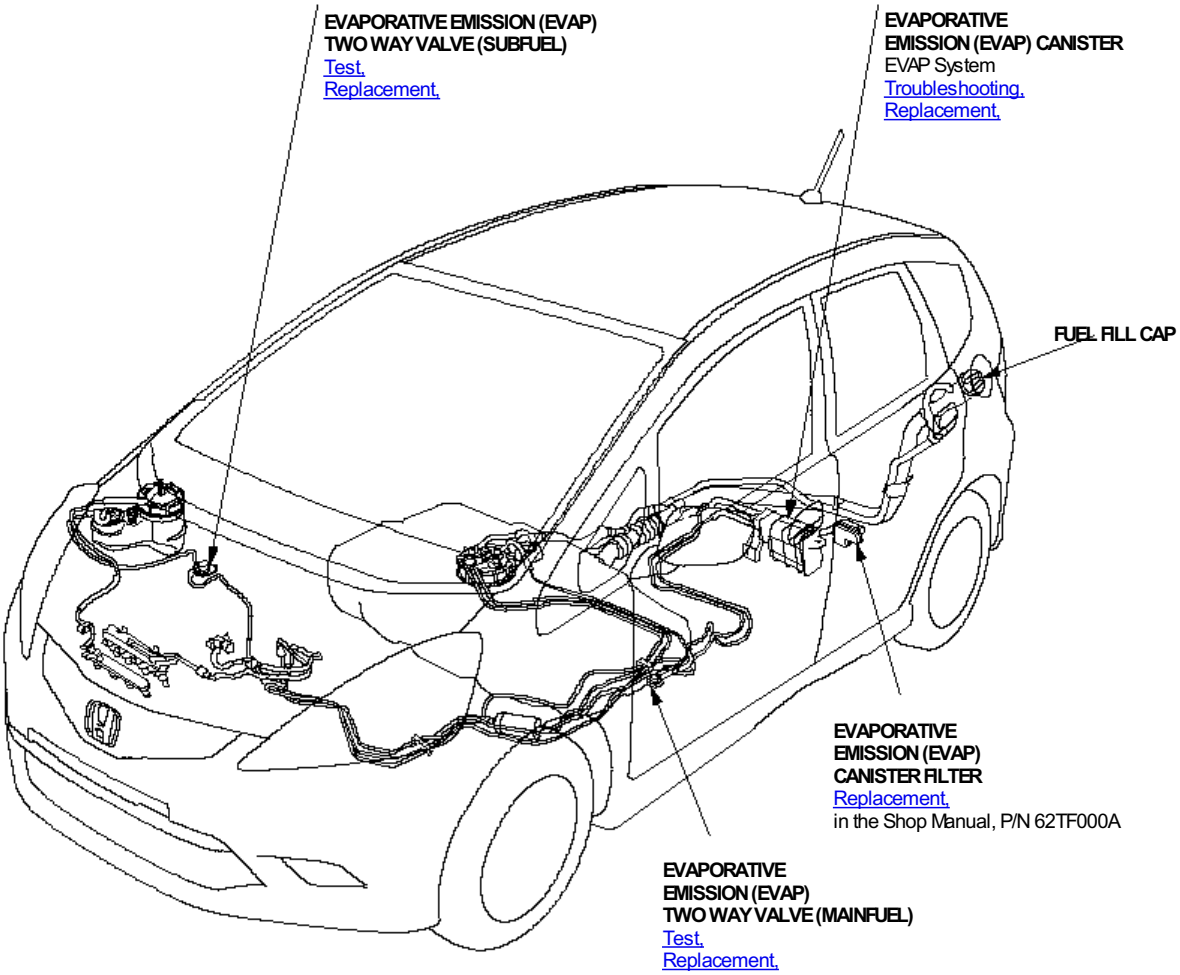
Fuel and Emissions System Description - Vacuum Lines

[Vacuum Hose Routing]
[Vacuum Distribution]

Fuel and Emissions System Description - EVAP Control Diagram

Evaporative Emission (EVAP) Control Diagram

EVAP System Component Location Index



EVAP System Troubleshooting

1. Disconnect the vacuum hose (A) from the EVAP canister purge valve (B) and connect a vacuum pump/gauge (C) to the hose.
2. Start the engine, and let it idle.
   NOTE: Engine coolant temperature must be below 60 °C (140 °F).

   Is there vacuum?
   YES - Inspect vacuum hose routing. If OK, replace the EVAP canister purge valve.■
   NO - Go to Step 3 .
3. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (A/T in N or P, M/T in neutral) until the radiator fan comes on, then hold the engine speed to 3,000 rpm (min $^{-1}$).

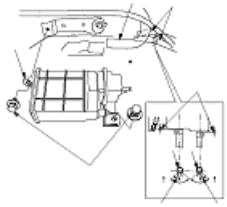
   Is there vacuum?
   YES - Go to Step 4 .
   NO - Inspect vacuum hose routing. If OK, replace the EVAP canister purge valve. ■
4. Turn the ignition switch to LOCK (0).
5. Reconnect the vacuum hose to the EVAP canister purge valve.
6. Remove the fuel fill cap.
7. Lift the vehicle, and support it with jackstands.

8. Disconnect drain tube (A) from the EVAP canister and connect the combination gauge kit and tube joint adapter to EVAP canister (B).
9. Lower the vehicle.
10. Start the engine and raise speed to 3,000 rpm (min $^{-1}$).

    Does vacuum appear on gauge within 1 minute?
    YES - See EVAP two way valve test to complete. Evaporative emission controls are OK.■
    NO - Replace the EVAP canister. ■

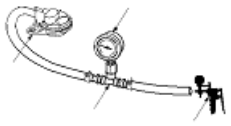
EVAP Canister Replacement

1. Lift the vehicle, and support it with jackstands.
2. Disconnect the hoses (A) and tube (B).
3. Remove the EVAP canister (C).
4. Install the parts in the reverse order of removal.
   NOTE: Align the marks (D) on the hose as shown, then insert the hose. Make sure the clamp is positioned as shown.



EVAP Two Way Valve Test

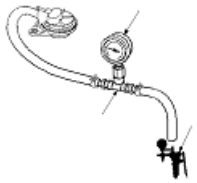
Special Tools Required



Combination gauge kit 20/−100 kPa
07YAJ-0010610

Tube joint adapter
07410-5790503

1. Remove the fuel fill cap.
2. Remove the EVAP two way valve.
3. Disconnect the vapor line from the EVAP two way valve (A). Connect it to the combination gauge kit and tube joint adapter and the vacuum pump (B) as shown.
4. Apply vacuum slowly and continuously while watching the gauge. The valve should open below 1.33 kPa (1.0 mmHg, 0.04 in.Hg).
   - If the vacuum hold below 1.33 kPa (1.0 mmHg, 0.04 in.Hg), go to Step 5 .
   - If the vacuum doesn't hold, replace the EVAP two way valve.

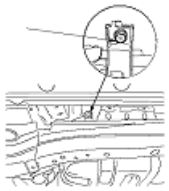


5. Move the vacuum pump from the vacuum fitting to the pressure fitting (A) as shown.
6. Slowly pressurize the vapor line while watching the gauge. The valve should open above 5.07 kPa (38 mmHg, 1.5 in.Hg).
   - If the pressure hold below 5.07 kPa (38 mmHg, 1.5 in.Hg), the valve is OK.
   - If the pressure doesn't hold, replace the EVAP two way valve.

EVAP Two Way Valve Replacement

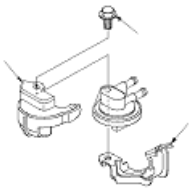
MAINFUEL

1. Lift the vehicle, and support with jackstands.
2. Remove the bolt (A).



3. Pull the EVAP two way valve (A) and the hoses (B) out of the frame.
4. Disconnect the hoses (B) from the EVAP two way valve (A).

5. Remove the EVAP two way valve lower stay (A) and EVAP two way valve cover (B).
6. Install the parts in the reverse order of removal.

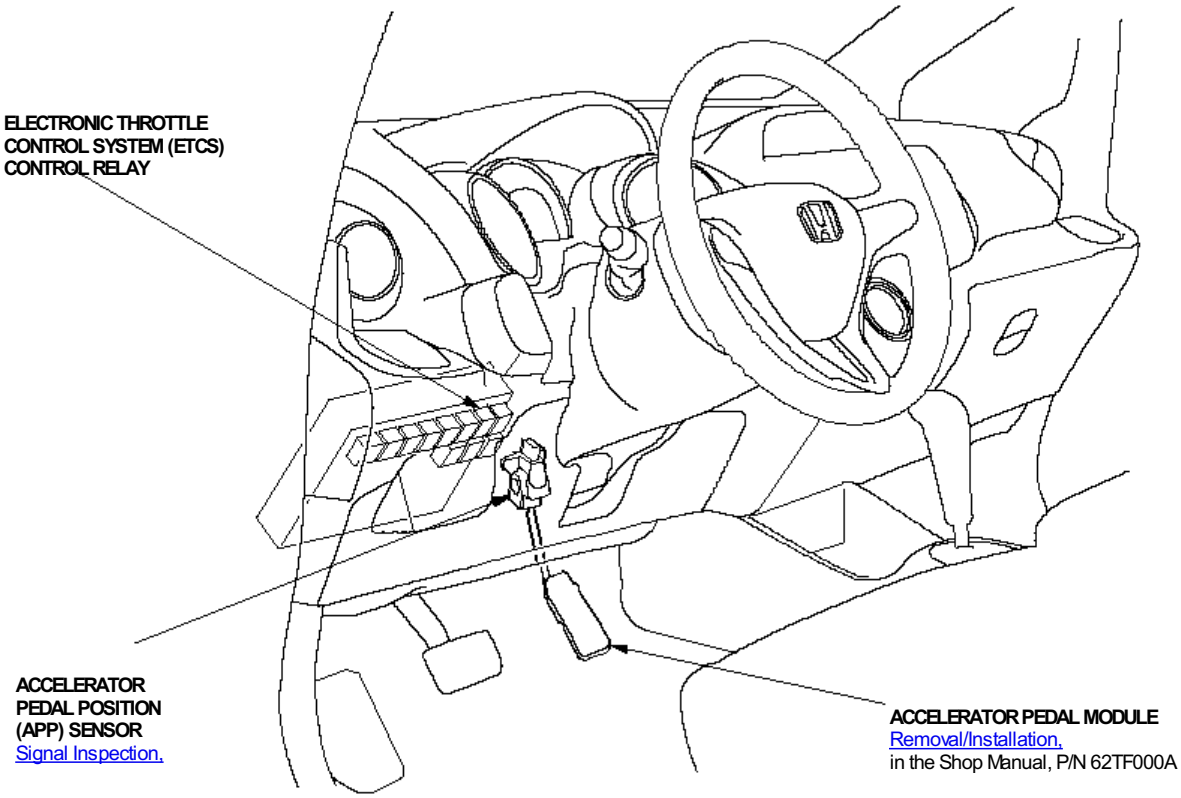


Subfuel

1. Remove the EVAP two way valve cover (A).

2. Disconnect the hoses (A).
3. Remove the nut (B).
4. Remove the EVAP two way valve (C).
5. Install the parts in the reverse order of removal.

Electronic Throttle Control System Component Location Index



APP Sensor Signal Inspection

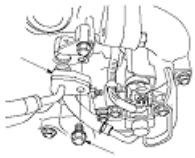
NOTE:

- This procedure checks the APP sensor in this fully closed position. In any other position, the APP sensor stores DTCs which are covered in other troubleshooting procedures.
- Check for Temporary DTCs or DTCs with the HDS before doing this procedure. If any DTCs are indicated, troubleshoot them first, then do this procedure.
- Press the accelerator pedal several times to check its operation. If it does not operate smoothly, check the pedal. If you find a problem, replace the accelerator pedal module.

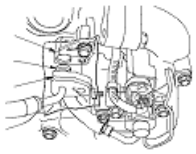
1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the ECM/PCM. If it doesn't, go to the DLC circuit troubleshooting.
4. Make sure the accelerator pedal is not pressed, then check the APP SENSOR in the DATA LIST with the HDS.
   - If it is 0 %, the APP sensor is OK.
   - If it is not 0 %, update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then go to Step 5 .
5. Make sure the accelerator pedal is not pressed, then check the APP SENSOR in the DATA LIST with the HDS.
   - If it is 0 %, the APP sensor is OK.
   - If it is not 0 %, replace the accelerator pedal module, then go to Step 1 .

Subfuel Pressure Relieving

Before disconnecting subfuel lines or hoses, relieve pressure from the system by disabling the subfuel pump and then disconnecting the fuel tube/quick connect fitting in the engine compartment.



1. Do the battery terminal disconnection procedure.
2. Remove the subfuel fill cap, then retighten the subfuel cap.
3. Remove the bolt (A), then disconnect the subfuel feed line (B).



4. Place a rag or shop towel over the subfuel feed line (A) and (B).
5. Install the parts in the reverse order of removal, with a new O-ring (C).
6. Do the battery terminal reconnection procedure.
7. Turn the ignition switch to ON (II), but do not operate the starter. After the subfuel pump runs for about 2 seconds, the fuel pressure in the line rises. Repeat this two or three times, then check for fuel leakage.

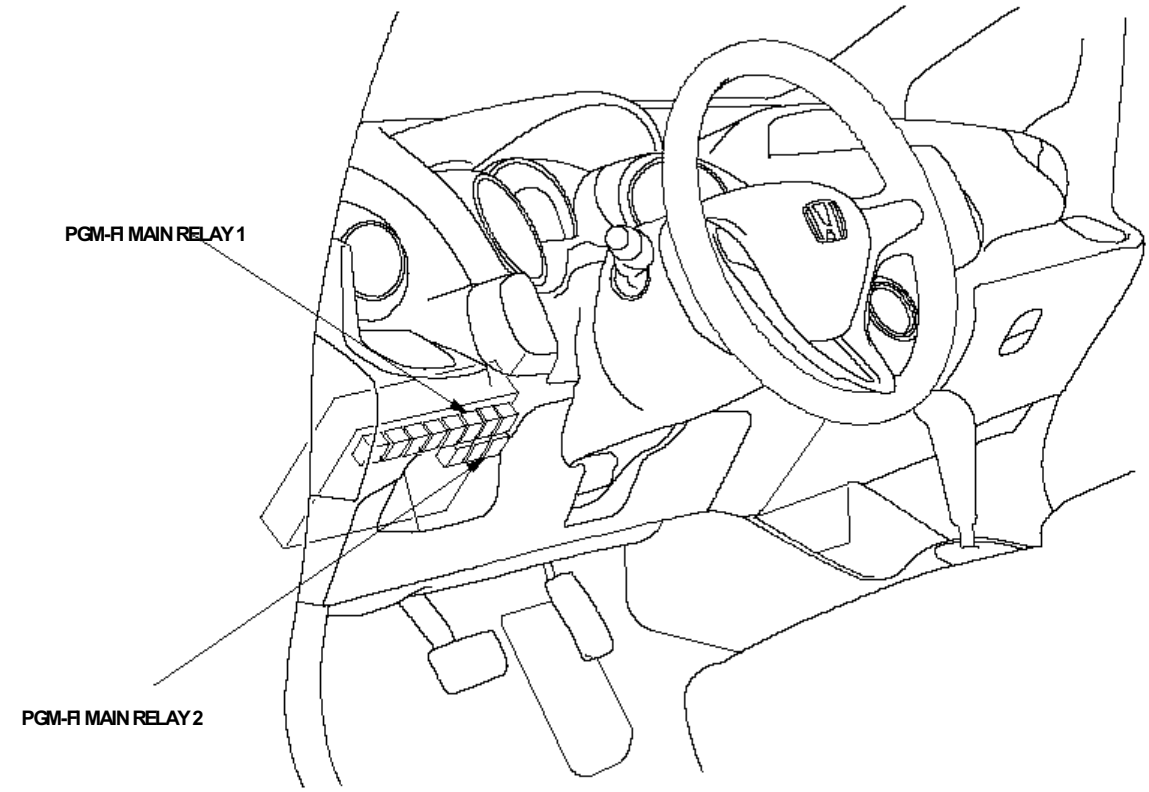
Fuel and Emissions System Description - Fuel Supply System

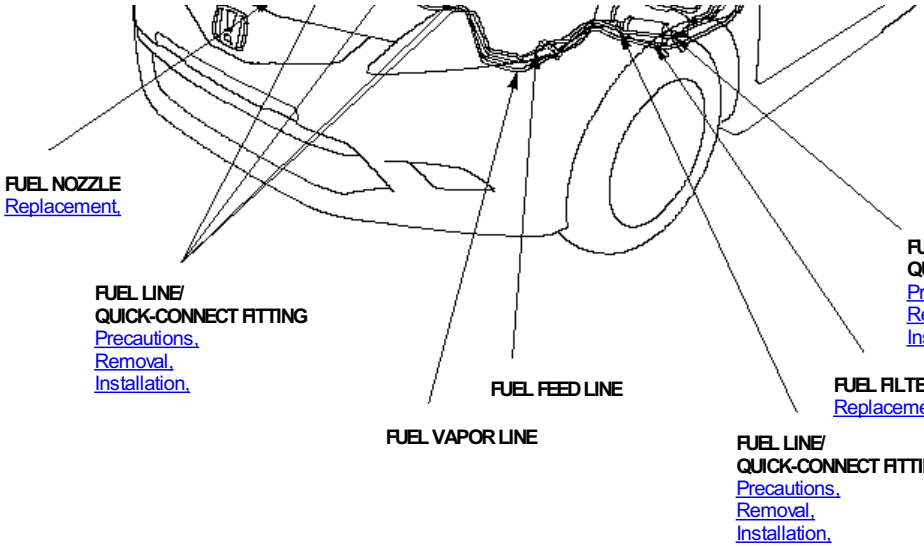
Fuel Supply System

Fuel and Emissions System Description - Subfuel Supply System

Subfuel Supply System

Fuel Supply System Component Location Index





Removal and Installation,

FUEL PUMP
Circuit Troubleshooting,

Replacement,
FUEL GAUGE SENDING UNIT
Test,
Replacement,

FUEL NOZZLE
Replacement,

FUEL LINE/
QUICK-CONNECT FITTING
Precautions,
Removal,
Installation,

FUEL LINE/
QUICK-CONNECT FITTING
Precautions,
Removal,
Installation,

FUEL FEED LINE

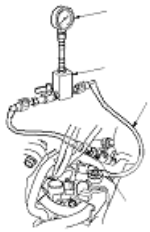
FUEL VAPOR LINE

FUEL FILTER
Replacement,

FUEL LINE/
QUICK-CONNECT FITTING
Precautions,
Removal,
Installation,

Fuel Pressure Test

Special Tools Required



Fuel gauge assy. 600 kPa
07406-0040004

Fuel pressure gauge attachment set
07ZAJ-S5A0101

Fuel attachment C hose
07ZAJ-S7C0100

Fuel attachment C joint
07ZAJ-S7C0200

1. Relieve the fuel pressure.
2. Disconnect the quick-connect fitting. Attach the fuel pressure gauge set and the fuel gauge assy.
3. Start the engine, and let it idle.
   - If the engine starts, go to Step 5 .
   - If the engine does not start, go to Step 4 .
4. Check to see if the fuel pump is running: Listen to the fuel filler port with the fuel fill cap removed. The fuel pump should run for 2 seconds when the ignition switch is first turned on.
   - If the pump runs, go to Step 5 .
   - If the pump does not run, do the fuel pump circuit troubleshooting.
5. Read the fuel pressure gauge. The pressure should be 380−430 kPa (3.9−4.4 kgf/cm ^{2} , 55−63 psi).
   - If the pressure is OK, the test is complete.
   - If the pressure is out of specification, replace the fuel pump and the fuel filter, then recheck the fuel pressure.

Subfuel Pressure Test

Special Tools Required

Fuel pressure gauge
07406-0040004

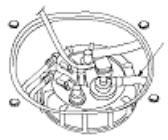
1. Relieve the subfuel pressure.
2. Disconnect the fuel feed line. Attach the fuel pressure gauge.
3. Turn the ignition switch to ON (II).
4. Read the fuel pressure gauge. The pressure should be 200−250 kPa (2.0−2.5 kgf/cm ^{2} , 28−36 psi).
   - If the pressure is OK, the test is complete.
   - If the pressure is out of specification, replace the subfuel pump, then recheck the subfuel pressure.

Subfuel pressure

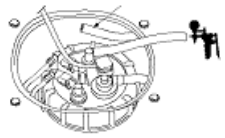
Item	Measurement	Qualification	Standard or New
Subfuel pressure	Pressure with fuel pressure gauge connected		200−250 kPa (2.0−2.5 kgf/cm ^{2} , 28−36 psi)

Fuel Breather Line and Suction Line Inspection

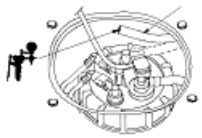
1. Remove the center console.
2. Remove the parking brake lever, then remove the access panel from the floor.
3. Disconnect the fuel vapor hose (A) from the fuel tank unit and let the fuel tank pressure out of a fuel tank.
4. Reconnect the fuel vapor hose (A).



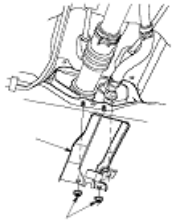
5. Disconnect the suction line (A) from the fuel tank unit, and connect a vacuum pump/gauge, 0−30 in.Hg (B) to the hose as shown.
6. Start the engine, and check the vacuum.
   - If there is vacuum, go to Step 7 .
   - If there is no vacuum, replace the fuel filter.
7. Turn the ignition switch to LOCK (0).



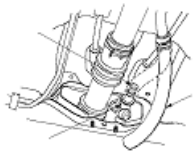
8. Connect a vacuum pump/gauge, 0−30 in.Hg (A) to the suction line (B), and apply vacuum to the line.
   - If the line holds vacuum, check for blockage in the suction line. If there is blockage, replace the suction line.
   - If the line does not hold vacuum, go to Step 9 .
9. Lift the vehicle, and support it with jackstands.



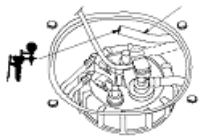
10. Remove the fill neck tube cover (A).



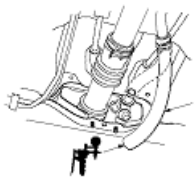
11. Disconnect the breather line (A), then plug the suction joint (B) with a rubber cap (C).



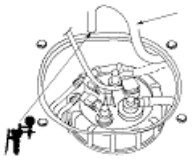
12. Connect a vacuum pump/gauge, 0−30 in.Hg (A) to the suction line (B), and apply vacuum to the line.
    - If the line holds vacuum, check for blockage in the breather line between the fuel tank and the suction joint. If there is blockage, replace the fuel tank.
    - If the line does not hold vacuum, go to Step 14 .
13. Lift the vehicle, and support it with jackstands.



14. Connect a vacuum pump/gauge, 0−30 in.Hg (A) to the filler side of the breather line (B), and apply air pressure to the line.
    - If the air pressure holds, check for blockage between the suction line and the filler neck on the breather pipe, and replace the part that is causing the blockage.
    - If the air pressure does not hold, go to Step 15 .
15. Remove the rubber cap from the suction line, and reconnect the breather pipe to the suction line.

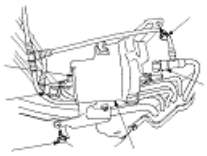


16. Connect a vacuum pump/gauge, 0−30 in.Hg (A) to the suction line (B), and apply pressure to the line.
    - If the air pressure holds, the breather line and the suction line are OK.
    - If the air pressure does not hold, check for a vacuum leak in the suction line, and replace the suction line if necessary.

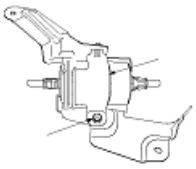


Fuel Filter Replacement

1. Relieve the fuel pressure.
2. Lift the vehicle, and support it with jackstands.
3. Remove the bolt (A).
4. Disconnect the quick-connect fittings (A).
5. Remove the fuel filter (C), and the fuel filter band (D).

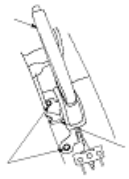


6. Remove the bolt (A), then open the band (B).
7. Install the parts in the reverse order of removal with new retainers.

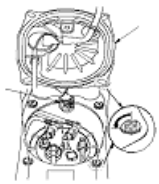


Fuel Gauge Sending Unit Test

NOTE: For the fuel gauge system circuit diagram, refer to the Gauges Circuit Diagram.

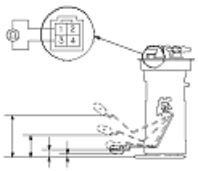


1. Check the No. 22 METER (7.5 A) fuse in the under-dash fuse/relay box before testing.
2. Check for body electrical system DTCs.
   - If no problem is found, go to Step 3 .
   - If DTC B1175 or B1176 is indicated, go to the indicated DTC's troubleshooting.
3. Turn the ignition switch to LOCK (0).
4. Remove the center console.
5. Remove the bolts (A), the wire (B), then remove the parking brake lever (C).



6. Remove the access panel (A) from the floor.
7. Disconnect the fuel tank unit 4P connector (B).

8. Measure the voltage between fuel tank unit 4P connector terminals No. 1 and No. 3 with the ignition switch to ON (II). There should be battery voltage.
   - If the voltage is OK, go to Step 9 .
   - If the voltage is not as specified, check for:
     - a short in the LT GRN wire to ground.
     - an open in the LT GRN or BLK wire.
9. Turn the ignition switch to LOCK (0).
10. Remove the fuel tank unit from the fuel tank.



11. Measure the resistance between fuel tank unit 4P connector terminals No. 1 and No. 3 with the float at E (EMPTY), LOW (LOW FUEL INDICATOR), 1/2 (HALF FULL), and F (FULL) positions.
    If you do not get the following readings, replace the fuel gauge sending unit.

Float Position	F 91.2 mm (3.6 in.)	1/2 46 mm (1.8 in.)	LOW 13.7 mm (0.5 in.)	E 6 mm (0.2 in.)
Resistance (Ω)	18.5 to 21.5	203.3 to 213.3	569.1 to 583.1	772 to 788

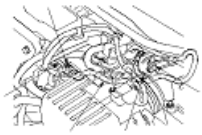
12. Reconnect the fuel tank unit 4P connector.
13. Remove the No. 1 BACK UP (7.5 A) fuse from the under-dash fuse/relay box for at least 10 seconds, then reinstall it.
14. Turn the ignition switch to ON (II).
15. Check that the pointer of the fuel gauge indicates “F" with the float at F.
    - If the pointer of the fuel gauge does not indicate “F", replace the gauge assembly.
    - If the gauge is OK, the test is complete.

    NOTE:
    - The pointer of the fuel gauge returns to the bottom of the gauge dial when the ignition switch is to LOCK (0), regardless of the fuel level.
    - Remove the No. 1 BACK UP (7.5 A) fuse from the under-dash fuse/relay box for at least 10 seconds after completing troubleshooting, otherwise it may take up to 20 minutes for the fuel gauge to indicate the correct fuel level.

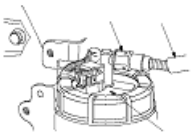
Fuel Indicator Unit Replacement

1. Lower the glove box.
2. Disconnect the fuel indicator connector (A).
3. Remove the fuel indicator unit (B).
4. Install the parts in the reverse order of removal.

Fuel Line/Quick-Connect Fitting Precaution



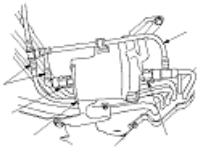
The fuel line/quick-connect fittings (A), (B), (C), and (D) connect the fuel rail (E) to the fuel feed hose (F), the fuel feed hose to the fuel line (G), the subfuel pump (H) to the subfuel feed hose (I), the fuel line (J) to the fuel tank unit (K), the fuel filter (L) to the fuel feed hose (M).
When removing or installing the fuel feed hose, the fuel tank unit, the fuel tank, the subfuel tank, the subfuel pump, the subfuel feed hose, or the fuel return hose, it is necessary to disconnect or connect the quick-connect fittings.
Pay attention to the following:



- The fuel feed hoses, fuel line, subfuel feed hose, and quick-connect fittings are not heat-resistant; be careful not to damage them during welding or other heat-generating procedures.
- The fuel feed hoses, fuel line, subfuel feed hose, and quick-connect fittings are not acid-proof; do not touch them with a shop towel that was used for wiping battery electrolyte. Replace them if they come in contact with electrolyte or something similar.
- When connecting or disconnecting the fuel feed hoses, fuel line, subfuel feed hose, and quick-connect fittings, be careful not to bend or twist them excessively. Replace them if they are damaged.

A disconnected quick-connect fitting can be reconnected, but the retainer on the mating line cannot be reused once it has been removed from the line. Replace the retainer when:

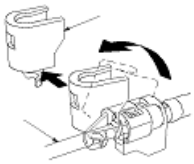
- replacing the fuel rail.
- replacing the fuel line.
- replacing the fuel pump.
- replacing the fuel filter.
- replacing the fuel gauge sending unit.
- replacing the subfuel tank.
- replacing the subfuel pump.
- it has been removed from the line.
- it is damaged.



Location	Manufacturer	Retainer color	Line diameter
A	Tokai	Green or BLUE	8 mm (0.31 in.)
B	Sanoh	GREEN	6.3 mm (0.25 in.)
C	Sanoh	White	9.5 mm (0.37 in.)
D	Sanoh	White	8 mm (0.31 in.)

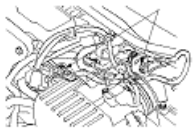
Fuel Line/Quick-Connect Fitting Removal

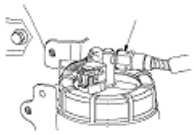
NOTE: Before you work on fuel the lines and fittings, read the "Fuel Line/Quick-Connect Fitting Precautions".

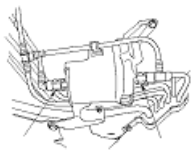


1. If equipped, remove the quick-connect fitting cover from the fuel line. Raise the cover (A) the fuel line (B), and remove it as shown.
2. Relieve the fuel pressure, and the subfuel pressure.

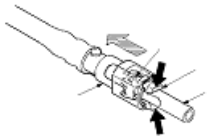
3. Check the fuel quick-connect fittings (A) for dirt, and clean them if needed.



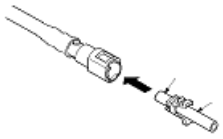




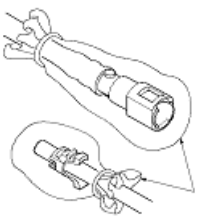
4. Place a rag or shop towel over the quick-connect fitting. Hold the connector (A) with one hand, and squeeze the retainer tabs (B) with the other hand to release them from the locking tabs (C). Pull the connector off.
   NOTE:
   - Be careful not to damage the line (D) or other parts. Do not use tools.
   - If the connector does not move, keep the retainer tabs pressed down, and alternately pull and push the connector until it comes off easily.
   - Do not remove the retainer from the line; once removed, the retainer must be replaced with a new one.



5. Check the contact area (A) of the line (B) for dirt or damage.
   - If it is dirty, clean the connector with a pressure washer, and dry it with the compressed air.
   - If it is rusty or damaged, replace the fuel filter, or the fuel feed line.



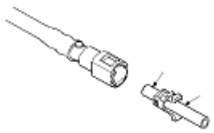
6. To prevent damage and keep foreign matter out, cover the disconnected connector and line ends with plastic bags (A).
   NOTE: The retainer cannot be reused once it has been removed from the line.
   Replace the retainer when:
   - replacing the fuel rail.
   - replacing the fuel feed line.
   - replacing the fuel pump.
   - replacing the fuel filter.
   - replacing the fuel gauge sending unit.
   - replacing the subfuel tank.
   - replacing the subfuel pump.
   - it has been removed from the line.
   - it is damaged.



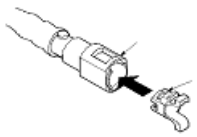
Fuel Line/Quick-Connect Fitting Installation

NOTE: Before you work on fuel lines and fittings, read the "Fuel Line/Quick-Connect Fitting Precautions".

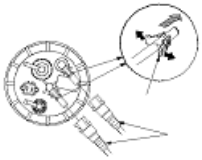
1. Check the contact area (A) of the line (B) for dirt or damage, and clean it if needed.

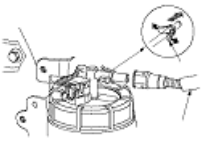


2. Insert a new retainer (A) into the connector (B) if the retainer is damaged, or after:
   - replacing the fuel rail.
   - replacing the fuel feed line.
   - replacing the fuel pump.
   - replacing the fuel filter.
   - replacing the fuel gauge sending unit.
   - replacing the subfuel tank.
   - replacing the subfuel pump.
   - removing the retainer from the line.
   - Use the same manufacturer retainer and the same size retainer when the replacing the retainer.



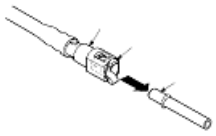
3. Before connecting a new fuel tube/quick-connect fitting assembly (A), remove the old retainer (B) from the mating line.
   NOTE:
   - When replacing the fuel tube/quick-connect fitting assembly at the engine compartment, remove the air cleaner, and the cover (C).
   - When installing the fuel tube/quick-connect fitting assembly at the engine compartment, align the mark (D) on the fuel tube.



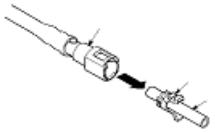


4. Align the quick-connect fittings with the line (A), and align the retainer locking tabs (B) with the connector grooves (C). Then press the quick-connect fittings onto the line until both retainer tabs lock with a clicking sound.
   NOTE: If it is hard to connect, put a small amount of new engine oil on the line end.

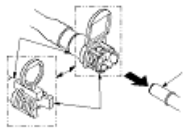
Connection with new retainer



Reconnection to existing retainer

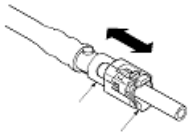


Connection to new fuel line

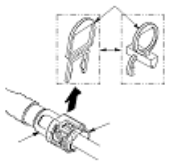


5. When you reconnecting the connector with the old retainer, make sure the connection is secure and the tabs (A) are firmly locked into place; check visually and also by pulling the connector (B). When you replacing the fuel line with a new one, make sure you remove the ring pull (C) upwards after you confirm the connection is secure.
   NOTE: Before you remove the ring pull, make sure the fuel line connection is secure. If the connection is not secure, the ring pull could break when you try to remove it.
6. Reconnect the negative cable to the battery, and turn the ignition switch to ON (II) (but do not operate the starter motor). The fuel pump will run for about 2 seconds, and fuel pressure will rise. Repeat two or three times, and check that there is no leakage in the fuel supply system.

Reconnection to existing retainer



Connection to new fuel line



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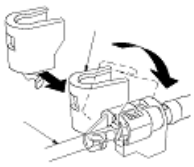
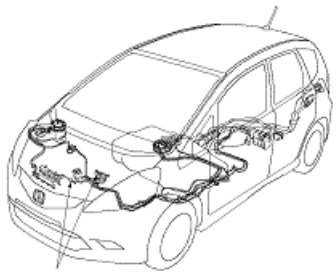
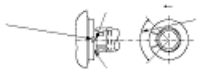
7. If equipped, install the quick-connect fitting cover. Set the groove of the cover (A) on the fuel line (B) as shown, then install it. Make sure the cover is firmly locked in place.



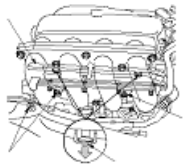
Fuel Line Inspection



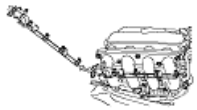


Fuel Nozzle Replacement

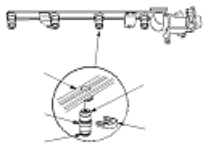
1. Relieve subfuel pressure.
2. Remove the subfuel solenoid.
3. Push the engine wire harness holder lock (A).
4. Remove the engine wire harness holder (B) from the injector pipe, and put it on the injector pipe.
5. Remove the subfuel pipe mounting bolts (C).



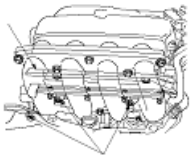
6. Pull out the subfuel pipe from the intake manifold, then rotate it forward 180° and pull it out in the direction shown.
   NOTE: Do not scratch or damage the surface of the subfuel nozzle.



7. Remove the clip (A), and the nozzle (B).
8. Coat the new O-ring (C) with clean engine oil, and insert the fuel nozzle (B) with the clip (A) into the subfuel pipe (D).
9. Coat the new O-ring (E) with clean engine oil, insert the fuel nozzle.
10. Install the subfuel pipe and the subfuel nozzle in the reverse order of removal.
    NOTE: Do not scratch or damage the surface of the subfuel nozzle and O-ring.



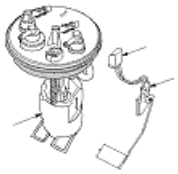
11. Install the subfuel pipe mounting bolts (A).
12. Install the engine wire harness holder (B).
13. Install the subfuel solenoid.
14. Turn the ignition switch to ON (II), but do not operate the starter. After the subfuel pump runs for about 2 seconds, the fuel pressure in the fuel line rises. Repeat this two or three times, then check for fuel leakage.
15. Install the intake manifold stay.



Fuel pressure regulator

Item	Measurement	Qualification	Standard or New
Fuel pressure regulator	Pressure with fuel pressure gauge connected		380−430 kPa (3.9−4.4 kgf/cm ^{2} , 55−63 psi)

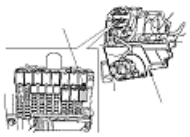
Fuel Pump/Fuel Gauge Sending Unit Replacement



1. Remove the fuel tank unit.
2. Remove the fuel level sensor (fuel sending unit) (A) from the fuel tank unit (B).
3. Check these items before installing the fuel tank unit:
   - When connecting the wire harness, make sure the connection is secure and the connector (C) is firmly locked into place.
   - When installing the fuel gauge sending unit, make sure the connection is secure. Be careful not to bend or twist it excessively.
4. Install the parts in the reverse order of removal. When installing the fuel tank unit, align the marks on the unit and the fuel tank.

Fuel Pump Circuit Troubleshooting

If you suspect a problem with the fuel pump, check that the fuel pump actually runs; when it is on, you will hear some noise if you listen to the fuel fill port with the fuel fill cap removed. The fuel pump should run for 2 seconds when the ignition switch is turned on. If the fuel pump does not make noise, check as follows:



1. Turn the ignition switch to LOCK (0).
2. Open the fuse lid (A), then remove PGM-FI main relay 2 (B) from the under-dash fuse/relay box.
3. Turn the ignition switch to ON (II).

---

4. Measure the voltage between PGM-FI main relay 2 4P connector terminal No. 4 and body ground.

Is there battery voltage?
YES - Go to Step 5 .
NO -
- Replace the under-dash fuse/relay box. ■
- Replace the PGM-FI main relay 1 .■

---

5. Measure the voltage between PGM-FI main relay 2 4P connector terminal No. 2 and body ground.

Is there battery voltage?
YES - Go to Step 6
NO -
- Check the No. 20 FUEL PUMP (15 A) fuse in the under-dash fuse/relay box.■
- If the fuse is OK, replace the under-dash fuse/relay box. ■

6. Turn the ignition switch to LOCK (0).

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7. Connect PGM-FI main relay 2 4P connector terminal No. 3 to body ground with a jumper wire.
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).

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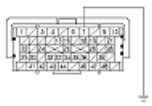
10. Check for continuity between body ground and ECM/PCM connector terminal A16.

Is there continuity?
YES - Go to Step 11 .
NO - Repair open in the wire between PGM-FI main relay 2 and the ECM/PCM (A16).■
11. Reinstall PGM-FI main relay 2.

---

12. Connect ECM/PCM connector terminal A7 to body ground with a jumper wire.
13. Turn the ignition switch to ON (II).



---

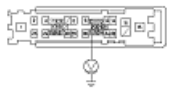
14. Measure the voltage between ECM/PCM connector terminal A16 and body ground.

Is there battery voltage?
YES - Go to Step 15 .
NO -
- Repair open in the wire between the under-dash fuse/relay box and the ECM/PCM (A7, A16).■
- Replace PGM-FI main relay 2. ■

15. Turn the ignition switch to LOCK (0).
16. Reconnect ECM/PCM connector A (49P).

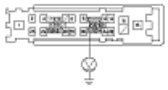
---

17. Turn the ignition switch to ON (II), and measure the voltage between under-dash fuse/relay box connector B (36P) terminal No. 31 and body ground within 2 seconds.



Is there battery voltage?
YES - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■
NO - Go to Step 18 .

18. Turn the ignition switch to ON (II), and measure the voltage between under-dash fuse/relay box connector B (36P) terminal No. 31 and body ground after 2 seconds.



Is there battery voltage?
YES - Go to Step 19 .
NO - If needed, replace the under-dash fuse/relay box, then go to Step 19 .

19. Turn the ignition switch to LOCK (0).

20. Remove the center console.

21. Remove the parking brake lever, then remove the access panel from the floor.

---

22. Turn the ignition switch to ON (II), and measure the voltage between fuel tank unit 4P connector terminal No. 2 and body ground within 2 seconds.

Is there battery voltage?
YES - Go to Step 27 .
NO - Go to Step 23 .

23. Turn the ignition switch to LOCK (0).

24. Remove PGM-FI main relay 2.

---

25. Connect PGM-FI main relay 2 4P connector terminals No. 1 and No. 2 with a jumper wire.

---

26. Turn the ignition switch to ON (II), and measure the voltage between fuel tank unit 4P connector terminal No. 2 and body ground.

Is there battery voltage?
YES - Replace PGM-FI main relay 2 .■
NO - Repair open in the wire between PGM-FI main relay 2 and the fuel tank unit 4P connector.■

27. Turn the ignition switch to LOCK (0).

---

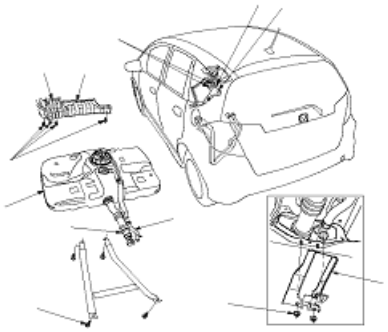
28. Check for continuity between fuel tank unit 4P connector terminal No. 4 and body ground.

Is there continuity?
YES - Replace the fuel pump. ■
NO - Repair open in the wire between the fuel tank unit 4P connector and G502. ■

Fuel Tank Draining

1. Remove the fuel tank unit.
2. Using a hand pump, a hose, and a container suitable for fuel, draw the fuel from the fuel tank.
3. Reinstall the fuel tank unit.

Fuel Tank Replacement



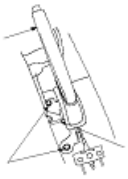
1. Drain the fuel tank, then disconnect the fuel tank unit 4P connector (A), the fuel vapor hose (B), and the quick-connect fittings (C).
2. Lift the vehicle, and support it with jackstands.
3. Remove the fill neck tube cover (D), then disconnect the fuel fill tube (E) and the suction hose (F). Slide back the clamps, then twist the hoses as you pull to avoid damaging them.
4. Remove the fuel tank guard bracket (G) and the fuel tank protector (H).
5. Place a jack or other support under the tank (I).
6. Remove the strap bolts and the straps (J).
7. Remove the fuel tank.
8. Install the parts in the reverse order of removal.

Fuel tank

Item	Measurement	Qualification	Standard or New
Fuel tank	Capacity		42 L (11.0 US gal, 9.2 Imp gal)

Fuel Tank Unit Removal and Installation

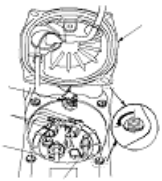
Special Tools Required



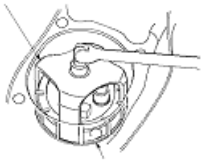
Fuel sender wrench
07AAA-S0XA100

Removal

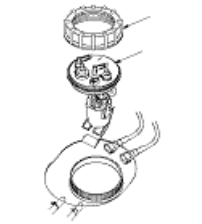
1. Relieve the fuel pressure.
2. Remove the center console.
3. Remove the bolts (A), the wire harness (B), the remove the parking brake lever (C).



4. Remove the access panel (A) from the floor.
5. Disconnect the fuel tank unit 4P connector (B).
6. Disconnect the fuel vapor hose (C), the suction hose (D), the quick-connect fittings (E) from the fuel tank unit.



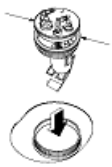
7. Using the special tool, loosen the locknut (A).



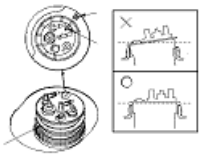
8. Remove the locknut (A) and the fuel tank unit (B).

Installation

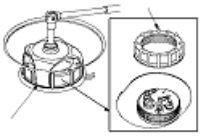
1. Temporarily attach a new base gasket (A) to the fuel tank unit (B), then insert the fuel tank unit partially into the fuel tank.
   NOTE:
   - Be careful not to damage the new base gasket.
   - Be careful not to bend the fuel gauge sending unit.
   - Do not coat the base gasket with oil.



2. Transfer the base gasket (A) from the fuel tank unit to the fuel tank.
3. Align the marks (B) on the fuel tank and fuel tank unit, then insert the fuel tank unit into the fuel tank until the fuel tank unit rests on top of the base gasket.
   NOTE: To avoid a fuel leak, check the base gasket, visually or by hand, to make sure it is not pinched.

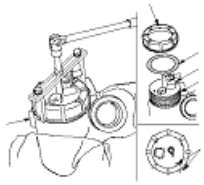


4. Using the special tool, tighten a new locknut (A) to the specified torque.
   NOTE:
   - After tightening, make sure the marks are still aligned.
   - After installation, check the base gasket, visually or by hand, to make sure it is not pinched.
5. Connect the fuel tank unit 4P connector, then connect the quick-connect fitting, the suction hose, and the fuel vapor hose.
6. Reconnect the negative cable to the battery, and turn the ignition switch to ON (II) (but do not operate the starter motor). The fuel pump will run for about 2 seconds, and fuel pressure rises. Repeat this two or three times, then check that there is no leakage in the fuel supply system.
7. Install the access panel, the parking brake lever, and the center console.



Subfuel Pump Replacement

Special Tools Required



Fuel sender wrench, clysler fuel pump module wrench
No. 7998

, or equivalent, commercially available

1. Remove the subfuel tank.
2. Set the fuel subtank (A) to the vice.
3. Using the tool, loosen the locknut (B). Remove the subfuel pump (C).
4. Install the parts in the reverse order of removal with a new gasket (D) and locknut plate (E).
   NOTE:
   - Align the marks (F) on the fuel tank and the fuel tank unit, then tighten a new locknut by hand.
   - After installation and tightening, check the base gasket visually or by hand to be sure the gasket is not pinched.
   - Do not coat the base gasket with engine oil.

Subfuel Pump Circuit Troubleshooting

If you suspect a problem with the subfuel pump, check that the subfuel pump actually runs; when it is on, you will hear some noise if you listen to the subfuel fill port with the subfuel fill cap removed. The subfuel pump should run for 2 seconds when the ignition switch is first turned on. If the subfuel pump does not make noise, check as follows:

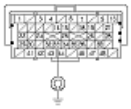
1. Turn the ignition switch to LOCK (0).
2. Remove the subfuel pump relay from the auxiliary under-hood relay box.
3. Turn the ignition switch to ON (II).
4. Measure the voltage between the subfuel pump relay 4P connector terminals No. 2, No.4 and body ground individually.

   Is there battery voltage?
   YES - Go to Step 5 .
   NO -
   - Repair open in the wire between the subfuel pump relay and the auxiliary under-dash fuse holder (15 A) fuse. Also replace the auxiliary under-hood fuse box (15 A) fuse.■
   - Repair open in the wire between the auxiliary under-dash fuse holder (15 A) fuse and the ignition switch.■

5. Turn the ignition switch to LOCK (0).

---

6. Connect subfuel pump relay 4P connector terminal No. 3 to body ground with a jumper wire.
7. Jump the SCS line with the HDS.
8. Disconnect ECM/PCM connector A (49P).



9. Check for continuity between ECM/PCM connector terminal A33 and body ground.

   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wire between the subfuel pump relay and the ECM/PCM (A33).■

10. Test the subfuel pump relay.

    Is the subfuel pump relay OK?
    YES - Go to Step 11 .
    NO - Replace the subfuel pump relay .■

11. Reinstall the subfuel pump relay.
12. Reconnect ECM/PCM connector A (49P).

---

13. Turn the ignition switch to ON (II), and measure the voltage between subfuel pump relay 4P connector terminal No. 1 and body ground within 2 seconds.

    Is there battery voltage?
    YES - Go to Step 14 .
    NO - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■

14. Turn the ignition switch to LOCK (0).
15. Remove the glove box.

---

16. Disconnect the fuel subharness 4P connector (A) from the dashboard wire harness.

---

17. Turn the ignition switch to ON (II), and measure the voltage between dashboad wire harness 4P connector terminals No. 1 and No. 2 within 2 seconds.

    Is there battery voltage?
    YES - Go to Step 20 .
    NO - Go to Step 18 .

18. Turn the ignition switch to LOCK (0).

---

19. Check for continuity between body ground and dashboad wire harness 4P connector terminal No. 2.

Is there continuity?

YES - Repair open in the wire between the subfuel pump relay and the fuel subharness 4P connector.■
NO - Repair open in the wire between the fuel subharness 4P connector and G502. ■

20. Remove the right front fender.

21. Disconnect the subfuel pump 4P connector.

---

22. Connect subfuel pump 4P connector terminal No. 2 to body ground with a jumper wire.

---

23. Check for continuity between body ground and fuel subharness 4P connector terminal No. 1.

Is there continuity?
YES - Go to Step 24 .
NO - Repair open in the wire between the subfuel pump and the fuel subharness 4P connector.■

---

24. Connect subfuel pump 4P connector terminal No. 4 to body ground with a jumper wire.

---

25. Check for continuity between body ground and fuel subharness 4P connector terminal No. 2.

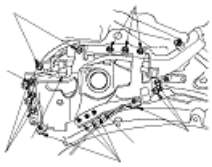
Is there continuity?
YES - Replace the subfuel pump. ■
NO - Repair open in the wire between the subfuel pump and the fuel subharness 4P connector.■

Subfuel Tank Draining

1. Remove the subfuel fill cap.
2. Using a hand pump, a hose, and a container suitable for fuel, draw the fuel from the subfuel tank.

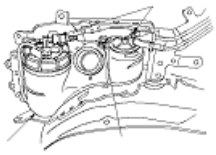
Subfuel Tank Replacement

1. Relieve the subfuel pressure.
2. Remove the front bumper.
3. Remove the right headlight.
4. Remove the front pillar corner trim.
5. Remove the right side front inner fender clips.
6. Remove the right front fender.
7. Disconnect the subfuel feed pump 4P connector (A).
8. Remove the bolt (B) from the subfuel pump subharness holder (C).
9. Remove the bolt (D) and nut (E) from the fuel subtank (F).



10. Remove the subfuel feed pipe protector (A) and (B).

11. Disconnect the hoses (A).
12. Remove the bolt (B) from the subfuel tank (C).
13. Install the parts in the reverse order of removal.



Subfuel tank

Item	Measurement	Qualification	Standard or New
Subfuel tank	Capacity		0.76 L (0.20 US gal, 0.17 Imp gal)

Subfuel Tank Low Fuel Indicator Circuit Troubleshooting

Subfuel tank Low fuel indicator does not come on

1. Turn the ignition switch to ON (II).
2. Do the gauge self-diagnostic function.

   Does the subfuel tank low fuel indicator flash?
   YES - Go to Step 3 .
   NO - Substitute a known-good gauge control module, and recheck. If the subfuel tank low fuel indicator circuit is OK, replace the original gauge control module. ■
3. Turn the ignition switch to LOCK (0).
4. Connect fuel indicator unit 5P connector terminal No. 2 to body ground with a jumper wire.
5. Turn the ignition switch to ON (II).
6. Check the subfuel tank low fuel indicator.

   Is the subfuel tank low fuel indicator indicated?
   YES - Go to Step 7 .
   NO - Go to Step 12 .
7. Turn the ignition switch to LOCK (0).
8. Disconnect the fuel indicator unit 5P connector.
9. Turn the ignition switch to ON (II).

10. Measure the voltage between fuel indicator unit 5P connector terminal No. 1 and body ground.

    Is there battery voltage?
    YES - Go to Step 11 .
    NO - Repair open in the wire between the fuel indicator unit and the No. 22 METER (7.5 A) fuse in the under-dash fuse/relay box.■

11. Measure the voltage between fuel indicator unit 5P connector terminals No. 1 and No. 5.

    Is there battery voltage?
    YES - Replace the fuel indicator unit .■
    NO - Repair open in the wire between the fuel indicator unit and G502. ■
12. Turn the ignition switch to LOCK (0).
13. Remove the gauge control module.

14. Connect gauge control module 32P connector terminal No. 15 to body ground with a jumper wire.
15. Turn the ignition switch to ON (II).
16. Check the subfuel tank low fuel indicator.

    Is the subfuel tank low fuel indicator indicated?
    YES - Repair open in the wire between the fuel indicator unit and the gauge control module.■
    NO - Replace the original gauge control module. ■

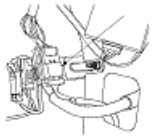
Subfuel Tank Low Fuel Indicator stays on with enough fuel

1. Turn the ignition switch to LOCK (0).
2. Turn the ignition switch to ON (II), and watch the subfuel tank low fuel indicator.

   Does the subfuel tank low fuel indicator stay on for more than 2 seconds after turning the ignition switch to ON (II)?
   YES - Go to Step 17 .
   NO - Go to Step 3 .
3. Measure the voltage between fuel indicator unit 5P connector terminal No. 4 and body ground.

   Is there battery voltage?
   YES - Go to Step 4 .
   NO - Replace the fuel indicator unit.
4. Turn the ignition switch to LOCK (0).
5. Remove the glove box.

6. Disconnect the fuel subharness 4P connector (A) from the dashboard wire harness.
7. Turn the ignition switch to ON (II).



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8. Measure the voltage between dashboard wire harness 4P connector terminal No. 4 and body ground.

   Is there battery voltage?
   YES - Go to Step 9 .
   NO - Repair open in the wire between the fuel indicator unit (sensor out line) and the fuel subharness.■

---

9. Measure the voltage between dashboard wire harness 4P connector terminals No. 3 and No. 4.

   Is there battery voltage?
   YES - Go to Step 10 .
   NO - Repair open in the wire between the fuel indicator unit (sensor in line) and the fuel subharness.■

10. Turn the ignition switch to LOCK (0).
11. Reconnect the fuel subharness 4P connector to the dashboard wire harness.
12. Remove the right front fender.
13. Disconnect the subfuel pump 4P connector.
14. Turn the ignition switch to ON (II).

---

15. Measure the voltage between subfuel pump 4P connector terminal No. 3 and body ground.

   Is there battery voltage?
   YES - Go to Step 16 .
   NO - Repair open in the wire between the dashboard wire harness (sensor out line) and the subfuel pump.■

---

16. Measure the voltage between subfuel pump 4P connector terminals No. 1 and No. 3.

   Is there battery voltage?
   YES - Replace the subfuel pump. ■
   NO - Repair open in the wire between the fuel subharness (sensor in line) and the subfuel pump.■

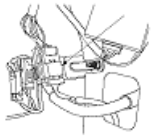
17. Turn the ignition switch to LOCK (0).
18. Disconnect the fuel indicator unit 5P connector.
19. Turn the ignition switch to ON (II), and watch the subfuel tank low fuel indicator.

   Does the subfuel tank low fuel indicator stay on for more than 2 seconds after turning the ignition switch to ON (II)?
   YES - Repair short in the wire between the fuel indicator unit and the gauge control module.■
   NO - Go to Step 20 .

20. Turn the ignition switch to LOCK (0).
21. Remove the glove box.

---

22. Disconnect the fuel subharness 4P connector (A) from the dashboard wire harness.



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23. Check for continuity between dashboard wire harness 4P connector terminal No. 4 and body ground.

   Is there continuity?
   YES - Repair short in the wire between the fuel indicator unit (sensor out line) and the fuel subharness.■
   NO - Go to Step 24 .

24. Remove the right front fender.
25. Disconnect the subfuel pump 4P connector.

---

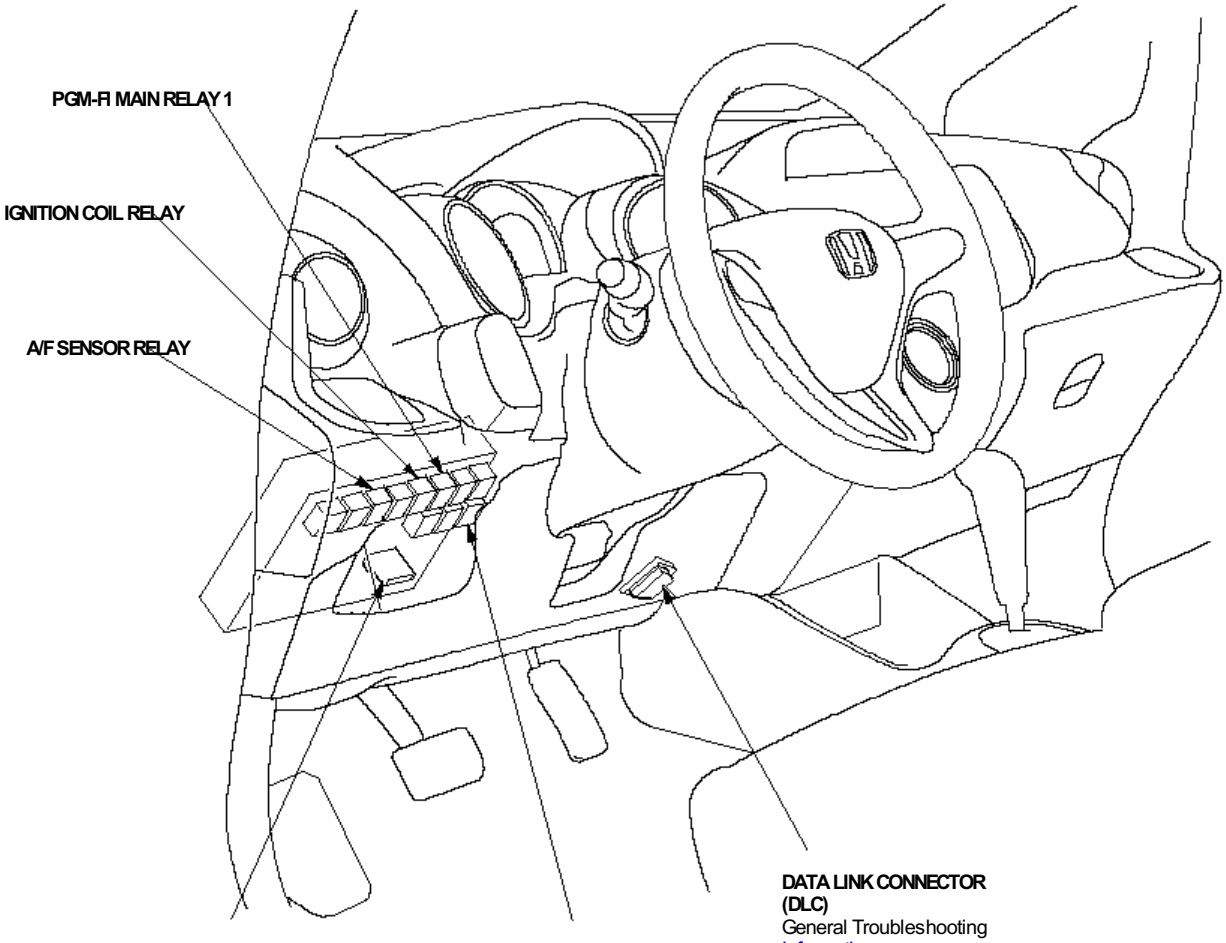
26. Check for continuity between subfuel pump 4P connector terminal No. 3 and body ground.

Is there continuity?

YES - Repair short in the wire between the dashboard wire harness (sensor out line) and the subfuel pump.■

NO - Replace the fuel indicator unit .■

PGM-FI System Component Location Index



ELECTRICAL LOAD DETECTOR (ELD)
Replacement,
in the Shop Manual, P/N 62TF000A

PGM-FI MAIN RELAY 2

DATA LINK CONNECTOR (DLC)
General Troubleshooting Information,
Circuit Troubleshooting,

INJECTORS
Replacement,

SPEED SENSOR (M/T)
Replacement,
in the Shop Manual, P/N 62TF000A

KNOCK SENSOR
Replacement,

in the Shop Manual, P/N 62TF000A

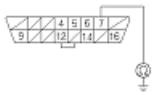
CRANKSHAFT POSITION (CKP) SENSOR
Replacement,
in the Shop Manual, P/N 62TF000A

ENGINE COOLANT TEMPERATURE (ECT) SENSOR 2
Replacement,
in the Shop Manual, P/N 62TF000A

OIL PRESSURE SWITCH

DLC Circuit Troubleshooting

NOTE: Make sure the HDS and its DLC cable are working properly.



1. Turn the ignition switch to LOCK (0).
2. Connect the HDS to the DLC.
   NOTE: Make sure the HDS is properly connected to the DLC.
3. Turn the ignition switch to ON (II), and read the HDS.

   Does the HDS identify the vehicle?
   YES - Go to Step 4 .
   NO - Go to Step 21 .
4. Check for Temporary DTCs or DTCs in the PGM-FI system with the HDS.

   Are any Temporary DTCs or DTCs indicated?
   YES - Go to the indicated DTC's troubleshooting.■
   NO -
   - If the HDS does not communicate with the SRS system, go to Step 5 .
   - If the HDS does not communicate with the ABS system, go to Step 7 .
   - If the HDS does not communicate with the EPS system, go to Step 9 .
   - If the HDS does not communicate with the IMMOBI (immobilizer) system, go to Step 11 .
   - If the HDS does not communicate with the BODY ELECTRICAL system, go to Step 13 .
5. Turn the ignition switch to LOCK (0).
6. Turn the ignition switch to ON (II), and watch the SRS indicator.

   Does the SRS indicator stay on?
   YES - Go to the SRS system's general troubleshooting information. ■
   NO - Go to Step 13 .
7. Turn the ignition switch to LOCK (0).
8. Turn the ignition switch to ON (II), and watch the ABS indicator.

   Does the ABS indicator stay on?
   YES - Go to the ABS system's general troubleshooting information. ■
   NO - Go to Step 13 .
9. Turn the ignition switch to LOCK (0).
10. Turn the ignition switch to ON (II), and watch the EPS indicator.

    Does the EPS indicator stay on?
    YES - Go to the EPS system's general troubleshooting information. ■
    NO - Go to Step 13 .
11. Turn the ignition switch to LOCK (0).
12. Turn the ignition switch to ON (II), and watch the immobilizer indicator.

    Does the immobilizer indicator stay on or flash?
    YES - Go to the immobilizer system's troubleshooting. ■
    NO - Go to Step 13 .
13. Do the gauge self-diagnostic function.
14. Check the gauge display.

    Is Error 2 indicated?
    YES - Check for B-CAN system DTCs.■
    NO - Go to Step 15 .
15. Turn the ignition switch to LOCK (0).
16. Disconnect the HDS from the DLC.
17. Check for continuity between DLC terminal No. 7 and body ground.

    Is there 5 Ω or less?
    YES - Go to Step 18 .
    NO - Go to Step 19 .
18. Continue to check for continuity between DLC terminal No. 7 and body ground, while disconnecting these parts, one at a time:
    - SRS unit connector A (39P)
    - ABS modulator-control unit 25P connector
    - EPS control unit connector C (16P)
    - Immobilizer-keyless control unit 7P connector
    - Audio unit 24P connector

- Under-dash fuse/relay box connector Q (16P)

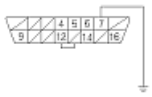
Does continuity go away when one of the above components is disconnected?

YES - Replace the part caused an open when it was disconnected.■

NO - Repair short in the wire between the DLC (K-line) and the ABS control unit, the SRS unit, the EPS control unit, the immobilizer-keyless control unit, the audio unit, the under-dash fuse/relay box, or the ECM/PCM.■

---

19. Connect DLC terminal No. 7 to body ground with a jumper wire.



20. Check for continuity between body ground and these connector terminals:

Connector	Terminal
SRS unit A (39P)	No. 18 (BLU)
ABS control unit 25P	No. 10 (BLU)
EPS control unit C (16P)	No. 16 (BLU)
Immobilizer-keyless control unit 7P	No. 5 (BLU)
Audio unit 24P	No. 3 (BLU)
Under-dash fuse/relay box Q (16P)	No. 2 (BLU)

Is there continuity between the DLC terminal and each of the terminals in the chart?

YES - Replace the part that does not communicate with the HDS.■

NO - Repair open in the wire between the DLC (K-line) and the appropriate connector.■

21. Check for B-CAN system DTCs without the HDS.

Is DTC U0029 and/or U0100 indicated?

YES - Go to Step 34 .

NO - Go to Step 22 .

22. Turn the ignition switch to LOCK (0).

23. Disconnect the HDS from the DLC.

---

24. Measure the voltage between DLC terminal No. 16 and body ground.

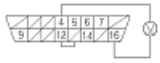
Is there battery voltage?

YES - Go to Step 25 .

NO - Repair open in the wire between DLC terminal No. 16 and the No. 1 BACK UP (7.5 A) fuse in the under-dash fuse/relay box.■

---

25. Measure the voltage between DLC terminals No. 4 and No. 16.



Is there battery voltage?

YES - Go to Step 26 .

NO - Repair open in the wire between DLC terminal No. 4 and body ground (G502).■

26. Connect the HDS to the DLC.

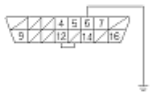
27. Jump the SCS line with the HDS.

28. Disconnect ECM/PCM connector A (49P).

29. Disconnect the HDS from the DLC.

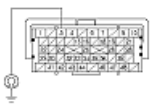
---

30. Connect DLC terminal No. 6 to body ground with a jumper wire.



---

31. Check for continuity between ECM/PCM connector terminal A3 and body ground.



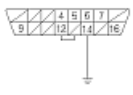
Is there continuity?

YES - Go to Step 32 .

NO - Repair open in the wire between the ECM/PCM (A3) and DLC terminal No. 6.■

---

32. Connect DLC terminal No. 14 to body ground with a jumper wire.



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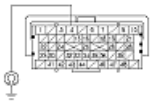
33. Check for continuity between ECM/PCM connector terminal A4 and body ground.



Is there continuity?

YES - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■

NO - Repair open in the wire between the ECM/PCM (A4) and DLC terminal No. 14.■

34. Try to start the engine.

Does the engine start and idle smoothly?

YES - Go to F-CAN circuit troubleshooting. ■

NO - Go to Step 35 .

35. Turn the ignition switch to LOCK (0).

36. Check the No. 60 IGSW (50 A) fuse in the under-dash fuse/relay box.

Is the fuse OK?

YES - Repair open in the wire the No. 60 IGSW (50 A) fuse and the ignition switch. If the wire is OK go to Step 37 .

NO - Repair short in the wire the No. 60 IGSW (50 A) fuse and the under-dash fuse/relay box. Also replace the No. 60 IGSW (50 A) fuse.■

37. Inspect the No. 39 IGP (15 A) fuse in the under-dash fuse/relay box.

Is the fuse OK?

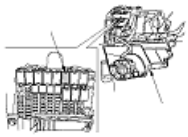
YES - Go to Step 44 .

NO - Go to Step 38 .

38. Remove the blown No. 39 IGP (15 A) fuse from the under-dash fuse/relay box.

---

39. Open the fuse lid (A), then remove the PGM-FI main relay 1 (B) from the under-dash fuse/relay box.



---

40. Check for continuity between body ground and PGM-FI main relay 1 4P connector terminals No. 2 and No. 3 individually.

Is there continuity?

YES - Replace the under-dash fuse/relay box. ■

NO - Go to Step 41 .

---

41. While disconnecting each of the parts or connectors below, one at a time, check for continuity between PGM-FI main relay 1 4P connector terminal No. 1 and body ground.

- PGM-FI main relay 2
- ECM/PCM connector A (49P)
- Each injector 2P connector
- Camshaft position (CMP) sensor 3P connector
- Crankshaft position (CKP) sensor 3P connector
- Electronic throttle control system (ETCS) control relay

Does continuity go away when one of the above components is disconnected?

YES - Replace the part that made the short to body ground go away when disconnected. If the part is the ECM/PCM, update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. Also replace the No. 39 IGP (15 A) fuse.■

NO - Go to Step 42 .

42. Disconnect these parts or connectors:
    - PGM-FI main relay 2
    - ECM/PCM connector A
    - Injectors
    - Camshaft position (CMP) sensor
    - Crankshaft position (CKP) sensor
    - Electronic throttle control system (ETCS) control relay

---

43. Check for continuity between PGM-FI main relay 1 4P connector terminal No. 1 and body ground.

Is there continuity?
YES - Repair short in the wire between PGM-FI main relay 1 and each item. Also replace the No. 39 IGP (15 A) fuse.■
NO - Replace PGM-FI main relay 1. Also replace the No. 39 IGP (15 A) fuse.■

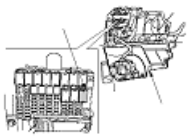
44. Inspect the No. 20 FUEL PUMP (15 A) fuse in the under-dash fuse/relay box.

Is the fuse OK?
YES - Go to Step 54 .
NO - Go to Step 45 .

45. Remove the blown No. 20 FUEL PUMP (15 A) fuse from the under-dash fuse/relay box.

---

46. Open the fuse lid (A), then remove the PGM-FI main relay 2 (B) from the under-dash fuse/relay box.



47. Test PGM-FI main relay 2.

Is the fuse OK?
YES - Go to Step 48 .
NO - Replace PGM-FI main relay 2. Also replace the No. 20 FUEL PUMP (15 A) fuse.■

---

48. Check for continuity between PGM-FI main relay 2 4P connector terminal No. 2 and body ground.

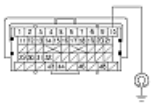
Is there continuity?
YES - Go to Step 49 .
NO - Go to Step 52 .

49. Jump the SCS line with the HDS.

50. Disconnect ECM/PCM connector C (49P).

---

51. Check for continuity between ECM/PCM connector terminal C10 and body ground.



Is there continuity?
YES - Repair short in the wire between the No. 20 FUEL PUMP (15 A) fuse and the ECM/PCM (C10), or PGM-FI main relay 2. Also replace the No. 20 FUEL PUMP (15 A) fuse.■
NO - Go to Step 52 .

52. Disconnect the fuel pump 4P connector.

---

53. Check for continuity between fuel pump 4P connector terminal No. 2 and body ground.

Is there continuity?
YES - Repair short in the wire between the fuel pump and PGM-FI main relay 2. Also replace the No. 20 FUEL PUMP (15 A) fuse.■
NO - Check the fuel pump, and replace it if necessary. Also replace the No. 20 FUEL PUMP (15 A) fuse.■

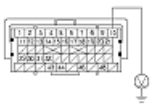
54. Jump the SCS line with the HDS.

55. Disconnect ECM/PCM connectors A (49P) and C (49P).

56. Turn the ignition switch to ON (II).

---

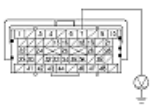
57. Measure the voltage between ECM/PCM connector terminal C10 and body ground.



Is there battery voltage?
YES - Go to Step 58 .
NO - Repair open in the wire between the No. 20 FUEL PUMP (15 A) fuse and the ECM/PCM (C10).■

---

58. Measure the voltage between ECM/PCM connector terminal A7 and body ground.

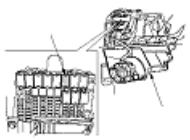


Is there battery voltage?
YES - Go to Step 64 .
NO - Go to Step 59 .

59. Turn the ignition switch to LOCK (0).

---

60. Open the fuse lid (A), then remove the PGM-FI main relay 1 (B) from the under-dash fuse/relay box.



---

61. Measure the voltage between PGM-FI main relay 1 4P connector terminal No. 3 and body ground.

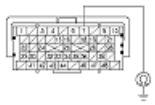
Is there battery voltage?
YES - Go to Step 62 .
NO - Replace the under-dash fuse/relay box.

---

62. Connect PGM-FI main relay 1 4P connector terminal No. 4 to body ground with a jumper wire.

---

63. Check for continuity between ECM/PCM connector terminal A7 and body ground.

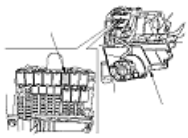


Is there battery voltage?
YES - Test PGM-FI main relay 1. If the relay is OK, update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■
NO - Repair open in the wire between the ECM/PCM (A7) and PGM-FI main relay 1.■

64. Turn the ignition switch to LOCK (0).

---

65. Open the fuse lid (A), then remove the PGM-FI main relay 1 (B) from the under-dash fuse/relay box.



---

66. Measure the voltage between PGM-FI main relay 1 4P connector terminal No. 2 and body ground.

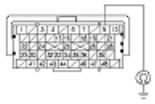
Is there battery voltage?
YES - Go to Step 67 .
NO - Replace the under-dash fuse/relay box. ■

---

67. Connect PGM-FI main relay 1 4P connector terminal No. 1 to body ground with a jumper wire.

---

68. Check for continuity between ECM/PCM connector terminal A9 and body ground.



Is there continuity?
YES - Go to Step 69 .
NO - Repair open in the wire between the ECM/PCM (A9) and PGM-FI main relay 1.■

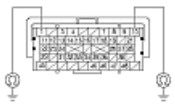
69. Test PGM-FI main relay 1.

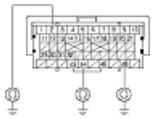
Is PGM-FI main relay 1 OK?
YES - Go to Step 70 .
NO - Replace the PGM-FI main relay 1 .■

70. Disconnect ECM/PCM connector B (49P).

---

71. Check for continuity between body ground and ECM/PCM connector terminals B1, B10, C2, C44, and C48 individually.

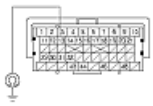




Is there continuity?
YES - Go to Step 72 .
NO - Repair open in the wire between the ECM/PCM (B1, B10, C2, C44, C48) and G101.■

---

72. Check for continuity between ECM/PCM connector terminal C13 and body ground.



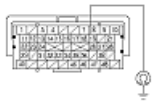
Is there continuity?
YES - Go to Step 73 .
NO - Go to Step 74 .

73. Continue to check for continuity between ECM/PCM connector terminal C13 and body ground, while disconnecting these parts, one at a time:
    - MAP sensor 3P connector
    - Output shaft (countershaft) speed sensor 3P connector

Does continuity go away when one of the above components is disconnected?
YES - Repair the part that caused an open when it was disconnected.■
NO - Repair short in the between the ECM/PCM (C13) and the MAP sensor or the output shaft (countershaft) speed sensor.■

---

74. Check for continuity between ECM/PCM connector terminal B19 and body ground.



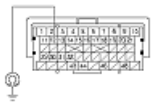
Is there continuity?
YES - Go to Step 75 .
NO - Go to Step 76 .

75. Continue to check for continuity between ECM/PCM connector terminal B19 and body ground, while disconnecting the input shaft (mainshaft) speed sensor 3P connector.

Is there continuity?
YES - Repair short in the wire between the ECM/PCM (B19) and the input shaft (mainshaft) speed sensor.■
NO - Replace the input shaft (mainshaft) speed sensor. ■

---

76. Check for continuity between ECM/PCM connector terminal C12 and body ground.



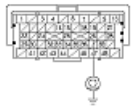
Is there continuity?
YES - Go to Step 77 .
NO - Go to Step 78 .

77. Continue to check for continuity between ECM/PCM connector terminal C12 and body ground, while disconnecting the throttle body 6P connector.

Is there continuity?
YES - Repair short in the wire between the ECM/PCM (C12) and the throttle body.■
NO - Replace the throttle body. ■

---

78. Check for continuity between ECM/PCM connector terminal A26 and body ground.



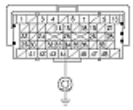
Is there continuity?
YES - Go to Step 79 .
NO - Go to Step 80 .

79. Continue to check for continuity between ECM/PCM connector terminal A26 and body ground, while disconnecting the APP sensor 6P connector.

Is there continuity?
YES - Repair short in the wire between the ECM/PCM (A26) and APP sensor A.■
NO - Replace the accelerator pedal module. ■

---

80. Check for continuity between ECM/PCM connector terminal A25 and body ground.



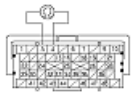
Is there continuity?
YES - Go to Step 81 .
NO - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■

81. Continue to check for continuity between ECM/PCM connector terminal A25 and body ground, while disconnecting the APP sensor 6P connector.

Is there continuity?
YES - Repair short in the wire between the ECM/PCM (A25) and APP sensor B.■
NO - Replace the accelerator pedal module. ■

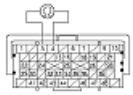
F-CAN Circuit Troubleshooting

NOTE: Information marked with an asterisk (*) applies to the CANL line.



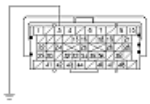
1. Turn the ignition switch to LOCK (0).
2. Jump the SCS line with the HDS.
3. Disconnect ECM/PCM connector A (49P), then disconnect the HDS.
4. Measure the resistance between ECM/PCM connector terminals A3 and A4.

   Is there about 95−116 Ω?
   YES - Go to Step 27 .
   NO - Go to Step 5 .
5. Disconnect these connectors:
   - Gauge control module 32P
   - ABS modulator-control unit 25P
   - EPS control unit C (16P)
   - SRS unit A (39P)



6. Check for continuity between ECM/PCM connector terminals A3 and A4.

   Is there continuity?
   YES - Repair short in the wire between ECM/PCM terminals A3 and A4 * .■
   NO - Go to Step 7 .



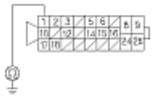
7. Connect ECM/PCM connector terminal A3 to body ground with a jumper wire.

---

8. Check for continuity between gauge control module 32P connector terminal No. 30 and body ground.

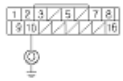
   Is there continuity?
   YES -
   - With ABS: Go to Step 9 .
   - Without ABS: Go to Step 10 .

   NO - Repair open in the wire between the ECM/PCM (A3) and the gauge control module.■



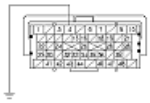
9. Check for continuity between ABS modulator-control unit 25P connector terminal No. 1 and body ground.

   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wire between the ECM/PCM (A3) and the ABS modulator-control unit.■



10. Check for continuity between EPS control unit connector C (16P) terminal No. 10 and body ground.

    Is there continuity?
    YES - Go to Step 11 .
    NO - Repair open in the wire between the ECM/PCM (A3) and the EPS control unit.■
11. Remove the jumper wire from ECM/PCM connector A (49P).



12. Connect ECM/PCM connector terminal A4 to body ground with a jumper wire.

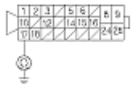
---

13. Check for continuity between gauge control module 32P connector terminal No. 29 and body ground.

    Is there continuity?
    YES -
    - With ABS: Go to Step 14 .
    - Without ABS: Go to Step 15 .

    NO - Repair open in the wire between the ECM/PCM (A4) and the gauge control module.■

14. Check for continuity between ABS modulator-control unit 25P connector terminal No. 17 and body ground.



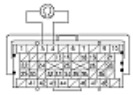
Is there continuity?
YES - Go to Step 15 .
NO - Repair open in the wire between the ECM/PCM (A4) and the ABS modulator-control unit.■

15. Check for continuity between EPS control unit connector C (16P) terminal No. 9 and body ground.

Is there continuity?
YES - Go to Step 16 .
NO - Repair open in the wire between the ECM/PCM (A4) and the EPS control unit.■

16. Reconnect the gauge control module 32P connector.

17. Measure the resistance between ECM/PCM connector terminals A3 and A4.



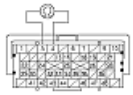
Is there about 108−132 Ω?
YES -
- With ABS: Go to Step 18 .
- Without ABS: Go to Step 21 .

NO - Substitute a known-good gauge control module. If the HDS identifies the vehicle, replace the original gauge control module. ■

18. Disconnect the gauge control module 32P connector.

19. Reconnect the ABS modulator-control unit 25P connector.

20. Measure the resistance between ECM/PCM connector terminals A3 and A4.

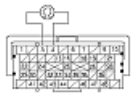


Is there about 2.34−2.86 kΩ?
YES - Go to Step 21 .
NO - Substitute a known-good ABS modulator-control unit, If the HDS identifies the vehicle, replace the original ABS modulator-control unit. ■

21. Disconnect the ABS modulator-control unit 46P connector (with ABS) or the gauge control module 32P connector (without ABS).

22. Reconnect EPS control unit connector C (16P).

23. Measure the resistance between ECM/PCM connector terminals A3 and A4.

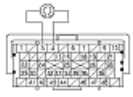


Is there about 2.34−2.86 kΩ?
YES - Go to Step 24 .
NO - Substitute a known-good EPS control unit, If the HDS identifies the vehicle, replace the original EPS control unit. ■

24. Disconnect EPS control unit connector C (16P).

25. Reconnect SRS unit connector A (39P).

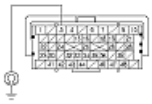
26. Measure the resistance between ECM/PCM connector terminals A3 and A4.



Is there about 2.34−2.86 kΩ?
YES - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■
NO - Substitute a known-good SRS unit. If the HDS identifies the vehicle, replace the original SRS unit. ■

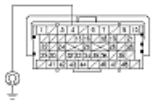
27. Disconnect these connectors:
- Gauge control module 32P
- ABS modulator-control unit 25P
- EPS control unit C (16P)
- SRS unit A (39P)

28. Check for continuity between ECM/PCM connector terminal A3 and body ground.



Is there continuity?
YES - Repair short in the wire between ECM/PCM terminals A3 and the gauge control module, the ABS modulator-control unit, the EPS control unit, the SRS unit, or the DLC.■
NO - Go to Step 29 .

29. Check for continuity between ECM/PCM connector terminal A4 and body ground.



Is there continuity?

YES - Repair short in the wire between ECM/PCM terminals A4 and the gauge control module, the ABS modulator-control unit, the EPS control unit, the SRS unit, or the DLC.■

NO - Go to Step 30 .

30. Reconnect all connectors.

31. Connect the HDS to the DLC.

32. Disconnect the gauge control module 32P connector.

33. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES - Replace the gauge control module. ■

NO -
- With ABS: Go to Step 34 .
- Without ABS: Go to Step 38 .

34. Turn the ignition switch to LOCK (0).

35. Reconnect the gauge control module 32P connector.

36. Disconnect the ABS modulator-control unit 25P connector.

37. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES - Replace the ABS modulator-control unit. ■

NO - Go to Step 38 .

38. Turn the ignition switch to LOCK (0).

39. Reconnect the ABS modulator-control unit 25P connector (with ABS) or the gauge control module 32P connector (without ABS).

40. Disconnect EPS control unit connector C (16P).

41. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES - Replace the EPS control unit. ■

NO - Go to Step 42 .

42. Turn the ignition switch to LOCK (0).

43. Reconnect EPS control unit connector D (28P).

44. Disconnect SRS unit connector A (39P).

45. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

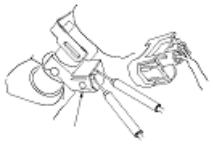
YES - Replace the SRS unit. ■

NO - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■

Injector Test

NOTE: Check the following items before testing; idle speed, ignition timing, and idle CO%.

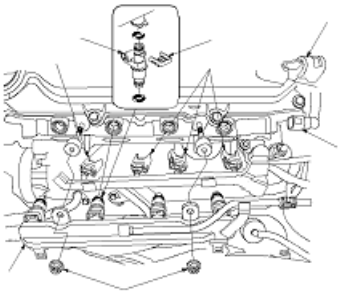
1. Try to start the engine.
   - If the engine starts, go to Step 2 .
   - If the engine does not start, go to Step 8 .
2. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
3. Make sure the HDS communicates with the ECM/PCM. If it doesn't, go to the DLC circuit troubleshooting.
4. Select ONE INJECTOR in INSPECTION MENU with the HDS.
5. Disable each injector at a time by selecting number of an injector which you want to step.
6. Inspect the change in the idle speed.
   - If the idle speed drop is almost the same for each cylinder, the fuel injectors are normal.
   - If the idle speed or quality remains the same when you disconnect a particular injector, faulty injector is suspected. Replace the injector and retest.
7. Check the clicking sound of each injector by means of a stethoscope when the engine is idling.
   - If any fuel injector fails to make the typical clicking sound, check the sound again after replacing the injector.
   - If clicking sound is still absent, check the following.
     - Whether there is wire breakage or poor connection in the YEL/BLK wire between the PGM-FI main relay 1 and the junction connector.
     - Whether the junction connector is open or corroded.
     - Whether there is wire breakage or poor connection in the YEL/BLK wire between the junction connector and the injector.
     - Whether there is any short-circuiting, wire breakage or poor connection in the wire between the injector and the ECM/PCM.
   - If all is OK, the test is complete.
8. Turn the ignition switch to LOCK (0).
9. Remove the intake manifold.
10. Disconnect the injector connector.



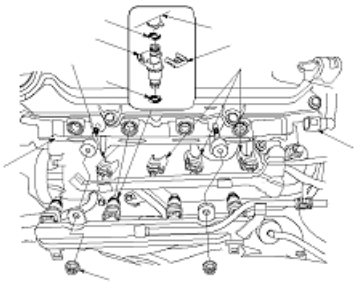
11. Measure the resistance between injector (A) terminals No. 1 and No. 2. There should be 10−13 Ω.
    - If the resistance is OK, go to Step 12 .
    - If the resistance is not as specified, replace the injector.
12. Check the fuel pressure.
    - If the fuel pressure is as specified, check the following:
      - Whether there is wire breakage, or poor connection in the YEL/BLK wire between the PGM-FI main relay 1 and the junction connector.
      - Whether the junction connector is open or corroded.
      - Whether there is wire breakage, or poor connection in the YEL/BLK wire between the junction connector and the injector.
      - Whether there is any short-circuiting, wire breakage or poor connection in the wire between the injector and the ECM/PCM.
    - If the fuel pressure is not as specified, recheck the fuel pressure.

Injector Replacement

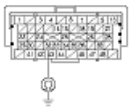
1. Relieve the fuel pressure.
2. Remove the intake manifold, and intake manifold chamber.
3. Remove the cover (A), then disconnect the quick-connect fitting (B).
4. Disconnect the injector connectors (C).
5. Remove the fuel rail mounting nuts (D) from the fuel rail (E).
6. Remove the fuel rail and the injectors from the cylinder head.
7. Remove the injector clips (F) from the fuel rail.
8. Remove the injectors (G) from the fuel rail.



9. Coat the new O-rings (black) (A) with clean engine oil, and insert the injectors (B) into the fuel rail (C).
10. Install the injector clips (D).
11. Coat the new injector O-rings (brown) (E) with clean engine oil.
12. Install the fuel rail and the injectors in the cylinder head (F).
13. Install the fuel rail mounting nuts (G).
14. Connect the injector connectors (H).
15. Connect the quick-connect fitting (I).
16. Turn the ignition switch to ON (II), but do not operate the starter. After the fuel pump runs for about 2 seconds, the fuel rail will be pressurized. Repeat this two or three times, then check for fuel leakage.
17. Reinstall the intake manifold, and intake manifold chamber.



MIL Circuit Troubleshooting



1. Turn the ignition switch to ON (II).
2. Do the gauge self-diagnostic function.

   Does the MIL indicator flash?
   YES - Go to Step 3 .
   NO - Substitute a known-good gauge control module, and recheck. If the symptom/indication goes away with a known-good gauge control module, replace the original gauge control module. ■
3. Connect the HDS to the DLC.
4. Check the SCS in the DATA LIST with the HDS.

   Is a short indicated?
   YES - Go to Step 5 .
   NO - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■
5. Turn the ignition switch to LOCK (0).
6. Disconnect ECM/PCM connector A (49P), then disconnect the HDS.
7. Check for continuity between ECM/PCM connector terminal A32 and body ground.

   Is there continuity?
   YES - Repair short in the wire between the ECM/PCM (A32) and the DLC.■
   NO - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■

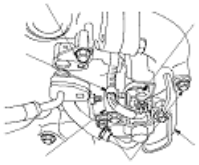
Subfuel Solenoid Test

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
2. Make sure the HDS communicates with the ECM/PCM. If it doesn't, go to the DLC circuit troubleshooting.
3. Select the SUBFUEL SOLENOID ON and OFF in the INSPECTION MENU with the HDS.
4. Check the clicking sound of subfuel solenoid by means of a stethoscope.
   - If any subfuel solenoid fails to make the typical clicking sound, check the sound again after replacing the subfuel solenoid.
   - If clicking sound is still absent, check the following.
     - Whether there is wire breakage or poor connection in the YEL/BLK, YEL wire between subfuel pump relay and the subfuel solenoid.
     - Whether there is wire breakage or poor connection in the WHT wire between subfuel pump relay and the auxiliary under-dash fuse holder (15 A) fuse.
     - Whether there is any short-circuiting, wire breakage or poor connection in the wire between the subfuel solenoid and the ECM/PCM.
5. Turn the ignition switch to LOCK (0).
6. Disconnect the subfuel solenoid 2P connector.

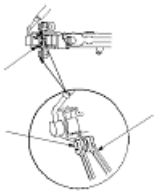
7. Measure the resistance between subfuel solenoid (A) terminals No. 1 and No. 2. There should be 10.3 Ω.
   - If the resistance is OK, go to Step 8 .
   - If the resistance is not as specified, replace the subfuel solenoid.
8. Remove the subfuel solenoid.
9. Check the subfuel solenoid for dirt or rusty.
   - If it is dirty or rusty, replace the subfuel solenoid, and the fuel nozzle.

Subfuel Solenoid Replacement

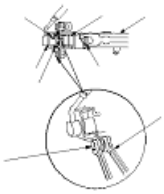
1. Relieve the subfuel pressure.
2. Remove the bolt (A).
3. Remove the intake manifold stay (B).
4. Disconnect the connector (C) from the subfuel solenoid.
5. Remove the harness band (D) from the subfuel solenoid holder (E).



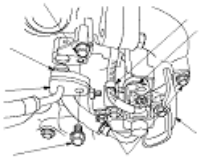
6. Place the wrench (A), then remove the bolts (B).
7. Remove the injector clip (C) from the subfuel solenoid.

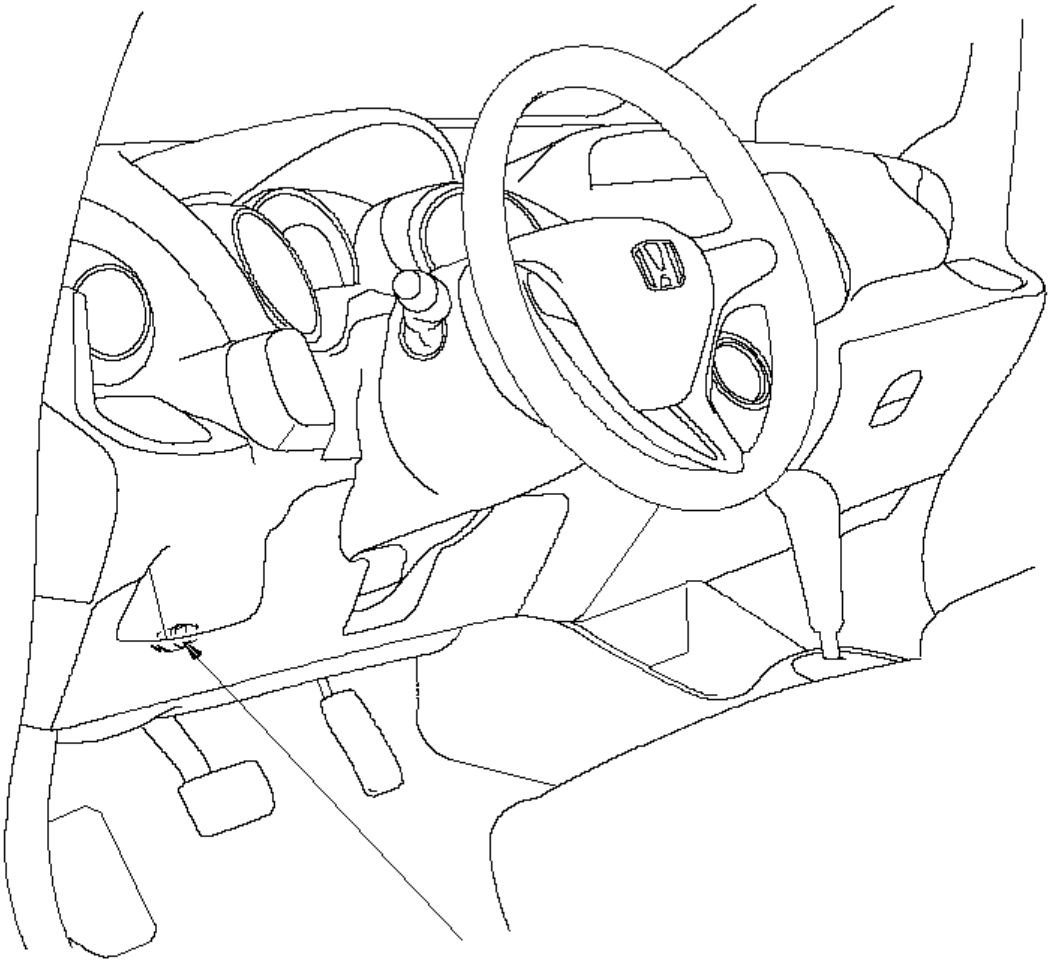


8. Coat the new O-ring (A) with clean engine oil, and insert the subfuel solenoid (B) into the subfuel solenoid holder (C).
9. Install the injector clip (D).
10. Coat the injector O-ring (E) with clean engine oil, and insert the subfuel solenoid into the subfuel pipe (F).
11. Place the wrench (G), then tighten the bolts (H).



12. Install the bolt (A).
13. Install the subfuel feed pipe (B), with a new O-ring (C).
14. Reconnect the connector (D).
15. Turn the ignition switch to ON (II), but do not operate the starter. After the subfuel pump runs for about 2 seconds, the subfuel pressure in the subfuel line rises. Repeat this two or three time, then check for fuel leakage.
16. Install the harness band (E).
17. Install the intake manifold stay (F).

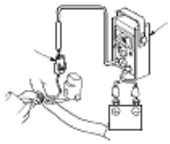




BRAKE PEDAL POSITION SWITCH
Signal Circuit Troubleshooting,

in the Shop Manual, P/N 62TF000A

Idle Speed Inspection



NOTE:

- Before checking the idle speed, check these items:
  - The malfunction indicator lamp (MIL) has not been reported on, and there are no DTCs.
  - Ignition timing
  - Spark plugs
  - Air cleaner
  - PCV system
  - Headlight OFF

1. Disconnect the evaporative emission (EVAP) canister purge valve connector.
2. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard, or a tachometer (B) to the test tachometer connector (C).
3. When using the HDS, make sure the HDS communicates with the ECM/PCM. If it doesn't, go to the DLC circuit troubleshooting.
4. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
5. Check the idle speed without load conditions: headlights, blower fan, radiator fan, and air conditioner off.
   Idle speed should be:

L13Z3 engine

M/T	**700±50 rpm (min $^{-1}$)**
A/T	**700±50 rpm (min $^{-1}$) (in N or P)**

L15A8 engine

M/T	**700±50 rpm (min $^{-1}$)**
A/T	**700±50 rpm (min $^{-1}$) (in N or P)**

6. Let the engine idle for 1 minute with high electric load (A/C switch on, temperature set to max cool, blower fan on High, and headlights on high beam).
   Idle speed should be:

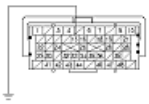
M/T	**790±50 rpm (min $^{-1}$)**
A/T	**790±50 rpm (min $^{-1}$) (in N or P)**

   NOTE: If the idle speed is not within specification, do the ECM/PCM idle learn procedure. If the idle speed is still not within specification, go to symptom troubleshooting.
7. Reconnect the EVAP canister purge valve connector.

Engine idle

Item	Measurement	Qualification	Standard or New
Engine idle	Idle speed without load	M/T (in neutral)	700±50 rpm
		A/T (in N or P)	
	Idle speed with high electrical load (A/C switch ON, temperature set to max cool, blower fan on High, rear window defogger ON, and headlights on high beam)	M/T (in neutral), A/T (in N or P)	790±50 rpm
	Idle CO		0.1 % max

A/C Signal Circuit Troubleshooting



1. Start the engine, and let it idle.
2. Turn the blower switch on.
3. Turn the A/C switch on.
4. Check the A/C CLUTCH in the DATA LIST with the HDS.

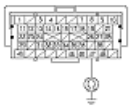
   Does it indicate ON?
   YES - Go to Step 5 .
   NO - Do the A/C system test. ■
5. Check the A/C system.

   Does the A/C system operate?
   YES - The air conditioning system circuit is OK.■
   NO - Go to Step 6 .
6. Turn the ignition switch to LOCK (0).
7. Turn the ignition switch to ON (II).
8. Activate the A/C CLUTCH in the INSPECTION MENU with the HDS.

   Is there a clicking noise from the A/C compressor clutch?
   YES - Do the A/C system test. ■
   NO - Go to Step 9 .
9. Turn the ignition switch to LOCK (0).
10. Jump the SCS line with the HDS.
11. Disconnect ECM/PCM connector A (49P).
12. Turn the ignition switch to ON (II).
13. Momentarily connect ECM/PCM connector terminal A15 to body ground with a jumper wire several times.

    Is there a clicking noise from the A/C compressor clutch?
    YES - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■
    NO - Check for poor connections or loose terminals at the A/C compressor clutch relay and the ECM/PCM. If the connections are OK, check the A/C compressor clutch relay, repair open in the wire between the ECM/PCM (A15) and the A/C compressor clutch relay and the other A/C systems.■

Alternator FR Signal Circuit Troubleshooting

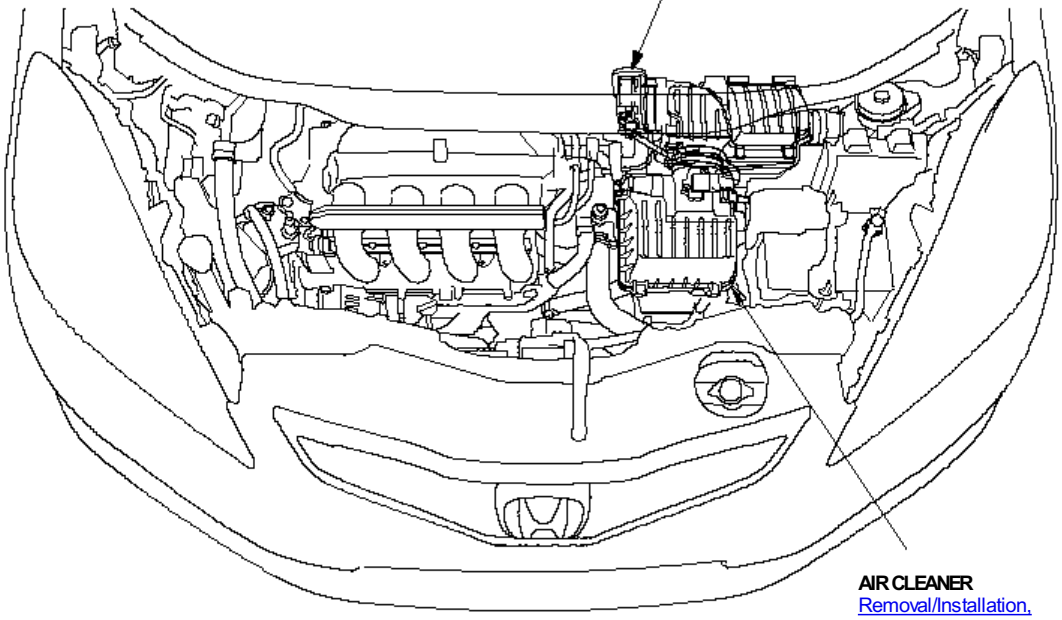


1. Start the engine, and let it idle.
2. Monitor the ALTERNATOR in the DATA LIST with the HDS.
3. Check if the indicated percentage varies when the headlight switch is turned on.

   Does the percentage vary?
   YES - The alternator signal circuit is OK.■
   NO - Go to Step 4 .
4. Turn the headlight switch off and the ignition switch to LOCK (0).
5. Jump the SCS line with the HDS.
6. Disconnect the alternator 4P connector.
7. Disconnect ECM/PCM connector B (49P).
8. Check for continuity between body ground and ECM/PCM connector terminal B47.

   Is there continuity?
   YES - Repair short in the wire between the ECM/PCM (B47) and the alternator.■
   NO -
   - Troubleshoot the alternator and regulator circuit. ■
   - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■

Intake Air System Component Location Index

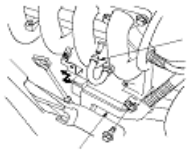


THROTTLE BODY
Test,
Cleaning,
in the Shop Manual, P/N 62TF000A
Removal/Installation,
Disassembly/Reassembly,
in the Shop Manual, P/N 62TF000A

AIR CLEANER
Removal/Installation,

in the Shop Manual Supplement, P/N 62TF020
Element Inspection/
Replacement,
in the Shop Manual, P/N 62TF000A

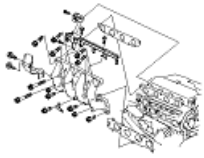
Intake Manifold Removal and Installation



Exploded View

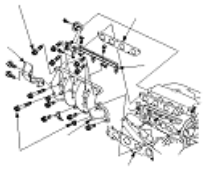
Removal

1. Remove the harness holder mounting bolt, then remove the harness holder (A) from the bracket.
2. Remove the positive crankcase ventilation (PCV) hose (B).
3. Disconnect the exhaust gas recirculation (EGR) valve connector.
4. Remove the dipstick.
5. Remove the intake manifold.
6. Remove the intake manifold bracket C.

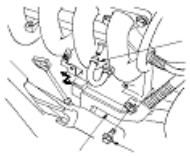


7. Remove the subfuel pipe from the intake manifold.

Installation



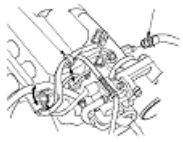
1. Install the subfuel pipe (A) to the intake manifold.
2. Install the intake manifold bracket C (B).
3. Install the intake manifold (C) with new gaskets (D), and tighten the bolts and nuts in a crisscross pattern in three steps, beginning with the inner bolt.
4. Install the dipstick.
5. Connect the EGR valve connector.



6. Install the PCV hose (A) and harness holder (B).

Intake Manifold Chamber Removal and Installation

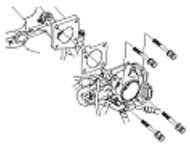
Exploded View



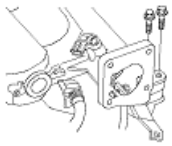
Removal

1. Remove the under-cowl panel.
2. Remove the air cleaner housing assembly.
3. Remove the engine wire harness connectors and wire harness clamps from the intake manifold chamber.
   - Throttle actuator connector
   - Manifold absolute pressure (MAP) sensor connector
4. Remove the brake booster vacuum hose (A) and the harness clamp (B).
5. Remove the water bypass hose from the clamp (C).

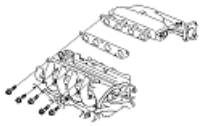
6. Remove the throttle body without disconnecting the water bypass hoses.



7. Remove the intake manifold bracket mounting bolts.

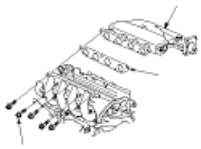


8. Remove the intake manifold chamber.

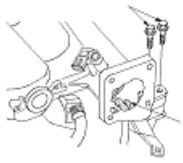


Installation

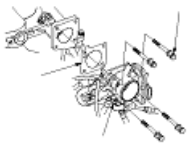
1. Install the intake manifold chamber (A) with a new gaskets (B), and tighten the bolts in a crisscross pattern in three steps, beginning with the inner bolt.



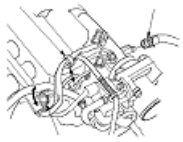
2. Loosen the intake manifold bracket mounting bolt (A). Tighten the mounting bolts (B), then tighten the mounting bolt (A).



3. Install the throttle body (A) with a new gasket (B).

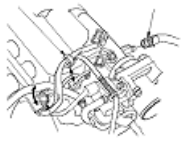


4. Install the water bypass hose to the clamp (A).
5. Install the brake booster vacuum hose (B) and the harness clamp (C).
6. Install the engine wire harness connectors and wire harness clamps to the intake manifold chamber.
   - Throttle actuator connector
   - MAP sensor connector
7. Install the air cleaner housing assembly.
8. Install the under-cowl panel.



Intake Manifold/Chamber Assembly Removal and Installation

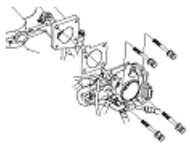
Exploded View



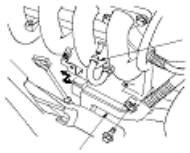
Removal

1. Remove the under-cowl panel.
2. Remove the air cleaner housing assembly.
3. Remove the engine wire harness connectors and wire harness clamps from the intake manifold chamber.
   - Throttle actuator connector
   - Manifold absolute pressure (MAP) sensor connector
   - Exhaust gas recirculation (EGR) valve connector
4. Remove the brake booster vacuum hose (A) and the harness clamp (B).
5. Remove the water bypass hose from the clamp (C).

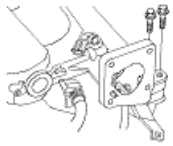
6. Remove the throttle body without disconnecting the water bypass hoses.



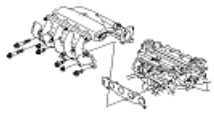
7. Remove the harness holder mounting bolt, then remove the harness holder (A) from the bracket.
8. Remove the positive crankcase ventilation (PCV) hose (B).
9. Remove the dipstick.



10. Remove the intake manifold bracket mounting bolts.

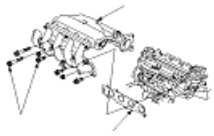


11. Remove the intake manifold/chamber assembly.

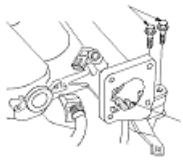


Installation

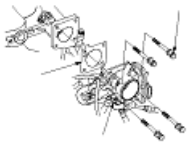
1. Install the intake manifold/chamber assembly (A) with a new gasket (B), and tighten the bolts and nuts in a crisscross pattern in three steps, beginning with the inner bolt.



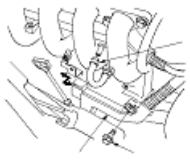
2. Loosen the intake manifold bracket mounting bolt (A). Tighten the mounting bolts (B), then tighten the mounting bolt (A).



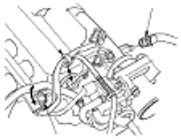
3. Install the throttle body (A) with a new gasket (B).
4. Install the dipstick.



5. Install the PCV hose (A) and harness holder (B).



6. Install the water bypass hose to the clamp (A).
7. Install the brake booster vacuum hose (B) and the harness clamp (C).
8. Install the engine wire harness connectors and wire harness clamps to the intake manifold chamber.
    - Throttle actuator connector
    - MAP sensor connector
    - EGR valve connector
9. Install the air cleaner housing assembly.
10. Install the under-cowl panel.



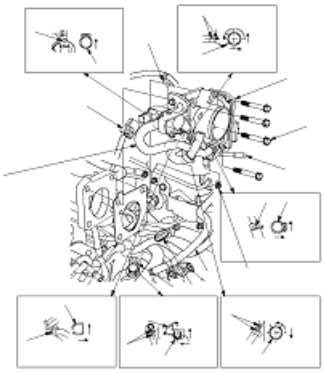
Throttle Body Test

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the ECM/PCM. If it doesn't, go to the DLC circuit troubleshooting.
4. Start the engine. Hold the engine speed at 3,000 rpm (min^{-1}) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
5. Check REL TP SENSOR in the DATA LIST the HDS. The reading should be below 2.46 deg. If it is not, clean the throttle body.

Throttle Body Removal/Installation

⚠CAUTION

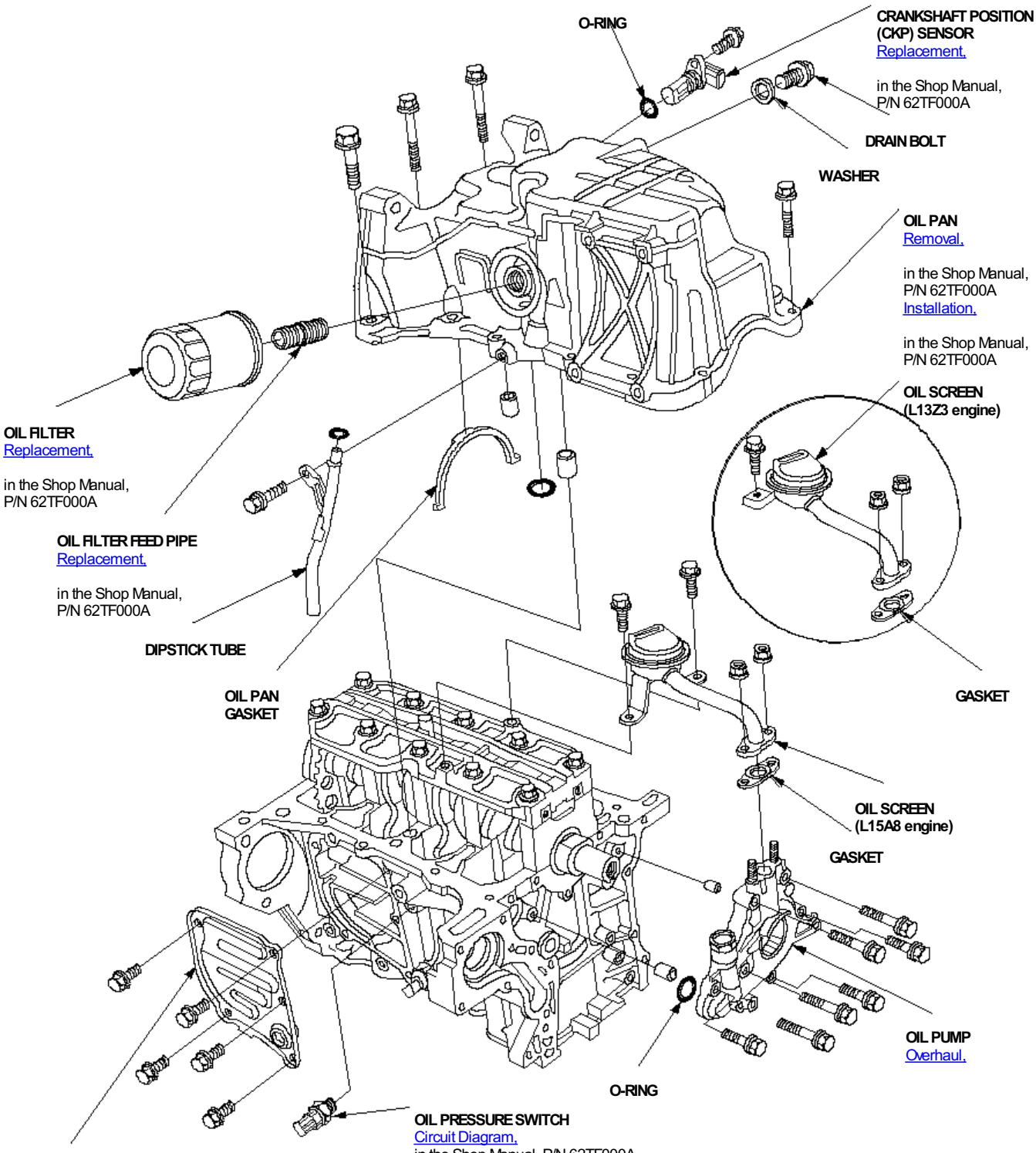
Do not insert your fingers into the installed throttle body when you turn the ignition switch to ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.



1. Remove the air cleaner.
2. Remove the harness clamp (A).
3. Disconnect the throttle body connector (B), and the EVAP canister purge valve connector (C).
4. Disconnect and plug the water bypass hoses (D), the purge hose (E).
5. Remove the throttle body (F).
6. Remove the purge pipe (G), the water bypass hoses, and the purge hose from the throttle body.
7. Install the parts in the reverse order of removal with a new gasket (H), then refill the radiator with engine coolant.
   NOTE:
   - If you replace or clean the throttle body, go to Step 8 .
   - If you did not replace or clean the throttle body, this procedure is complete.
   - Align the marks (I) on the hose and throttle body, then insert the hose. Make sure the clamp (J) is positioned as shown.
   - Align the mark (K) on the hose as shown, then insert the hose. Make sure the clamp (L) is positioned as shown.

8. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
9. Turn the ignition switch to ON (II).
10. Reset the ECM/PCM with the HDS.
11. Select the ETCS TEST in the INSPECTION MENU with the HDS.
12. Select TP POSITION CHECK and clear the throttle position (TP) learned value.
13. Turn the ignition switch to LOCK (0).
14. Turn the ignition switch to ON (II), and wait 2 seconds without pressing the accelerator pedal.
15. Do the ECM/PCM idle learn procedure.

Engine Lubrication Component Location Index



Engine Oil Pump Overhaul

Exploded View

Special Tools Required

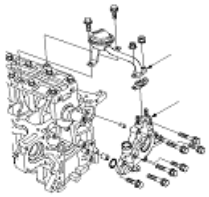
Sub hanger stay
07MAK-PY30100

Removal

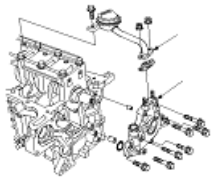
1. Remove the cam chain.
2. Remove the alternator mounting bolt, then install the sub hanger stay.
3. Attach the chain to the sub hanger stay. Lift and support the engine with the chain.
4. Remove the oil pan.

5. Remove the oil screen (A), then remove the oil pump (B).

L15A8 engine



L13Z3 engine

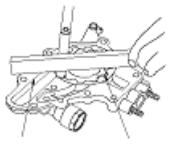


Inspection

1. Remove the screws from the oil pump housing, then separate the pump housing and pump cover.
2. Check the inner-to-outer rotor radial clearance between the inner rotor (A) and the outer rotor (B). If the inner-to-outer rotor clearance exceeds the service limit, replace the oil pump assembly.

Inner Rotor-to-Outer Rotor Radial Clearance

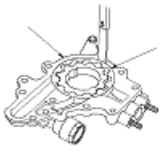
Standard (New):	**0.06–0.16 mm (0.002–0.006 in.)**
Service Limit:	**0.20 mm (0.008 in.)**



3. Check the pump housing-to-rotor axial clearance between the rotors (A) and pump housing (B). If the pump housing-to-rotor axial clearance exceeds the service limit, replace the oil pump assembly.

Housing-to-Rotor Axial Clearance

Standard (New):	**0.02–0.06 mm (0.001–0.002 in.)**
Service Limit:	**0.15 mm (0.006 in.)**



4. Check the pump housing-to-outer rotor radial clearance between the outer rotor (A) and the pump housing (B). If the pump housing-to-outer rotor radial clearance exceeds the service limit, replace the oil pump assembly.

Pump Housing-to-Outer Rotor Radial Clearance

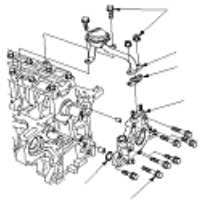
Standard (New):	**0.100–0.175 mm (0.0039–0.0069 in.)**
Service Limit:	**0.20 mm (0.008 in.)**

5. Inspect both rotors and the pump housing for scoring or other damage. Replace the parts, if necessary.
6. Check that the oil pump turns freely.

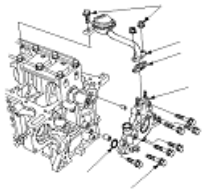
Installation

1. Clean the O-ring groove and the mating surface of the engine block.
2. Install the oil pump (A) with a new O-ring (B).
3. Install the oil screen (C) with a new gasket (D).
4. Install the oil pan.
5. Support the engine with a jack and wood block under the oil pan.

L15A8 engine



L13Z3 engine



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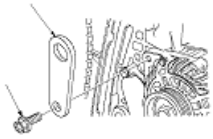
6. Remove the chain and sub hanger stay, then tighten the alternator mounting bolt.
7. Install the cam chain.



Right Front Fender Removal/Installation

FFV Model

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the front fender and body.

1. Remove these items:
   - Front bumper
   - Headlight
   - Front pillar corner trim
2. Remove the front inner fender.
3. Remove the fuel filler cap (A).
4. Remove the fuel fill door trim.

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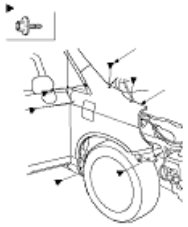
5. Remove the bolts from the right front fender (A).



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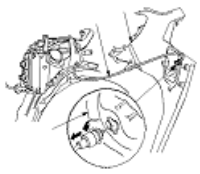
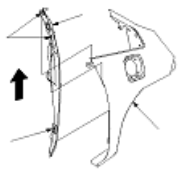
6. From back of the front fender (A), remove the fuel fill door opener cable (B) from the fuel filler lid (C), take care not to scratch the front fender.



7. Install the front fender in the reverse order of removal, and note these items:
   - Make sure the fuel fill door latch is installed properly.
   - Make sure the fuel fill door opens properly and locks securely.
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Apply touch-up paint to the front fender installation bolts, and around the front fender.
   - Front fender in or out until it's flush with the door, and up or down as necessary to equalize the gaps.
   - Apply multipurpose grease to the fuel fill door latch.

Front Fender Fairing Replacement - Supplement

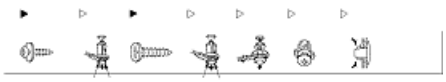
Right Front Fender Fairing - FFV Model

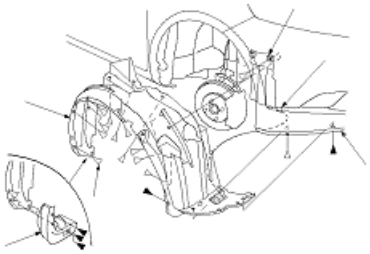


1. Remove the front right fender.
2. Remove the hooks (A), then remove the front fender fairing (B) from the front right fender (C).
3. Install the front fender fairing in the reverse order of removal.

Front Inner Fender Replacement

FFV Model





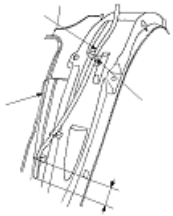
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the body.

1. For some models: Remove the side sill panel.
2. Remove the front inner fender (A).
   -1. On the back of the wheel arch, remove the screws (B), and remove the front splash guard (C) (for some models).
   -2. From under the front bumper (D), remove the screw (E) securing the front bumper, the splash shield (F), and the front inner fender.
   -3. Remove the clip (G) securing the front bumper and the front inner fender.
   -4. From the wheel arch, remove the screw (H), clips (I, J, K), clips (L).
   -5. Release the hook (M) of the splash shield, then remove the front inner fender.
   NOTE: To remove the clips G, I, pry the inner the clip up at the edge near the line (N) on its head.

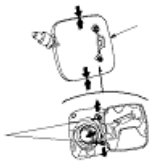
---

3. Install the inner fender in the reverse order of removal, and note these items:
   - Pull the lower end of the drain tube (A) down fully, then the inner fender (B) fasten the tube with the clips (C). And make sure that water is drained through the tube.
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the clips into place securely.



Fuel Fill Door Adjustment

FFV Model



NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the front fender.

1. Remove the fuel fill door trim.
2. Slightly loosen the hinge mounting bolts (A).
3. Adjust the fuel fill door (B) in or out until it's flush with the front fender, and up or down as necessary to equalize the gaps.
4. Tighten the hinge mounting bolts.
5. Check that the fuel fill door opens properly and locks securely, and check that the rear of the door is flush with the front fender.

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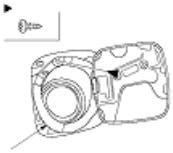
6. Apply multipurpose grease to each location indicated by the arrows.
7. Apply touch-up paint to the hinge mounting bolts and around the hinges.
8. Reinstall the fuel fill door trim.

Fuel Fill Door Trim Replacement

FFV Model

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the front fender and body.



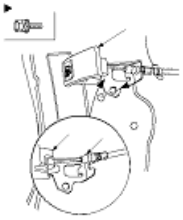
1. Remove the fuel filler cap.
2. Remove the screw securing the fuel fill door trim (A).

3. Remove the fuel fill door trim (A) with the drain tube (B) from the front fender (C).

4. Disconnect the drain tube (A) from the fuel fill door trim (B).
5. Install the trim in the reverse order of removal and make sure the drain tube is connected securely.

Fuel Fill Door Opener Replacement

FFV Model

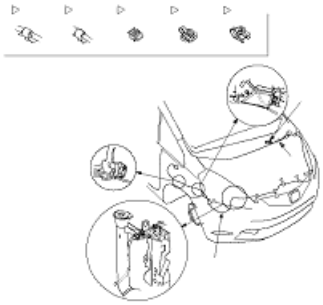


1. Remove the driver's side kick panel.
2. Remove the bolt, then remove the fuel fill door opener handle (A).
3. Disconnect the fuel fill door cable (B) from the fuel fill door release handle. Take care not to bend the cable.
4. Install the fuel fill door release handle in the reverse order of removal, and note these items:
   - Make sure the fuel fill door opener cable is connected properly.
   - Make sure the fuel fill door opens properly.

Fuel Fill Door Opener Cable Replacement

FFV Model

NOTE:

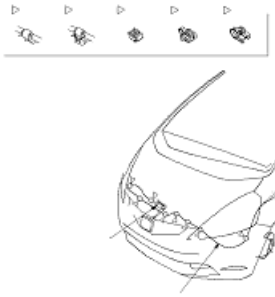


- Put on gloves to protect your hands.
- Take care not to scratch the body and related parts.

1. Remove the right front fender.
2. Remove these items:
   - Left front inner fender
   - Driver's side kick panel
3. Disconnect the fuel fill door opener cable (A) from the fuel fill door opener (B). Take care not to kink the cable.
4. Using a clip remover, detach the clips (C, D). Release the fuel fill door opener cable from the clips (E, F, G) being wound onto the opener cable off, then remove the fuel fill door opener cable from the grommet (H). Take care not to kink the cable.
5. Install the cable in the reverse order of removal, and note these items:
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Make sure the fuel fill door opens properly and locks securely.

Hood Opener Cable Replacement

FFV Model



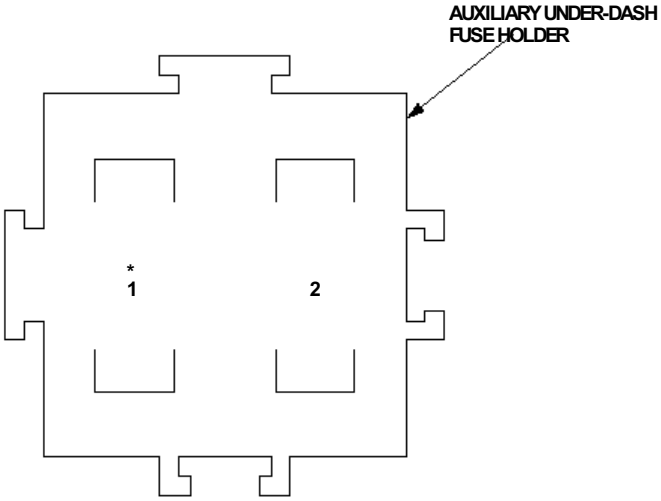
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the body and the related parts.

1. Remove these items:
   - Left front inner fender
   - Kick panel, driver's side
2. Disconnect the hood opener cable (A) from the hood latch (B), and disconnect the hood opener cable from the hood release handle (C). Take care not to kink the cable.
3. Using a clip remover, detach the clips (D, E), release the cable from the clips (F, G, H) being wound onto the opener cable off, then remove the hood opener cable from the grommet (I). Take care not to kink the cable.
4. Install the cable in the reverse order of removal, and note these items:
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Make sure the cable is connected properly.
   - Make sure the hood opens properly and locks securely.

Auxiliary Under-dash Fuse Holder (FFV)

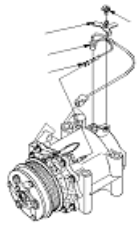
Fuse Number	Amps	Component(s) or Circuit(s) Protected
1	———	Not used
2	15 A	Subfuel pump relay, Subfuel solenoid (via subfuel pump relay)



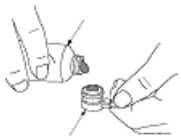
*: Not used

A/C Compressor Thermal Protector Replacement

1. Remove the bolt and the holder (A). Disconnect the field coil connector (B), then remove the thermal protector (C).



2. Replace the thermal protector (A) with a new one, and apply silicone sealant (B) to the bottom of the thermal protector.
3. Install the thermal protector in the reverse order of removal.



SRS Precautions and Procedures

General Precautions

Please read the following precautions carefully before servicing the airbag system. Observe the instructions described in this manual, or the airbags could accidentally deploy and cause damage or injuries.

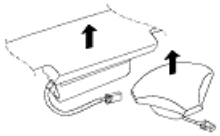
- Except when doing electrical inspections, always turn the ignition switch to LOCK (0), disconnect the negative cable from the battery, then wait for 3 minutes before starting work.
  NOTE: The SRS memory is not erased even if the ignition switch is turned to LOCK (0) or the battery cables are disconnected from the battery.
- Use replacement parts which are manufactured to the same standards and quality as the original parts. Do not install used SRS parts. Use only new parts when making SRS repairs.
- Carefully inspect any SRS part before you install it.
  Do not install any part that shows signs of being dropped or improperly handled, such as dents, cracks or deformation.
- Before disconnecting the SRS unit connectors, always disconnect the appropriate SRS parts connectors.
- Use only a digital multimeter to check the system. If it is not a Honda multimeter, make sure its output is 10 mA (0.01 A) or less when switched to the lowest value in the ohmmeter range. A tester with a higher output could cause accidental deployment and possible injury.
- Do not put objects on the front passenger's airbag.

Steering-Related Precautions

Cable Reel Alignment

- Misalignment of the cable reel could cause an open in the wiring, making the SRS system, remote steering wheel controls, and the horn inoperative. Center the cable reel whenever you do the following.
  - Installation of the steering wheel
  - Installation of the cable reel
  - Installation of the steering column
  - Other steering-related adjustment or installation
- Do not disassemble the cable reel.
- Do not apply grease to the cable reel.
- If the cable reel shows any signs of damage, replace it with a new one. For example, if it does not rotate smoothly, replace the cable reel.

Airbag Handling and Storage

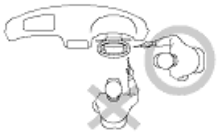


Do not disassemble an airbag. It has no serviceable parts. Once an airbag has been deployed, it cannot be repaired or reused.
For temporary storage of an airbag during service, observe the following precautions.

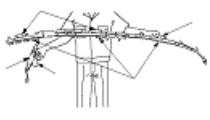
- Store the removed airbag with the pad surface up. Never put anything on the airbag.

- To prevent damage to the airbag, keep it away from any oil, grease, detergent, or water.

- Store the removed airbag on a secure, flat surface away from any high heat source (exceeding 200 °F/93 °C).
- Never do electrical tests on the airbags, such as measuring resistance.



- Do not position yourself in front of the airbag during removal, inspection, or replacement.
- For proper disposal of a damaged airbag , refer to airbag disposal.



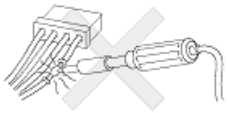
- The side curtain airbag module assembly is a long, jointed part containing an inflator (A), a flexible bag (B), and brackets (C). When removing or installing the side curtain airbag inflator assembly, never do these things:
  - Drop the curtain airbag.
  - Cut, tear, or real the tape.
  - Handle the flexible bag (B).

SRS Unit, Front and Side Impact Sensors

- Turn the ignition switch to LOCK (0), disconnect the negative cable from the battery, then wait at least 3 minutes before beginning installation or replacement of the SRS unit or disconnecting the connectors from the SRS unit.
- Be careful not to bump or impact the SRS unit, front impact sensors or side impact sensors when the ignition switch is at ON (II), or for at least 3 minutes after the ignition switch is turned to LOCK (0).
- During installation or replacement, be careful not to bump (by impact wrench, hammer, etc.) the area around the SRS unit, front impact sensors or side impact sensors. The airbags could accidentally deploy and cause damage or injury.

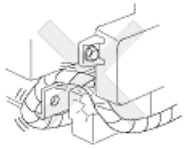
- After a collision where a front airbag, side airbags, side curtain airbags, or a seat belt tensioner deployed, go to Component Replacement/Inspection after Deployment. After a collision where the airbags or the side airbags did not deploy, inspect for any damage or any deformation on the SRS unit, front impact sensors and side impact sensors. Replace all damaged parts.
- Do not disassemble the SRS unit, front impact sensors and side impact sensors.
- Be sure the SRS unit, front impact sensors and side impact sensors are installed securely with the mounting bolts torqued to 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft) whenever you remove or replace the SRS unit, all impact sensors, always install the components with new TORX bolts.
- Do not spill water or oil on the SRS unit or the side impact sensors.

Wiring Precautions



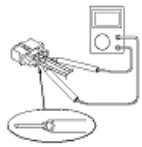
Some of the SRS wiring can be identified by special yellow outer covering, and the SRS connectors can be identified by their yellow color. Observe the instructions.

- Never attempt to modify, splice, or repair SRS wiring.
  If there is an open or damage in SRS wiring, replace the harness.

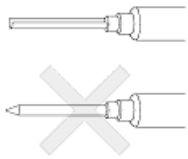


- Be sure to install the harness wires so they do not get pinched or interfere with other parts.
- Make sure all SRS ground locations are clean, and grounds are securely fastened for optimum metal-to-metal contact. Poor grounds can cause intermittent problems that are difficult to diagnose.
- Do not use any silicone based cleaners or lubricants on any SRS connectors or terminals.

Precautions for Electrical Inspections

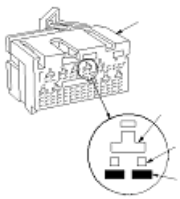


- When using electrical test equipment, insert the probe of the tester into the wire side of the connector (except waterproof connector). Do not insert the probe of the tester into the terminal side of the connector, and do not tamper with the connector.



- Use a U-shaped probe. Do not insert the probe forcibly.
- Use specified service connectors in troubleshooting.
  Using improper tools could cause an error in inspection due to poor metal-to-metal contact.

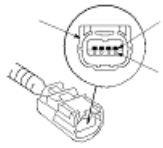
SRS Unit Connectors



When diagnosis/troubleshooting is done at the SRS unit connector (A), use the terminal test port (B) below the terminal (C) you need to check. Gently insert the pin probes of the tester or jumper wire at the terminal test port from the terminal side.
NOTE:

- Do not insert the pin probes of the tester or jumper wire at the terminal port and SRS short canceller terminal port (D).
- To prevent damage to the connector terminals, do not insert the test equipment probes, paper clips, or other substitutes as they can damage the terminals. Damaged terminals cause a poor connection and an in correct measurement.

Water Proof Connectors for SRS System

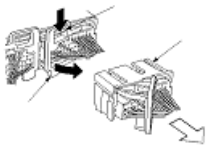


When diagnosis/troubleshooting is done at the water proof connector (A), use the terminal test port (B) above the terminal (C) you need to check. Gently contact the pin probe of the tester or jumper wire at the terminal test port from the terminal side.
NOTE:

- Do not insert the pin probes of the tester or jumper wire at the terminal port.
- To prevent damage to the connector terminals, do not insert the test equipment probes, paper clips, or other substitutes as they can damage the terminals. Damaged terminals cause a poor connection and an in correct measurement.

Lever-Locked Connector

The SRS unit connectors have a lever lock.



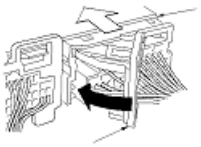
SRS Unit Connectors

Disconnecting

To release the lock, pull the lever (A) while pushing the lock (B), on the outside of the connector, then pull the connector (C).

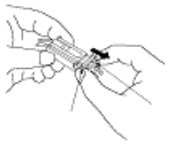
Connecting

To reconnect the connector, push in on the connector sleeve (A). As the connector is pressed in, the lever (B) moves to the locked position.



Spring-Loaded Lock Connector

Some SRS system connectors have a spring-loaded lock.



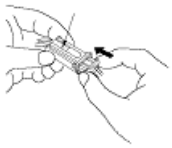
Front Airbag Connectors

Disconnecting

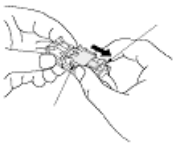
To release the lock, pull the spring-loaded sleeve (A) toward the stop (B) while holding the opposite half of the connector. Then pull the connector halves apart. Be sure to pull on the sleeve and not on the connector.

Connecting

To reconnect, hold the pawl-side connector, and press on the back of the sleeve-side connector in the direction shown. As the two connector halves are pressed together, the sleeve (A) is pushed back by the pawl (C). Do not touch the sleeve.



Side Airbag Connector



Disconnecting

To release the lock, pull the spring-loaded sleeve (A) toward the stop (B) while holding the opposite half of the connector. Then pull the connector halves apart. Be sure to pull on the sleeve and not on the connector half.

Connecting

Hold both connector halves, and press them firmly together until the projection (C) of the sleeve-side connector clicks.

Opening the SRS Unit Shorting Connectors for Diagnosis

Special Tools Required

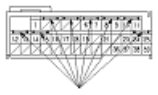
SRS short canceller
070AZ-SAA0100

NOTE:

- To prevent damaging the connector cavity, insert the short canceller straight into the cavity from the terminal side.
- Before installing the short canceller, wash it with electrical contact cleaner, then dry it with compressed air.
- Do not use the short canceller if it is damaged.
- Make sure to remove the short canceller before reconnection.

When SRS unit connectors A (39P) or B (39P) are disconnected, a short circuit is created in the connector by its own function to prevent an airbag deployment. The circuit may need to be open sometimes when diagnosis is done on the system. Insert the short canceller (070AZ-SAA0100) in the specified cavities when it is necessary to keep the circuit open for diagnosis.

Terminal numbers are shown from the wire side of the female terminals. Insert the short canceller(s) into the cavities on the terminal side of the connector.

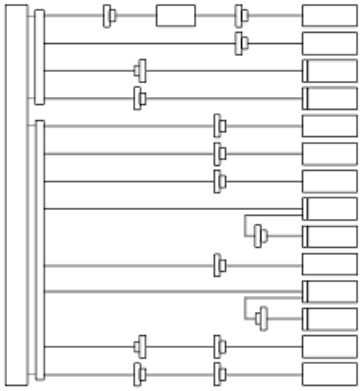


Seats with Side Airbags

Seats with side airbags have a “SIDE AIRBAG" label on the seat-back. Because the component parts (seat-back cover/pad etc.) of seats with and without airbags are different, make sure you install only the correct replacement parts.

- When cleaning, use a damp cloth to clean the seat. Do not soak the seat with liquid. Do not spray steam on the seat.
- Do not repair a torn or frayed seat-back cover. Replace the seat-back cover.
- After a collision where the side airbag was deployed, replace the side airbag and seat frame with new parts. If the seat-back cushion is split, it must be replaced.
- Never put aftermarket accessories on the seat (covers, pads, seat heaters, lights, etc.).

Disconnecting System Connectors



Turn the ignition switch to LOCK (0). Disconnect the negative cable from the battery. Wait for 3 minutes before starting the following procedures.

- Before disconnecting the cable reel 4P connector (1), disconnect the driver's airbag 4P connector (2).

---

1. Turn the ignition switch to LOCK (0). Disconnect the negative cable from the battery, then wait for 3 minutes.

Driver's Airbag

2. Remove the access panel (A) from the steering wheel, then disconnect the driver's airbag 4P connector (B) from the cable reel.

Front Passenger's Airbag

3. Lower the glove box, then remove the connector clip. Disconnect the front passenger's airbag 4P connector (A) from the dashboard wire harness (B).

Side Airbag

4. Disconnect both side airbag 2P connectors (A) from the floor wire harness.

Side Curtain Airbag

5. Remove the cargo area side trim panel.
6. Disconnect both floor wire harness 2P connectors (A) from the side curtain airbags.

Seat Belt Tensioner

7. Remove the center pillar lower trim:
   - Without side curtain airbag
   - With side curtain airbag
8. Disconnect both floor wire harness 4P connectors (A) from the seat belt tensioners.

SRS Unit

9. Remove the center console.
10. Remove the heater joint duct.
11. Disconnect SRS unit connectors A (39P) and B (39P) from the SRS unit.

Audio System Symptom Troubleshooting - Audio unit power switch will not turn on (No information display and no sound)

Audio unit power switch will not turn on (No information display and no sound)

NOTE:

- Check the vehicle battery condition first.
- Check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).
2. Push the power button on to see if audio unit turns on.

   Does the audio unit display operate properly, and does the audio unit sound normal?
   YES - Intermittent failure, the system is OK at this time.■
   NO - Go to Step 3 .
3. Turn off the audio unit, then turn the ignition switch to LOCK (0).
4. Check the No. 1 (10 A) and No. 14 (7.5 A) fuses in the under-dash fuse/relay box.

   Are the fuses OK?
   YES - Go to Step 5 .
   NO - Replace the fuse(s), and recheck.■
5. Remove the audio unit. Check that the audio unit connectors are properly connected.
   NOTE: Eject the CD before removing the audio unit to prevent damaging the CD player's load mechanism.

   Are they connected properly?
   YES - Go to Step 6 .
   NO - Repair poor connections and reconnect the connectors, and recheck the function.■
6. Disconnect audio unit connector A (24P).
7. Turn the ignition switch to ON (II).
8. Measure the voltage between body ground and audio unit connector A (24P) No. 14 and No. 24 terminals individually.

   Is there battery voltage?
   YES - Go to Step 9 .
   NO - Repair open or short in the wire(s) between the No. 1 (10 A) and No. 14 (7.5 A) fuse in the under-dash fuse/relay box and the audio unit.■
9. Turn the ignition switch to LOCK (0).
10. Reconnect audio unit connector A (24P).
11. Turn the ignition switch to ON (II).

---

12. Measure the voltage between audio unit connector A (24P) terminal No. 12 and body ground.

    Is there less than 0.1 V?
    YES - Substitute a known-good audio unit, and recheck. If the symptom/indication goes away, replace the original audio unit.■
    NO - Repair open in the wire between the audio unit and body ground (G503).■

Audio System Symptom Troubleshooting - Audio unit power switch will not turn off

Audio unit power will not turn off

NOTE:

- Check for aftermarket accessories plugged into the vehicle's accessory power sockets.
- Check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).
2. Push the power switch to see if the audio unit turn off.

   Does the audio unit turn off?
   YES - Operation is normal.■
   NO - Go to Step 3 .
3. Turn the ignition switch to LOCK (0).

   Does the audio unit turn off?
   YES - Replace the audio unit. ■
   NO - Go to Step 4 .
4. Remove the audio unit. and disconnect audio unit connector A (24P).
   NOTE: Eject the CD before removing the audio unit to prevent damaging the CD player's load mechanism.
5. Measure the voltage between audio unit connector A (24P) No. 14 terminal and body ground.

   Is there battery voltage?
   YES - Check for short to power on the PUR wire.
   NO - Substitute a known-good audio unit, and recheck. If the symptom/indication goes away, replace the original audio unit.■

No sound is heard from the speaker(s) (display is normal)

NOTE:

- Check the vehicle battery condition first.
- Check the connectors for poor connections or loose terminals.
- Set the fader and balance positions to the center.
- Set the VOL knob except MIN position.

1. Do the speaker check mode with the self-diagnostic function.

   Do any or all of the speakers fail to sound?
   YES -
   - If at least one speaker is OK, go to Step 6 .
   - If all speakers fail to sound, go to Step 2 .

   NO - System is OK at this time. Check for poor connections at the audio unit and speakers.■

2. Make sure the ignition switch to LOCK (0).

3. Remove the audio unit and disconnect audio unit connector A (24P).
   NOTE: Eject the CD before removing the audio unit to prevent damaging the CD player's load mechanism.

4. Check for continuity between audio unit connector A (24P) No. 14 terminal and body ground according to the table.

Speaker	Audio unit connector	Wire color
Left front door speaker	A23 (+)	LT BLU
	A22 (−)	LT GRN
Right front door speaker	A19 (+)	BRN
	A18 (−)	RED
Left rear door speaker	A11 (+)	GRY
	A10 (−)	BRN
Right rear door speaker	A7 (+)	BLU
	A6 (−)	ORN

   Is there continuity?
   YES - Repair short to body ground in the wire(s) between the audio unit and the faulty speaker(s).
   NO - Go to Step 5 .

5. Test the speaker(s).

   Is the speaker OK?
   YES - Go to Step 13 .■
   NO - Replace the speaker(s) and recheck.■

6. Make sure the ignition switch to LOCK (0).

7. Check the faulty speaker(s) face for damage.

   Is there any damage?
   YES - Replace the speaker(s) and recheck.■
   NO - Go to Step 8 .

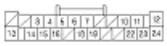
8. Test the speaker(s) with no sound.

   Is the speaker OK?
   YES - Go to Step 9 .
   NO - Replace the speaker(s) and recheck.■

9. Remove the audio unit and disconnect audio unit connector A (24P).
   NOTE: Eject the CD before removing the audio unit to prevent damaging the CD player's load mechanism.

10. Connect the speaker connector terminal (+) and (−) with a jumper wire.

11. Check for continuity between both pairs of speaker wires (+) and (−) at audio unit connector A (24P) according to the table.



Speaker	Audio unit connector	Wire color
Left front door speaker	A23 (+)	LT BLU
	A22 (−)	LT GRN
Right front door speaker	A19 (+)	BRN
	A18 (−)	RED
Left rear door speaker	A11 (+)	GRY
	A10 (−)	BRN
Right rear door speaker	A7 (+)	BLU
	A6 (−)	ORN

Is there continuity?

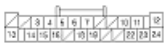
YES - Go to Step 12 .

NO - Repair open in the wires between the audio unit and the faulty speaker(s).■

12. Disconnect the jumper wire.

---

13. While disconnecting the speaker connector(s), check for continuity between both pairs of speaker wires (+) and (−) at audio unit connector A (24P) according to the table.



Speaker	Audio unit connector	Wire color
Left front door speaker	A23 (+)	LT BLU
	A22 (−)	LT GRN
Right front door speaker	A19 (+)	BRN
	A18 (−)	RED
Left rear door speaker	A11 (+)	GRY
	A10 (−)	BRN
Right rear door speaker	A7 (+)	BLU
	A6 (−)	ORN

Is there continuity?

YES - Repair short in the wire(s) between the audio unit and the faulty speaker(s).■

NO - Replace the audio unit. ■

Audio system sound is weak or distorted (display is normal)

NOTE:

- Check the vehicle battery condition first.
- Check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).
2. Turn on the audio unit and check for sound in each mode (AM, FM, and CD).

Is there sound from the speakers, and is the sound quality normal in each mode?

YES - Intermittent failure. The system is OK at this time. Check for loose connections at the audio unit and each speaker.■

NO - Speakers all work, sound quality is poor.■

- If the sound quality is poor only with AM or FM, go to poor AM or FM radio reception or interference.
- If the sound is poor in all modes, go to no sound is heard from speaker(s).

Audio unit button illumination does no work

NOTE:

- Check the vehicle battery condition first.
- Check the connectors for poor connections or loose terminals.

1. Check the No. 29 (10 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?
   YES - Go to Step 2 .
   NO - Replace the fuse, and recheck.■

2. Turn the ignition switch to ON (II).

3. Turn the combination lighting switch to the parking light position.

4. Check the illumination of the audio unit buttons.

   Are the buttons illuminated?
   YES - Intermittent failure: the audio unit is OK at this time. Check for loose or poor connections at the audio unit connector A (24P).■
   NO - Go to Step 5 .

5. Check the illumination of several other buttons not related to the audio system.

   Are the buttons illuminated?
   YES - Go to Step 6 .
   NO - Troubleshoot the dashboard illumination circuit.■

6. Turn the ignition switch to LOCK (0).

7. Disconnect audio unit connector A (24P).
   NOTE: Eject the CD before removing the audio unit to prevent damaging the CD player's load mechanism.

8. Turn the ignition switch to ON (II).

9. With the headlight switch still on, measure the voltage between audio unit connector A (24P) terminal No. 13 and body ground.

   Is there battery voltage?
   YES - Check the connections at audio unit connector A (24P). If all connections are OK, replace the audio unit. ■
   NO - Repair open in the wire between the under-dash fuse/relay box and the audio unit.■

Audio System Symptom Troubleshooting - Audio disc does not eject

Audio disc does not eject

NOTE:

- Check the vehicle battery condition first.
- Disc labels should not be used in the audio unit. They may damage the player mechanism.
- Check the connectors for poor connections or loose terminals

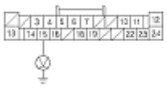
1. Turn the ignition switch to ON (II).
2. Turn on the audio unit.

   Does the system turn on?
   YES - Go to Step 3 .
   NO - Go to Audio unit power switch will not turn on. ■
3. Check to see if the disc ejects correctly with no binding when you push the EJECT button.

   Does the disc eject properly?
   YES - Operation is normal.■
   NO - Go to Step 4 .
4. Turn the ignition switch to LOCK (0).
5. Substitute a known-good center panel

   Is the symptom still present?
   YES - Replace the original center unit.■
   NO - Replace the audio unit. ■

Volume does not increase with speed



NOTE:

- Check the vehicle battery condition first.
- Check the connectors for poor connections or loose terminals.

1. Test-drive the vehicle at highway speeds and monitor if the volume increases.

   Does the volume increase?
   YES - Intermittent failure, the system is OK at this time.■
   NO - Go to Step 2 .

2. Verify SVC mode setting in audio unit sound adjustment set-up.

   Is the SVC set to off?
   YES - Change setting to MID and retest.■
   NO - Go to Step 3 .

3. Turn the ignition switch to LOCK (0).

4. Remove the audio unit , and disconnect audio unit connector A (24P).
   NOTE: Eject the CD before removing the audio unit to prevent damaging the CD player's load mechanism.

5. Turn the ignition switch to ON (II).

6. Drive the vehicle and have an assistant measure the voltage at audio unit connector A (24P) terminal No. 15.

   Is there a 0−5 V pulse?
   YES - Substitute a known-good audio unit, and recheck. If the symptom/indication goes away, replace the original audio unit.■
   NO - Repair opens or shorts in the wire between audio unit connector A (24P) No. 15 terminal and ECM/PCM connector A (49P) No. 30 terminal. If no opens are found, substitute a known-good ECM/PCM and recheck. If the symptom/indicated goes away, replace the original ECM/PCM. ■

Volume is too high or too low when driving at freeway speeds

1. Test-drive the vehicle at highway speeds and monitor volume level.

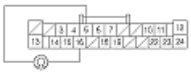
   Is the volume level too high or too low?
   YES - Go to Step 2 .
   NO - internal failre, the system is OK at this time.■

2. Change SVC mode setting in sound adjustment set-up to MID and retest.

   Is the volume level still too high, or too low?
   YES - Replace the audio unit. ■
   NO - Improper (SVC) setting for the customer's sound preference, Advise the customer to try different SVC settings.■

Audio remote switch does not work properly

NOTE:



- Check the vehicle battery condition first.
- Check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).
2. Turn on the audio unit and check the audio unit operation (volume up, volume down, CH (UP), CH (DOWN), MODE).

   Is the audio unit operation OK?
   YES - Go to Step 3 .
   NO - Go to audio unit button does not work. ■
3. Turn the ignition switch to LOCK (0).
4. Do the audio remote switch test.

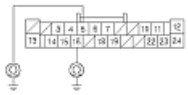
   Is the audio remote switch OK?
   YES - Go to Step 5 .
   NO - Replace the audio remote switch.
5. Remove the audio unit.
6. Disconnect audio unit connector A (24P).
   NOTE: Eject the CD before removing the audio unit to prevent damaging the CD player's load mechanism.
7. Reconnect the audio remote switch, and measure the resistance between audio unit connector A (24P) terminals No. 5 and No. 16 as specified in the table.

AUDIO REMOTE SWITCH TABLE

Button held down	VOL DOWN	VOL UP	CH (−)	CH (+)	MODE	No button pressed
Resistance	about 100 Ω	about 357 Ω	about 775 Ω	about 1.7 kΩ	about 3.7 kΩ	about 10 kΩ

Is the resistance OK?
YES - Go to Step 8 .
NO - Repair short or high resistance in the circuit between the audio unit and the audio remote switch. If the wires are OK, replace the cable reel. ■

8. Check for continuity between body ground and the No. 5 and No. 16 terminals of audio unit connector A (24P) individually.



   Is there continuity?
   YES - Repair short to body ground in the circuit between the audio unit and the audio remote switch. If the wires are OK, replace the cable reel. ■
   NO - Substitute a known-good audio unit, and recheck. If the symptom/indication goes away, replace the original audio unit. ■

Audio unit button does not work

NOTE:

- Check the vehicle battery condition first.
- Check the connectors for poor connections or loose terminals.
- If the audio unit does not turn on, go to audio unit power switch will not turn on.

1. Turn the ignition switch to ON (II).
2. Using the owner's manual, check if the symptom is duplicated that uses the faulty button.

   Is the symptom duplicated?
   YES - Go to Step 3 .
   NO - The system is OK. There is a possibility of doing an improper operation.■
3. Turn the ignition switch to LOCK (0).
4. Substitute a known-good center panel. and recheck.

   Is the symptom still present?
   YES - Replace the original center panel.■
   NO - Replace the audio unit.

Audio unit disc indicator does not work

NOTE: CD with labels should not be used in the audio unit. They may damage the player mechanism.

1. Turn on the audio system.
2. Insert a known-good disc or press the EJECT button.

Is the DISC indicator (LED) indicated?

YES - The audio unit is OK at this time. Check for loose or poor connections at audio unit and center panel.■

NO - Substitute a known-good audio unit, and recheck. If the symptom/indication goes away, replace the original audio unit. If the symptom is still present, substitute a known-good center panel, and recheck. If the symptom/indication goes away, replace the original center panel.■

USB audio device input sound is low or cannot be heard

NOTE:

- Check the vehicle battery condition first.
- Check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).
2. Do the speaker check mode with the self-diagnostic mode.

   Do all speakers make a sound?
   YES - Go to Step 3 .
   NO - Go to no sound is heard from speaker(s).■
3. Turn the ignition switch to LOCK (0).
4. Connect the customer' s USB device to a known-good vehicle that equipped with the USB adapter and check the USB device operation.

   Is the USB device working properly?
   YES - Go to Step 5 .
   NO - USB device is faulty. Also check the USB cable and USB adapter connector condition.■
5. On the customer's vehicle, connect the customer's USB device to the USB adapter.
6. Turn the ignition switch to ON (II) and turn on the audio unit.
7. Check if the USB device can be operated with the audio unit (Folders or Files UP/DOWN, etc.).

   Can the USB device be operated but no sound is heard?
   YES - Go to Step 8 .
   NO - If the sound is normal, USB device is OK at this time. If the USB device cannot be operated, Go to USB audio device does not work. ■
8. Turn the ignition switch to LOCK (0).
9. Disconnect audio unit connector C (14P).
10. Disconnect USB adapter unit connector A (14P).
11. Check for continuity between the terminals of audio unit connector C (14P) according to the table.

From terminal(wire color)	To terminals(wire color)
C4 (PNK)	C5 (BRN), C6 (WHT), C13 (RED), C14 (LT BLU)
C5 (BRN)	C6 (WHT), C13 (RED), C14 (LT BLU)
C6 (WHT)	C13 (RED), C14 (LT BLU)
C13 (RED)	C14 (LT BLU)

   Is there continuity between any of the terminals?
   YES - Short in the wires between audio unit and USB adapter unit. Replace the affected shielded harness.■
   NO - Go to Step 12 .

12. Check for continuity between audio unit connector C (14P) and USB adapter unit connector A (14P) according to the table.

Audio unit connector	USB adapter unit connector	Wire color
C5	A5	BRN
C6	A6	WHT
C13	A13	RED
C14	A14	LT BLU

   Is there continuity?
   YES - Substitute a known-good USB adapter unit, then reconnect all of the connectors and recheck. If the symptom/indication goes away, replace the original USB adapter unit. If the symptom/indication is still present, replace the audio unit.■
   NO - Open in the wire(s) between the audio unit and the USB adapter unit. Replace the affected shielded harness.■

USB audio device does not work

NOTE:

- Check the vehicle battery condition first.
- Check the connectors for poor connections or loose terminals.
- Check the USB device requirement:
  - Mass-storage class ready digital audio player with USB 2.0 port
  - More than 256 MB of RAM
  - Supports MP3, WMA, and AAC (encorded with the i-Tunes) files, DRM files are not supported

1. Turn the ignition switch to ON (II) and turn on the audio unit.
2. Push the AUX button to select USB mode.

   Is USB NO DATA displayed?
   YES - Go to Step 3 .
   NO - Go to Step 8 .
3. Turn the ignition switch to LOCK (0).
4. Connect the customer's USB device to a known-good vehicle that equipped with the USB adapter and check the USB device operation.

   Is the USB device working properly?
   YES - Go to Step 5 .
   NO - USB device is faulty. Also check the USB cable and USB adapter connector condition.■
5. On the customer's vehicle, remove the USB adapter.
6. Disconnect USB adapter unit connector B (5P).
7. Check for continuity between the terminals of USB adapter unit connector B (5P) and USB adapter 5P connector according to the table.

USB adapterunit connector	USB adapterconnector
B1	1
B2	2
B3	3
B4	4

   Is there continuity?
   YES - Substitute a known-good USB adapter cable and recheck. If the symptom/indication goes away, replace the original USB adapter cable. If the symptom/indication still present, go to Step 9 .
   NO - Open in the wire(s) between the USB adapter unit and the USB adapter. Replace the affected shielded harness.■
8. Turn the ignition switch to LOCK (0).
9. Remove the audio unit. Check that the audio unit connectors and the USB adapter unit connectors properly connected.

   Is the connectors properly connected?
   YES - Go to Step 10 .
   NO - Connect the connectors and recheck.■
10. Disconnect USB adapter unit connector A (14P).
11. Turn the ignition switch to ON (II).

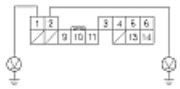
---

12. Measure the voltage between body ground and USB adapter unit connector A (14P) No. 1 and No. 2 terminals individually.

    Is there battery voltage?
    YES - Go to Step 14 .
    NO - Go to Step 13 .

---

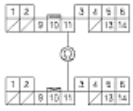
13. Measure the voltage between body ground and audio unit connector C (14P) No.1 and No.2 terminals individually.



    Is there battery voltage?
    YES - Repair open or short in the wire(s) between the audio unit and the USB adapter unit.■
    NO - Replace the audio unit.■
14. Turn the ignition switch to LOCK (0).
15. Disconnect audio unit connector C (14P).

---

16. Check for continuity between audio unit connector C (14P) No. 11 terminal and USB adapter unit connector A (14P) No. 11 terminal.



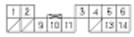
Is there continuity?

YES - Go to Step 17 .

NO - Repair open in the wire between the audio unit and the USB adapter unit.■

---

17. Check for continuity between the terminals of audio unit connector C (14P) according to the table.



From terminal(wire color)	To terminals(wire color)
C3 (GRY)	C9 (YEL), C10 (GRN)
C9 (YEL)	C10 (GRN)

Is there continuity between any of the terminals?

YES - Short in the wires between the audio unit and the USB adapter unit. Replace the affected shielded harness.■

NO - Go to Step 18 .

---

18. Check for continuity between the terminals of audio unit connector C (14P) and USB adapter unit connector A (14P) according to the table.

Audio unit connector	USB adapter unit connector	Wire color
C9	A9	YEL
C10	A10	GRN

Is there continuity?

YES - Substitute a known-good USB adapter unit, then reconnect all of the connectors and recheck. If the symptom/indication goes away, replace the original USB adapter unit. If the symptom/indication is still present, replace the audio unit. ■

NO - Open in the wire(s) between the audio unit and the USB adapter unit. Replace the affected shielded harness.■

Poor AM or FM radio reception or interference

Diagnostic procedure

1. Symptom Troubleshooting

Also check for

- Antenna lead and/or sublead short or open in the wire

Audio unit power switch will not turn on (No information display and no sound)

Diagnostic procedure

1. Symptom Troubleshooting

Audio unit power switch will not turn off

Diagnostic procedure

1. Symptom Troubleshooting

No sound is heard from the speaker(s) (display is normal)

Diagnostic procedure

1. Symptom Troubleshooting

Audio system sound is weak or distorted (display is normal)

Diagnostic procedure

1. Symptom Troubleshooting

Audio unit button illumination does not work

Diagnostic procedure

1. Symptom Troubleshooting

Audio disc does not eject

Diagnostic procedure

1. Symptom Troubleshooting

Volume does not change

Diagnostic procedure

1. Symptom Troubleshooting

Volume does not increase with speed

Diagnostic procedure

1. Symptom Troubleshooting

Volume is too high or too low when driving at freeway speeds

Diagnostic procedure

1. Symptom Troubleshooting

Audio disc does not load

Diagnostic procedure

1. Symptom Troubleshooting

Audio disc does not play

Diagnostic procedure

1. Symptom Troubleshooting

Audio disc skips

Diagnostic procedure

1. Symptom Troubleshooting

Also check for

- Tyre pressure (over-inflated), disc smudged, dirty, or scratched

Audio remote switch does not work properly

Diagnostic procedure

1. Symptom Troubleshooting

Audio unit button does not work

Diagnostic procedure

1. Symptom Troubleshooting

Audio unit disc indicator does not work

Diagnostic procedure

1. Symptom Troubleshooting

USB audio device input sound is low or cannot be heard

Diagnostic procedure

1. Symptom Troubleshooting

Also check for

- Requirement of the USB devices (see Owner's manual)

USB audio device does not work

Diagnostic procedure

1. Symptom Troubleshooting

Also check for

- Requirement of the USB devices (see Owner's manual)

Audio System Symptom Troubleshooting Index

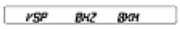
Symptom	Diagnostic procedure	Also check for
Poor AM or FM radio reception or interference	Symptom Troubleshooting	Antenna lead and/or sublead short or open in the wire
Audio unit power switch will not turn on (No information display and no sound)	Symptom Troubleshooting	
Audio unit power switch will not turn off	Symptom Troubleshooting	
No sound is heard from the speaker(s) (display is normal)	Symptom Troubleshooting	
Audio system sound is weak or distorted (display is normal)	Symptom Troubleshooting	
Audio unit button illumination does not work	Symptom Troubleshooting	
Audio disc does not eject	Symptom Troubleshooting	
Volume does not change	Symptom Troubleshooting	
Volume does not increase with speed	Symptom Troubleshooting	
Volume is too high or too low when driving at freeway speeds	Symptom Troubleshooting	
Audio disc does not load	Symptom Troubleshooting	
Audio disc does not play	Symptom Troubleshooting	
Audio disc skips	Symptom Troubleshooting	Tyre pressure (over-inflated), disc smudged, dirty, or scratched
Audio remote switch does not work properly	Symptom Troubleshooting	
Audio unit button does not work	Symptom Troubleshooting	
Audio unit disc indicator does not work	Symptom Troubleshooting	
USB audio device input sound is low or cannot be heard	Symptom Troubleshooting	Requirement of the USB devices (see Owner's manual)
USB audio device does not work	Symptom Troubleshooting	Requirement of the USB devices (see Owner's manual)

Audio System Self-diagnostic Function

Audio Unit Self-diagnostic Mode

1. Turn the ignition switch to ON (II). Make sure turn off the audio unit.
2. Push and hold the preset No. 1 and No. 6 buttons. While holding the buttons, push the power button (A). Release the buttons and the self-diagnostic mode begins.

3. Each time you press the preset button, the diagnostic state is displayed according to the table.



	Button operation	Desired result	Diagnostic procedure
	Pressing the preset No. 2 button	The audio unit (center panel) buttons or audio remote switch name and/or value should be displayed (Except power button)	• Audio unit button does not work. • Audio remote switch does not work properly.
A	Pressing the preset No. 3 button	The all of display segments should become on/go off	If all of display segments does not come on, replace the audio unit.
B	Pressing the preset No. 4 button	When the parking light switch is on, the illumination steps should be changed from − step to 22 step while adjusting the dash brightness control knob	• Audio unit button illumination does not work. • Gauge control module (Lighting)
C	Pressing the preset No. 5 button	When you drive the vehicle, the VSP indicates the vehicle speed in km/h.	Volume does not increase with speed.

4. If the diagnosis result is not matching the desired result, do the affected system troubleshooting.
5. The self-diagnostic mode ends when you turn off the audio unit or turn the ignition switch to LOCK (0).

Speaker Check Mode

1. Turn the ignition switch to ON (II). Make sure turn off the audio unit.
2. Push and hold the preset No. 1 and No. 3 buttons. While holding the buttons, push the power button (A). Release the buttons and the speaker check mode begins. Low-Frequency hum should sound from left front door speaker.
3. Each time you press the or ►►| button, the speaker outputs a beep and test the speakers in the order listed. The volume of beep can de adjusted with the VOL PUSH SELECT knob.

Order of Speakers

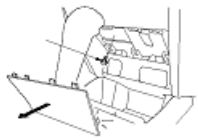
(►►|) is pressed: (1)→(2)→(3)→(4)→(5)
( ) is pressed: (1)→(5)→(4)→(3)→(2)

	Speaker	Displayed Segments
(1)	Left front door speaker	SPKR FR-L
(2)	Right front door speaker	SPKR FR-R
(3)	Right rear door speaker	SPKR RR-R
(4)	Left rear door speaker	SPKR RR-L
(5)	All speakers	SPKR ALL

4. If any speaker(s) fail to sound, go to symptom troubleshooting.
5. The speaker check mode ends when you turn off the audio unit or turn the ignition switch to LOCK (0).

Audio Unit Removal/Installation

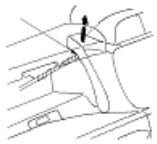
SRS components are located in this area. Review the SRS component location.
Also review the precautions and procedures in the SRS section before doing repairs or service.
NOTE:



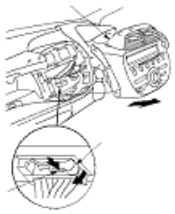
- Put on gloves to protect your hands.
- Take care not to scratch the dashboard and related parts.
- Lay a workshop towel under the parts when working on them to protect the face panel from scratches or other damage.
- Do not work in a dusty or dirty place.
- Discharge static electricity from your body before and during the work.
- Do not touch the circuit board(s) with your bare hands.
- Do not work with dirty hands.
- Be careful not to fold the flat plate cable.
- Eject the CD before remove the audio unit to prevent damaging the CD player's load mechanism.
- If you are replacing the audio unit, write down the audio presets (if possible), and enter them into the new audio unit.

1. If equipped with the anti-theft codes, make sure you have anti-theft codes for the audio system.
2. Remove the center lower cover.
3. Under the audio unit, remove the bolt (A).

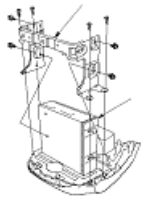
4. Open the dashboard upper tray lid. Insert a flat-tip screwdriver in the groove (A), then pull the screwdriver shaft up slightly.



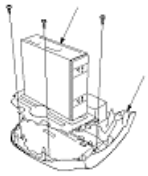
5. Pull the center panel (A) out and disconnect the connectors, then remove the center panel.
   NOTE: When you disconnect audio unit connector A, while pushing the tab (B), pull the lever (C) up and disconnect the connector.
6. With USB adapter, remove the USB adapter unit.



7. Remove the mounting screws and bolts from the audio unit (A), then remove the bracket (B).

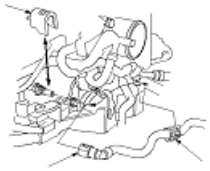


8. Remove the screws and the audio unit (A) from the center panel (B).
9. Install the audio unit in the reverse order of removal, and note these items:
   - Make sure all connectors are secure.
   - If needed, enter the anti-theft codes for the audio system.
   - Set the clock.



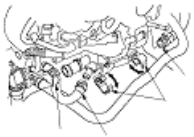
Cylinder Head Removal

NOTE:



- Use fender covers to avoid damaging painted surfaces.
- To avoid damage, unplug the wiring connectors carefully while holding the connector portion.
- To avoid damaging the cylinder head, wait until the engine coolant temperature drops below 38 °C (100 °F) before loosening the cylinder head bolts.
- Mark all wiring and hoses to avoid misconnection. Also, be sure that they do not contact other wiring or hoses, or interfere with other parts.

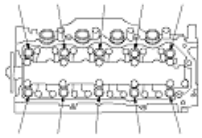
1. Relieve fuel pressure.
2. Drain the engine coolant.
3. Do the battery removal procedure.
4. Remove the air cleaner housing assembly.
5. Remove the fuel feed hose clamp (A) and the quick-connect fitting cover (B), then disconnect the fuel feed hose (C).



6. Disconnect the upper radiator hose (A), the heater hose (B), and the water bypass hose (C).
7. Remove the heater hose from the clamps (D).
8. Remove the intake manifold/chamber assembly.
9. Remove the warm up three way catalytic converter (WU-TWC).
10. Remove the following engine wire harness connectors and wire harness clamps from the cylinder head:
    - Four injector connector
    - Engine coolant temperature (ECT) sensor 1 connector
    - Camshaft position (CMP) sensor connector
    - Secondary heated oxygen sensor (secondary HO2S) connector
    - Rocker arm oil control solenoid connector

11. Remove the harness holder.

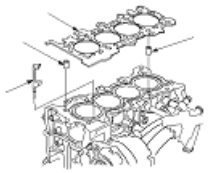
12. Remove the harness holder mounting bolt (A) and the ground cable (B), then remove the harness holder (C) from the bracket.
13. Remove the cylinder head cover.
14. Remove the cam chain.



15. Remove the cylinder head bolts. To prevent warpage, loosen the bolts in sequence 1/3 turn at a time; repeat the sequence until all bolts are loosened.
16. Remove the cylinder head.

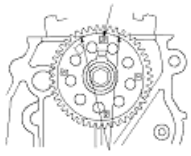
Cylinder Head Installation

1. Clean the cylinder head and the block surface.
2. Install a new coolant separator (A) in the engine block whenever the engine block is replaced.
3. Install the new cylinder head gasket (B) and the dowel pins (C) on the engine block. Always use a new cylinder head gasket.

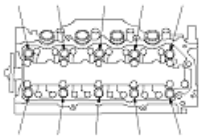


4. Set the crankshaft to top dead center (TDC). Align the TDC mark (A) on the crankshaft sprocket with the pointer (B) on the oil pump.

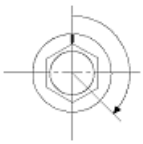
5. Set the camshaft TDC. The ‘‘UP" mark (A) on the camshaft sprocket should be at the top, and the TDC grooves (B) on the camshaft sprocket should line up with the top edge of the head.
6. Install the cylinder head on the engine block.
7. Apply new engine oil to the threads and under the bolt heads of all cylinder head bolts.



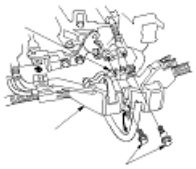
8. Tighten the cylinder head bolts in sequence to 29 N·m (3.0 kgf·m, 22 lbf·ft). Using a beam-type torque wrench. When using a preset-type torque wrench, be sure to tighten slowly and do not overtighten. If a bolt makes any noise while you are torquing it, loosen the bolt and retighten it from the first step.



9. Tighten all cylinder head bolts an additional 130 °
10. Install the cam chain.
11. Install the cylinder head cover.

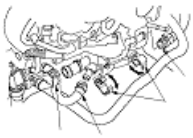


12. Install the harness holder (A), then install the ground cable (B).

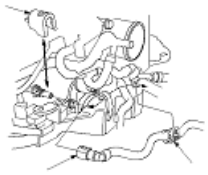


13. Install the harness holder.
14. Connect the engine wire harness connectors, and install the wire harness clamps to the cylinder head.
    - Four injector connector
    - Engine coolant temperature (ECT) sensor 1 connector
    - Camshaft position (CMP) sensor connector
    - Secondary heated oxygen sensor (secondary HO2S) connector
    - Rocker arm oil control solenoid connector
15. Install the warm up three way catalytic converter (WU-TWC).
16. Install the intake manifold/chamber assembly.

17. Install the upper radiator hose (A), the heater hose (B), and the water bypass hose (C).
18. Install the heater hose to the clamps (D).

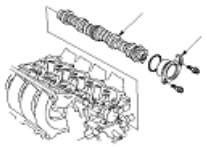


19. Connect the fuel feed hose (A), then install the quick-connect fitting cover (B) and the fuel feed hose clamp (C).



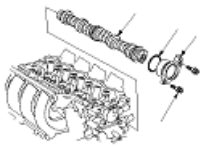
20. Install the air cleaner housing assembly.
21. Do the battery installation procedure.
22. Inspect for fuel leaks. Turn the ignition switch to ON (II) (do not operate the starter) so the fuel pump runs for about 2 seconds and pressurizes the fuel line. Repeat this operation three times, then check for fuel leakage at any point in the fuel line.
23. Refill the radiator with engine coolant, and bleed air from the cooling system with the heater valve open.
24. Do the crankshaft position (CKP) pattern clear/CKP pattern learn procedure.
25. Inspect the idle speed.
26. Inspect the ignition timing.

Camshaft Removal



1. Remove the air cleaner housing assembly.
2. Remove the intake manifold chamber.
3. Remove the following engine wire harness connectors and wire harness clamps from the cylinder head:
   - Four injector connector
   - Engine coolant temperature (ECT) sensor 1 connector
   - Camshaft position (CMP) sensor connector
   - Air fuel ratio (A/F) sensor connector
   - Secondary heated oxygen sensor (secondary HO2S) connector
4. Remove the harness holder mounting bolt and the ground cable, then remove the harness holder from the bracket.
5. Remove the camshaft sprocket.
6. Remove the rocker arm assembly.
7. Remove the CMP sensor.
8. Remove the camshaft thrust cover (A), then remove the camshaft (B).

Camshaft Installation

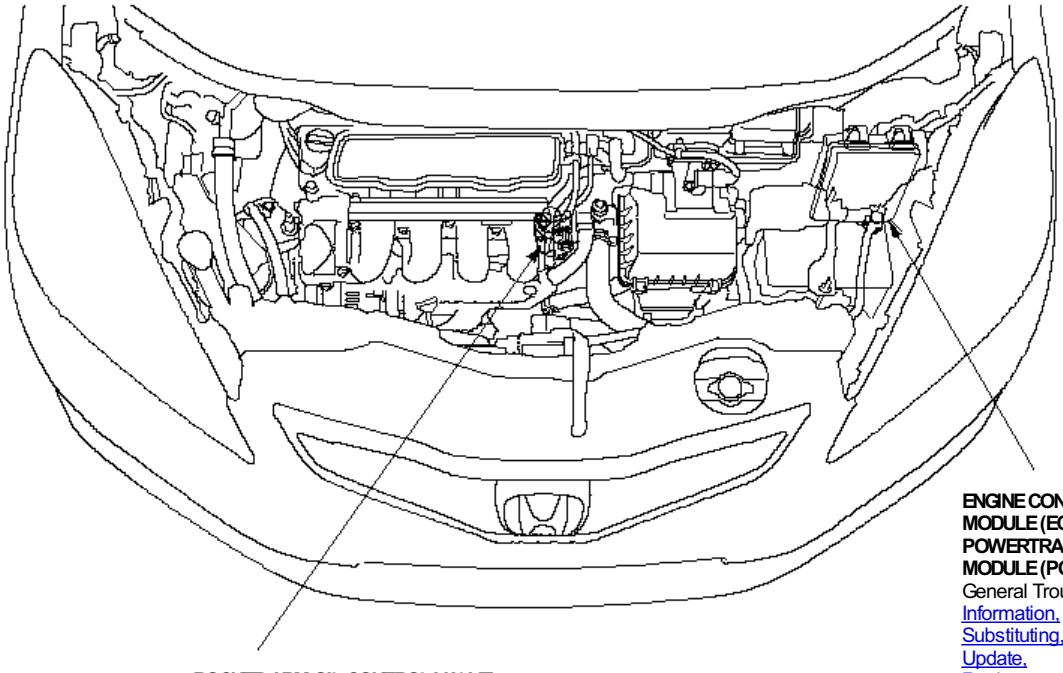


1. Install the camshaft (A), then install the camshaft thrust cover (B) with new O-ring (C).
2. Install the camshaft position (CMP) sensor.
3. Install the rocker arm assembly.
4. Install the camshaft sprocket.
5. Install the harness holder, then install the ground cable.
6. Install the following engine wire harness connectors and wire harness clamps to the cylinder head:
   - Four injector connector
   - Engine coolant temperature (ECT) sensor 1 connector
   - CMP sensor connector
   - Air fuel ratio (A/F) sensor connector
   - Secondary heated oxygen sensor (secondary HO2S) connector
7. Install the intake manifold chamber.
8. Install the air cleaner housing assembly.

Fuel and Emissions System Description - VTEC System

VTEC System (L13Z1 engine)
Operation (L13Z1 engine)
VTEC System (L15A7 engine)
Operation (L15A7 engine)

VTEC Component Location Index



ENGINE CONTROL MODULE (ECM)/ POWERTRAIN CONTROL MODULE (PCM)
General Troubleshooting Information,
Substituting,
Update,
Replacement,

ROCKER ARM OIL CONTROL VALVE
Removal/Installation,

*: This illustration shows RHD model.

VTEC System Oil Pressure Troubleshooting

Special Tools Required

Oil pressure gauge joint attachment
07NAJ-P070100

Low pressure gauge assy. 1,000 kPa
07406-0070002

Oil pressure hose
07ZAJ-S5A0200

NOTE:

- Check for Temporary DTCs or DTCs with the HDS before this procedure. If there are any DTCs indicated, troubleshoot them first, then do this procedure.
- Check that the oil pressure indicator goes off after starting engine before this procedure.

1. Turn the ignition switch to ON (II).
2. Do the VTEC TEST in the INSPECTION MENU with the HDS.

   Can you hear the rocker arm oil control solenoid click?
   YES - Go to Step 6 .
   NO - Go to Step 3 .
3. Turn the ignition switch to LOCK (0).
4. Disconnect the rocker arm oil control solenoid 2P connector.
5. Connect the battery positive terminal (+) to terminal No. 1, and the negative terminal (−) with a wire.

   Is the rocker arm oil control solenoid clicking?
   YES - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■
   NO - Go to Step 22 .
6. Turn the ignition switch to LOCK (0).

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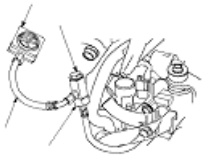
7. Remove the bolt (A) from the rocker arm oil control valve and connect the special tool as shown, the install the bolt (A) that was removed to the oil pressure gauge joint attachment.



8. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
9. Check the oil pressure at the engine speed of 1,000 to 2,000 rpm (min $^{-1}$).
   NOTE: Keep the measuring time as short as possible (less than 1 minute).

   Is the oil pressure below 49 kPa (0.5 kgf/cm ^{2} , 7 psi)?
   YES - Go to Step 10 .
   NO - Go to Step 22 .
10. Turn the ignition switch to LOCK (0).
11. Disconnect the rocker arm oil control solenoid 2P connector.

---

12. Connect the battery positive terminal (+) to terminal No. 1, and the negative terminal (−) with a wire.
13. Start the engine.

14. Check the oil pressure at the engine speed of 3,500 rpm (min $^{-1}$).
    NOTE: Keep the measuring time as short as possible (less than 1 minute).

    Is the oil pressure above 392 kPa (4.0 kgf/cm ^{2} , 56.9 psi)?
    YES - The VTEC system oil pressure is normal.■
    NO - Go to Step 15 .
15. Turn the ignition switch to LOCK (0).
16. Remove the rocker arm oil control valve.
17. Check the rocker arm oil control solenoid filter for dirt and clogging.

    Is the rocker arm oil control solenoid filter dirty or clogged?
    YES - Replace the engine oil, engine oil filter, and the rocker arm oil control solenoid filter, then go to Step 18 .
    NO - Go to Step 22 .

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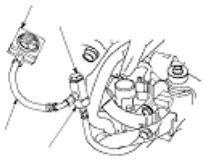
18. Remove the bolt (A) from the rocker arm oil control valve and connect the special tool as shown, the install the bolt that was removed to the oil pressure gauge joint attachment.

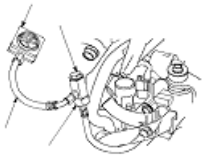


19. Connect the battery positive terminal (+) to terminal No. 1, and the negative terminal (−) with a wire.
20. Start the engine.

21. Check the oil pressure at the engine speed of 3,500 rpm (min $^{-1}$).
    NOTE: Keep the measuring time as short as possible (less than 1 minute).

    Is the oil pressure above 392 kPa (4.0 kgf/cm ^{2}, 56.9 psi)?
    YES - Troubleshooting is complete.■
    NO - Go to Step 22 .
22. Replace the rocker arm oil control valve.

23. Remove the bolt (A) from the rocker arm oil control valve and connect the special tool as shown, the install the bolt that was removed to the oil pressure gauge joint attachment.



24. Connect the battery positive terminal (+) to terminal No. 1, and the negative terminal (−) with a wire.
25. Start the engine.

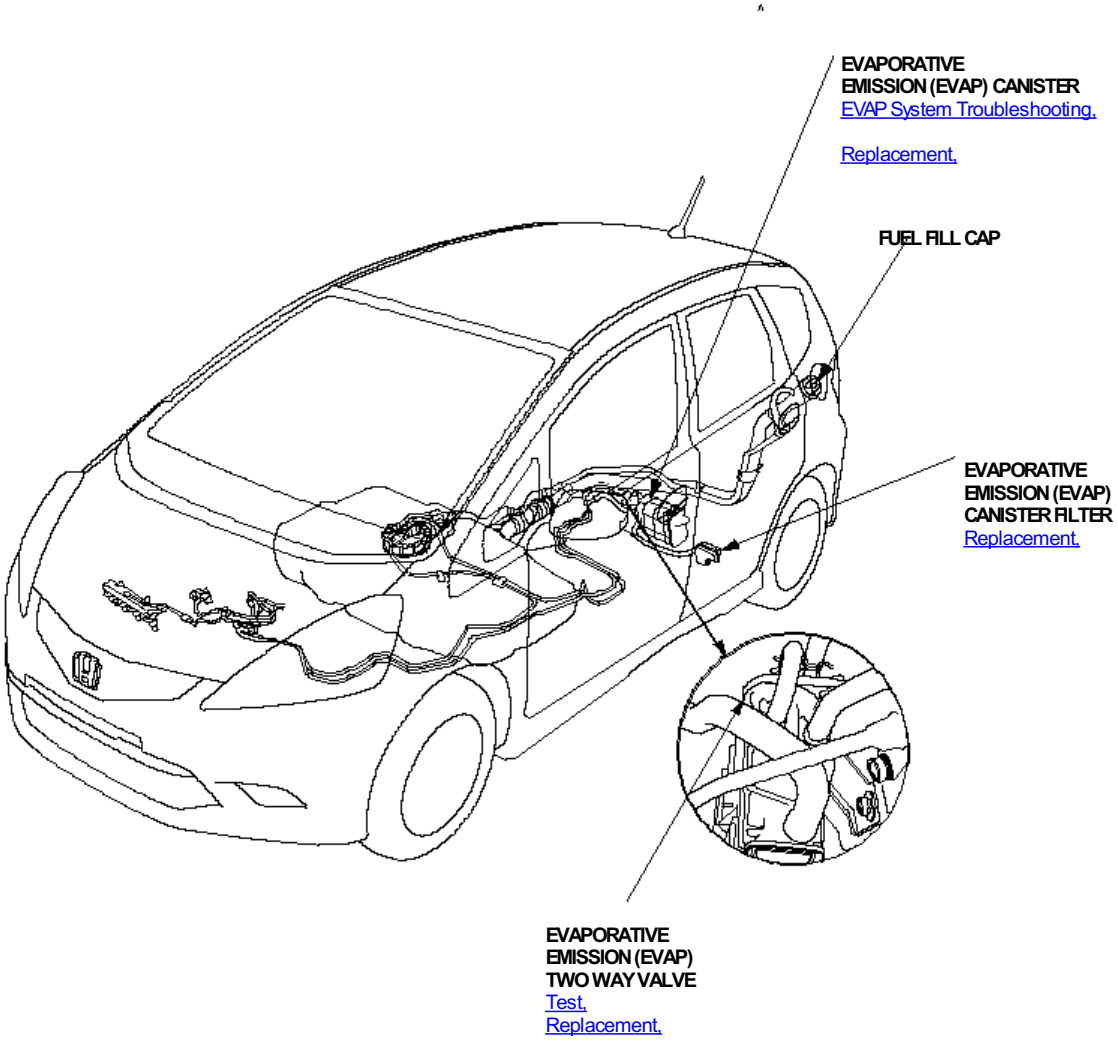
26. Check the oil pressure at the engine speed of 3,500 rpm (min $^{-1}$).
    NOTE: Keep the measuring time as short as possible (less than 1 minute).

    Is the oil pressure above 392 kPa (4.0 kgf/cm ^{2}, 56.9 psi)?
    YES - Troubleshooting is complete.■
    NO - Clean the oil passage of the cylinder block or replace the cylinder block.■

Fuel and Emissions System Description - EVAP Control Diagram

Evaporative Emission (EVAP) Control Diagram

EVAP System Component Location Index



EVAP System Troubleshooting

Special Tools Required

Combination gauge kit 20/−100 kPa
07YAJ-0010610

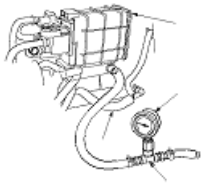
Tube joint adapter
07410-5790503

RHD model

1. Disconnect the vacuum hose (A) from the EVAP canister purge valve (B) and connect a vacuum pump/gauge (C) to the hose.
2. Start the engine, and let it idle.
   NOTE: Engine coolant temperature must be below 60 °C (140 °F).

   Is there vacuum?
   YES - Inspect vacuum hose routing. If OK, replace the EVAP canister purge valve.■
   NO - Go to Step 3 .
3. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then hold the engine speed to 3,000 rpm (min $^{-1}$).

   Is there vacuum?
   YES - Go to Step 4 .
   NO - Inspect vacuum hose routing. If OK, replace the EVAP canister purge valve. ■
4. Turn the ignition switch to LOCK (0).
5. Reconnect the vacuum hose to the EVAP canister purge valve.
6. Remove the fuel fill cap.
7. Remove the air cleaner.



8. Disconnect the drain tube joint (A) from the EVAP canister and connect the combination gauge kit and tube joint adapter to EVAP canister (B).
9. Install the air cleaner.
10. Start the engine and raise speed to 3,000 rpm (min $^{-1}$).

    Does vacuum appear on gauge within 1 minute?
    YES - See EVAP two way valve test to complete. Evaporative emission controls are OK.■
    NO - Replace the EVAP canister. ■

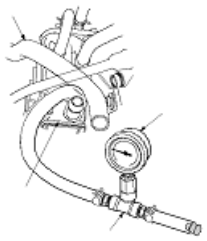
LHD model

1. Disconnect the vacuum hose (A) from the EVAP canister purge valve (B) and connect a vacuum pump/gauge (C) to the hose.
2. Start the engine, and let it idle.
   NOTE: Engine coolant temperature must be below 60 °C (140 °F).

   Is there vacuum?
   YES - Inspect vacuum hose routing. If OK, replace the EVAP canister purge valve.■
   NO - Go to Step 3 .
3. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (A/T in N or P, M/T in neutral) until the radiator fan comes on, then hold the engine speed to 3,000 rpm (min $^{-1}$).

   Is there vacuum?
   YES - Go to Step 4 .
   NO - Inspect vacuum hose routing. If OK, replace the EVAP canister purge valve. ■
4. Turn the ignition switch to LOCK (0).
5. Reconnect the vacuum hose to the EVAP canister purge valve.
6. Remove the fuel fill cap.
7. Lift the vehicle, and support it with jackstands.

8. Disconnect drain tube (A) from the EVAP canister and connect the combination gauge kit and tube joint adapter to EVAP canister (B).



9. Lower the vehicle.
10. Start the engine and raise speed to 3,000 rpm (min $^{-1}$).

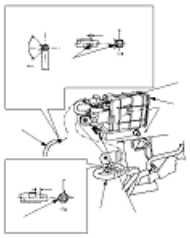
Does vacuum appear on gauge within 1 minute?

YES - See EVAP two way valve test to complete. Evaporative emission controls are OK.■

NO - Replace the EVAP canister. ■

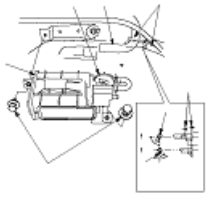
EVAP Canister Replacement

RHD model



1. Remove the air cleaner.
2. Disconnect the hoses (A).
3. Remove the EVAP canister (B).
4. Remove the EVAP two way valve (C) from the EVAP canister.
5. Install the parts in the reverse order of removal.
   NOTE: Align the marks (D) on the hose as shown, then insert the hose. Make sure the clamp is positioned as shown.

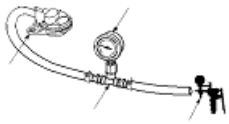
LHD model



1. Lift the vehicle, and support it with jackstands.
2. Disconnect the hoses (A) and tube (B).
3. Remove the EVAP canister (C).
4. Remove the EVAP two way valve (D) from the EVAP canister.
5. Install the parts in the reverse order of removal.
   NOTE: Align the marks (E) on the hose as shown, then insert the hose. Make sure the clamp is positioned as shown.

EVAP Two Way Valve Test

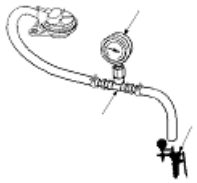
Special Tools Required



Combination gauge kit 20/−100 kPa
07YAJ-0010610

Tube joint adapter
07410-5790503

1. Remove the fuel fill cap.
2. Remove the EVAP two way valve.
3. Disconnect the vapor line from the EVAP two way valve (A). Connect it to the combination gauge kit and tube joint adapter and the vacuum pump (B) as shown.
4. Apply vacuum slowly and continuously while watching the gauge. The valve should open below 1.33 kPa (1.0 mmHg, 0.04 in.Hg).
   - If the vacuum hold below 1.33 kPa (1.0 mmHg, 0.04 in.Hg), go to Step 5 .
   - If the vacuum doesn't hold, replace the EVAP two way valve.

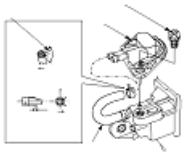


5. Move the vacuum pump from the vacuum fitting to the pressure fitting (A) as shown.
6. Slowly pressurize the vapor line while watching the gauge. The valve should open above 5.07 kPa (38 mmHg, 1.5 in.Hg).
   - If the pressure hold below 5.07 kPa (38 mmHg, 1.5 in.Hg), the valve is OK.
   - If the pressure doesn't hold, replace the EVAP two way valve.

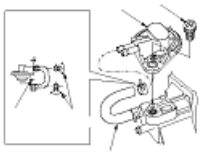
EVAP Two Way Valve Replacement

1. Remove the EVAP canister.
2. Disconnect the hose (A).
3. Remove the EVAP two way valve (B).
4. Install the parts in the reverse order of removal.

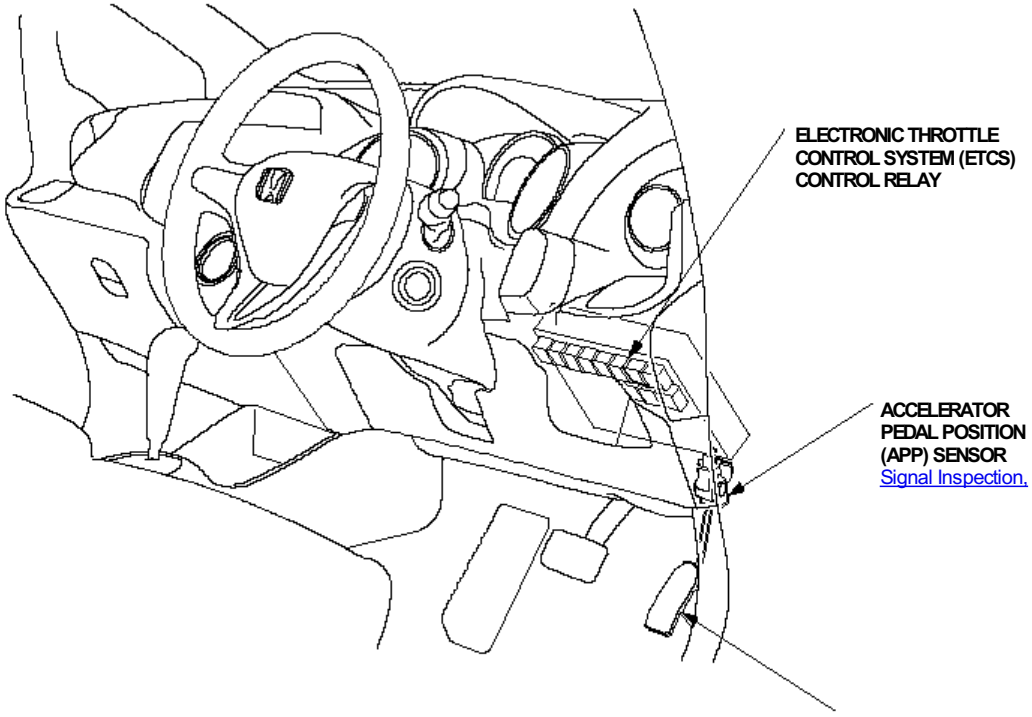
RHD model



LHD model



Electronic Throttle Control System Component Location Index



*: This illustration shows RHD model.

APP Sensor Signal Inspection

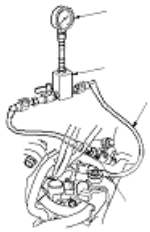
NOTE:

- This procedure checks the APP sensor in this fully closed position. In any other position, the APP sensor stores DTCs which are covered in other troubleshooting procedures.
- Check for Temporary DTCs or DTCs with the HDS before doing this procedure. If any DTCs are indicated, troubleshoot them first, then do this procedure.
- Press the accelerator pedal several times to check its operation. If it does not operate smoothly, check the pedal. If you find a problem, replace the accelerator pedal module.

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the ECM/PCM. If it doesn't, go to the DLC circuit troubleshooting.
4. Make sure the accelerator pedal is not pressed, then check the APP SENSOR in the DATA LIST with the HDS.
   - If it is 0 %, the APP sensor is OK.
   - If it is not 0 %, update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then go to Step 5 .
5. Make sure the accelerator pedal is not pressed, then check the APP SENSOR in the DATA LIST with the HDS.
   - If it is 0 %, the APP sensor is OK.
   - If it is not 0 %, replace the accelerator pedal module, then go to Step 1 .

Fuel Pressure Test

Special Tools Required



Fuel gauge assy. 600 kPa
07406-0040004

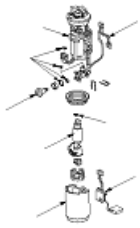
Fuel pressure gauge attachment set
07ZAJ-S5A0101

Fuel attachment C hose
07ZAJ-S7C0100

Fuel attachment C joint
07ZAJ-S7C0200

1. Relieve the fuel pressure.
2. Disconnect the quick-connect fitting. Attach the fuel pressure gauge set and the fuel gauge assy.
3. Start the engine, and let it idle.
   - If the engine starts, go to Step 5 .
   - If the engine does not start, go to Step 4 .
4. Check to see if the fuel pump is running: Listen to the fuel filler port with the fuel fill cap removed. The fuel pump should run for 2 seconds when the ignition switch is first turned on.
   - If the pump runs, go to Step 5 .
   - If the pump does not run, do the fuel pump circuit troubleshooting.
5. Read the fuel pressure gauge. The pressure should be 320−370 kPa (3.3−3.8 kgf/cm ^{2} , 47−54 psi).
   - If the pressure is OK, the test is complete.
   - If the pressure is out of specification, replace the fuel pressure regulator and the fuel filter, then recheck the fuel pressure.

Fuel Filter Replacement

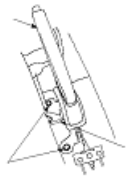


The fuel filter should be replaced whenever the fuel pressure drops below the specified value, after making sure that the fuel pump and the fuel pressure regulator are OK.

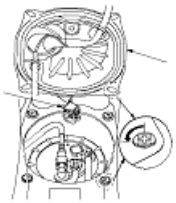
1. Remove the fuel tank unit.
2. Remove the fuel gauge sending unit (A), and the reservoir (B).
3. Remove the fuel pressure regulator (C), the fuel pump (D), and the wire harness (E) from the fuel filter set (F).
4. Check these items before installing the fuel tank unit:
   - When connecting the wire harness, make sure the connection is secure and the connectors are firmly locked into place.
   - When installing the fuel gauge sending unit, make sure the connection is secure and the connector is firmly locked into place. Be careful not to bend or twist it excessively.
5. Install the parts in the reverse order of removal with new O-rings (G). When installing the fuel tank unit, align the marks on the unit and the fuel tank.
   NOTE:
   - Coat the O-rings with clean engine oil; do not use any other oil or fluid.
   - Do not pinch the O-rings during installation.
   - Use all the new parts supplied in the fuel filter replacement kit.

Fuel Gauge Sending Unit Test

NOTE: For the fuel gauge system circuit diagram, refer to the Gauges Circuit Diagram.

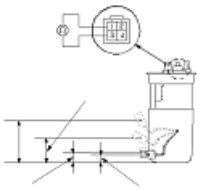


1. Check the No. 22 METER (7.5 A) fuse in the under-dash fuse/relay box before testing.
2. Check for body electrical system DTCs.
   - If no problem is found, go to Step 3 .
   - If DTC B1175 or B1176 is indicated, go to the indicated DTC's troubleshooting.
3. Turn the ignition switch to LOCK (0).
4. Remove the center console.
5. Remove the bolts (A), the wire (B), then remove the parking brake lever (C).



6. Remove the access panel (A) from the floor.
7. Disconnect the fuel tank unit 4P connector (B).

8. Measure the voltage between fuel tank unit 4P connector terminals No. 1 and No. 3 with the ignition switch to ON (II). There should be battery voltage.
   - If the voltage is OK, go to Step 9 .
   - If the voltage is not as specified, check for:
     - a short in the LT GRN wire to ground.
     - an open in the LT GRN or BLK wire.
9. Turn the ignition switch to LOCK (0).
10. Remove the fuel tank unit from the fuel tank.



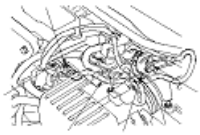
11. Measure the resistance between fuel tank unit 4P connector terminals No. 1 and No. 3 with the float at E (EMPTY), LOW (LOW FUEL INDICATOR), 1/2 (HALF FULL), and F (FULL) positions.
    If you do not get the following readings, replace the fuel gauge sending unit.

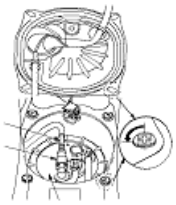
Float Position	F 109.5 mm (4.3 in.)	1/2 61 mm (2.4 in.)	LOW 24.7 mm (1.0 in.)	E 16 mm (0.6 in.)
Resistance (Ω)	19 to 21	203.3 to 213.3	529.8 to 714.1	772 to 788

12. Reconnect the fuel tank unit 4P connector.
13. Remove the No. 1 BACK UP (7.5 A) fuse from the under-dash fuse/relay box for at least 10 seconds, then reinstall it.
14. Turn the ignition switch to ON (II).
15. Check that the pointer of the fuel gauge indicates “F" with the float at F.
    - If the pointer of the fuel gauge does not indicate “F", replace the gauge assembly.
    - If the gauge is OK, the test is complete.

    NOTE:
    - The pointer of the fuel gauge returns to the bottom of the gauge dial when the ignition switch is to LOCK (0), regardless of the fuel level.
    - Remove the No. 1 BACK UP (7.5 A) fuse from the under-dash fuse/relay box for at least 10 seconds after completing troubleshooting, otherwise it may take up to 20 minutes for the fuel gauge to indicate the correct fuel level.

Fuel Line/Quick-Connect Fitting Precautions





The fuel line/quick-connect fittings (A), (B), (C) connect the fuel rail (D) to fuel feed hose (E), the fuel feed hose to the fuel line (F), and the fuel line (G) to the fuel tank unit (H). When removing or installing the fuel feed hose, fuel tank unit, or fuel tank, it is necessary to disconnect or connect the quick-connect fittings.
Pay attention to the following:

- The fuel feed hose, fuel line and quick-connect fittings are not heat-resistant; be careful not to damage them during welding or other heat-generating procedures.
- The fuel feed hose, fuel line and quick-connect fittings are not acid-proof; do not touch them with a shop towel which was used for wiping battery electrolyte. Replace them if they came into contact with electrolyte or something similar.
- When connecting or disconnecting the fuel feed hose, fuel line and quick-connect fittings, be careful not to bend or twist them excessively. Replace them it damaged.

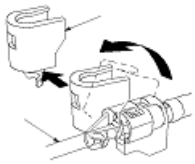
A disconnected quick-connect fitting can be reconnected, but the retainer on the mating line cannot be reused once it has been removed from the line. Replace the retainer when:

- replacing the fuel rail.
- replacing the fuel line.
- replacing the fuel pump.
- replacing the fuel filter.
- replacing the fuel tank.
- it has been removed from the pipe.
- it is damaged.

Location	Manufacturer	Retainer color	Piping diameter
A	Tokai	Blue green	8 mm (0.3 in.)
B	Tokai	Green	6.3 mm (0.3 in.)
C	Sanoh	White	9.5 mm (0.4 in.)

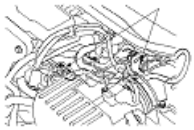
Fuel Line/Quick-Connect Fitting Removal

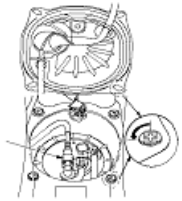
NOTE: Before you work on the fuel lines and fittings, read the "Fuel Line/Quick-Connect Fitting Precautions".



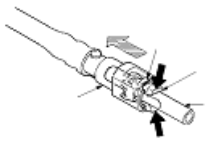
1. If equipped, remove the quick-connect fitting cover from the fuel line. Raise the cover (A) the fuel line (B), and remove it as shown.
2. Relieve the fuel pressure.

3. Check the fuel quick-connect fittings (A) for dirt, and clean them if needed.

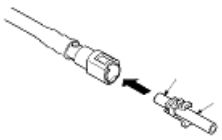




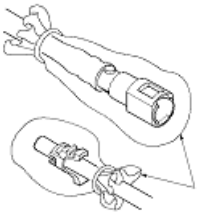
4. Place a rag or shop towel over the quick-connect fitting. Hold the connector (A) with one hand, and squeeze the retainer tabs (B) with the other hand to release them from the locking tabs (C). Pull the connector off.
   NOTE:
   - Be careful not to damage the line (D) or other parts. Do not use tools.
   - If the connector does not move, keep the retainer tabs pressed down, and alternately pull and push the connector until it comes off easily.
   - Do not remove the retainer from the line; once removed, the retainer must be replaced with a new one.



5. Check the contact area (A) of the line (B) for dirt or damage.
   - If it is dirty, clean the connector with a pressure washer, and dry it with the compressed air.
   - If it is rusty or damaged, replace the fuel filter or the fuel feed line.



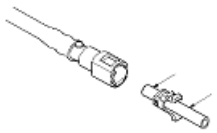
6. To prevent damage and keep foreign matter out, cover the disconnected connector and line ends with plastic bags (A).
   NOTE: The retainer cannot be reused once it has been removed from the line.
   Replace the retainer when:
   - replacing the fuel rail.
   - replacing the fuel line.
   - replacing the fuel pump.
   - replacing the fuel filter.
   - replacing the fuel tank.
   - it has been removed from the line.
   - it is damaged.



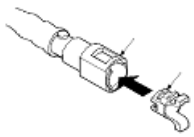
Fuel Line/Quick-Connect Fitting Installation

NOTE: Before you work on fuel lines and fittings, read the "Fuel Line/Quick-Connect Fitting Precautions".

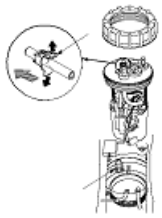
1. Check the contact area (A) of the line (B) for dirt or damage, and clean it if needed.



2. Insert a new retainer (A) into the connector (B) if the retainer is damaged, or after:
   - replacing the fuel rail.
   - replacing the fuel line.
   - replacing the fuel pump.
   - replacing the fuel filter.
   - replacing the fuel tank.
   - removing the retainer from the line.
   - Use the same manufacturer retainer and the same size retainer when replacing the retainer.

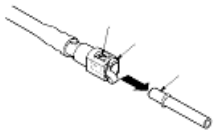


3. Before connecting a new fuel tube/quick-connect fitting assembly (A), remove the old retainer (B) from the mating line.
   NOTE:
   - When replacing the fuel tube/quick-connect fitting assembly at the engine compartment, remove the air cleaner, and the cover (C).
   - When installing the fuel tube/quick-connect fitting assembly at the engine compartment, align the mark (D) on the fuel tube.

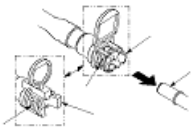


4. Align the quick-connect fittings with the line (A), and align the retainer locking tabs (B) with the connector grooves (C). Then press the quick-connect fittings onto the line until both retainer tabs lock with a clicking sound.
   NOTE: If it is hard to connect, put a small amount of new engine oil on the line end.

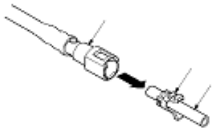
Connection with new retainer



Connection to new fuel line

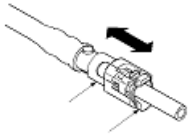


Reconnection to existing retainer

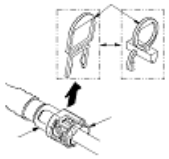


5. When you reconnect the connector with the old retainer, make sure the connection is secure and the tabs (A) are firmly locked into place; check visually and also by pulling the connector (B). When you replace the fuel line with a new one, make sure you remove the ring pull (C) upwards after you confirm the connection is secure.
   NOTE: Before you remove the ring pull, make sure the fuel line connection is secure. If the connection is not secure, the ring pull could break when you try to remove it.
6. Reconnect the negative cable to the battery, and turn the ignition switch to ON (II) (but do not operate the starter motor). The fuel pump will run for about 2 seconds, and fuel pressure will rise. Repeat two or three times, and check that there is no leakage in the fuel supply system.

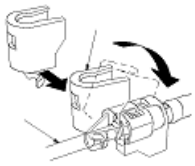
Reconnection to existing retainer



Connection to new fuel line

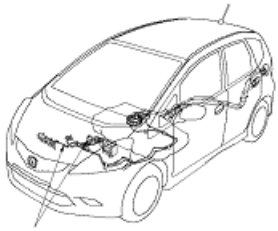


7. If equipped, install the quick-connect fitting cover. Set the groove of the cover (A) on the fuel line (B) as shown, then install it. Make sure the cover is firmly locked in place.

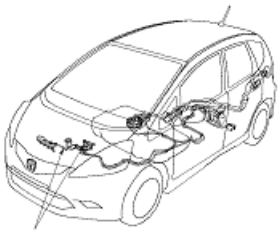


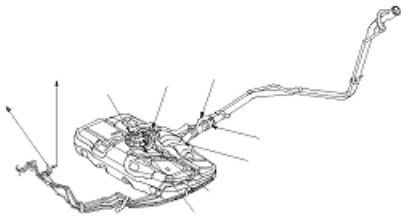
Fuel Line Inspection

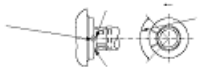
RHD model



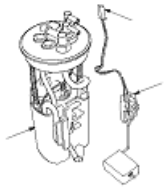
LHD model







Fuel Pump/Fuel Gauge Sending Unit Replacement



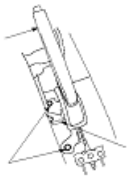
1. Remove the fuel tank unit.
2. Remove the fuel level sensor (fuel sending unit) (A) from the fuel tank unit (B).
3. Check these items before installing the fuel tank unit:
   - When connecting the wire harness, make sure the connection is secure and the connector (C) is firmly locked into place.
   - When installing the fuel gauge sending unit, make sure the connection is secure. Be careful not to bend or twist it excessively.
4. Install the parts in the reverse order of removal. When installing the fuel tank unit, align the marks on the unit and the fuel tank.

Fuel Tank Draining

1. Remove the fuel tank unit.
2. Using a hand pump, a hose, and a container suitable for fuel, draw the fuel from the fuel tank.
3. Reinstall the fuel tank unit.

Fuel Tank Unit Removal and Installation

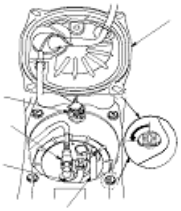
Special Tools Required



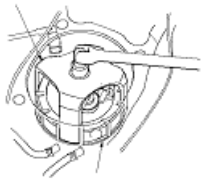
Fuel sender wrench
07AAA-S0XA100

Removal

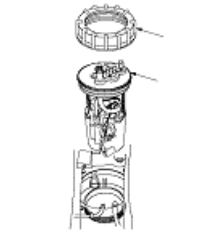
1. Relieve the fuel pressure.
2. Remove the center console.
3. Remove the bolts (A), the wire harness (B), the remove the parking brake lever (C).



4. Remove the access panel (A) from the floor.
5. Disconnect the fuel tank unit 4P connector (B).
6. Disconnect the suction hose (C), the fuel vapor hose (D), the quick-connect fitting (E) from the fuel tank unit.

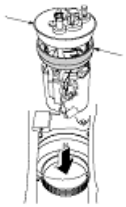


7. Using the special tool, loosen the locknut (A).

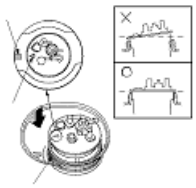


8. Remove the locknut (A) and the fuel tank unit (B).

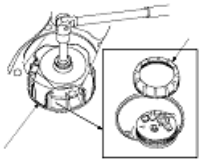
Installation



1. Temporarily attach a new base gasket (A) to the fuel tank unit (B), then insert the fuel tank unit partially into the fuel tank.
   NOTE:
   - Be careful not to damage the new base gasket.
   - Be careful not to bend the fuel gauge sending unit.
   - Do not coat the base gasket with oil.



2. Transfer the base gasket (A) from the fuel tank unit to the fuel tank.
3. Align the marks (B) on the fuel tank and fuel tank unit, then insert the fuel tank unit into the fuel tank until the fuel tank unit rests on top of the base gasket.
   NOTE: To avoid a fuel leak, check the base gasket, visually or by hand, to make sure it is not pinched.

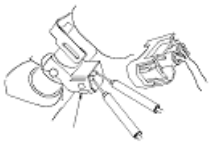


4. Using the special tool, tighten a new locknut (A) to the specified torque.
   NOTE:
   - After tightening, make sure the marks are still aligned.
   - After installation, check the base gasket, visually or by hand, to make sure it is not pinched.
5. Connect the fuel tank unit 4P connector, then connect the quick-connect fitting, the suction hose, and the fuel vapor hose.
6. Reconnect the negative cable to the battery, and turn the ignition switch to ON (II) (but do not operate the starter motor). The fuel pump will run for about 2 seconds, and fuel pressure rises. Repeat this two or three times, then check that there is no leakage in the fuel supply system.
7. Install the access panel, the parking brake lever, and the center console.

Injector Test

NOTE: Check the following items before testing; idle speed, ignition timing, and idle CO%.

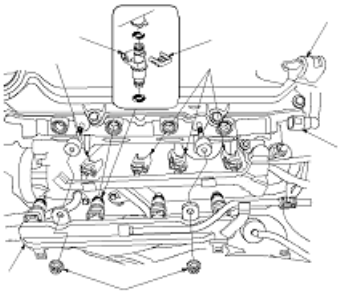
1. Try to start the engine.
   - If the engine starts, go to Step 2 .
   - If the engine does not start, go to Step 8 .
2. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
3. Make sure the HDS communicates with the ECM/PCM. If it doesn't, go to the DLC circuit troubleshooting.
4. Select ONE INJECTOR in INSPECTION MENU with the HDS.
5. Disable each injector at a time by selecting number of an injector which you want to step.
6. Inspect the change in the idle speed.
   - If the idle speed drop is almost the same for each cylinder, the fuel injectors are normal.
   - If the idle speed or quality remains the same when you disconnect a particular injector, faulty injector is suspected. Replace the injector and retest.
7. Check the clicking sound of each injector by means of a stethoscope when the engine is idling.
   - If any fuel injector fails to make the typical clicking sound, check the sound again after replacing the injector.
   - If clicking sound is still absent, check the following.
     - Whether there is wire breakage or poor connection in the YEL/BLK wire between the PGM-FI main relay 1 and the junction connector.
     - Whether the junction connector is open or corroded.
     - Whether there is wire breakage or poor connection in the YEL/BLK wire between the junction connector and the injector.
     - Whether there is any short-circuiting, wire breakage or poor connection in the wire between the injector and the ECM/PCM.
   - If all is OK, the test is complete.
8. Turn the ignition switch to LOCK (0).
9. Remove the intake manifold.
10. Disconnect the injector connector.



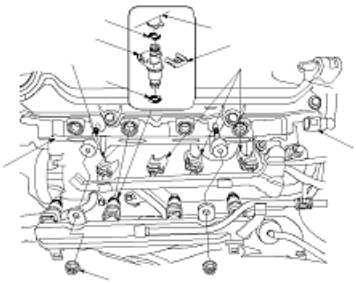
11. Measure the resistance between injector (A) terminals No. 1 and No. 2. There should be 10−13 Ω.
    - If the resistance is OK, go to Step 12 .
    - If the resistance is not as specified, replace the injector.
12. Check the fuel pressure.
    - If the fuel pressure is as specified, check the following:
      - Whether there is wire breakage, or poor connection in the YEL/BLK wire between the PGM-FI main relay 1 and the junction connector.
      - Whether the junction connector is open or corroded.
      - Whether there is wire breakage, or poor connection in the YEL/BLK wire between the junction connector and the injector.
      - Whether there is any short-circuiting, wire breakage or poor connection in the wire between the injector and the ECM/PCM.
    - If the fuel pressure is not as specified, recheck the fuel pressure.

Injector Replacement

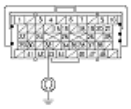
1. Relieve the fuel pressure.
2. Remove the intake manifold, and intake manifold chamber.
3. Remove the cover (A), then disconnect the quick-connect fitting (B).
4. Disconnect the injector connectors (C).
5. Remove the fuel rail mounting nuts (D) from the fuel rail (E).
6. Remove the fuel rail and the injectors from the cylinder head.
7. Remove the injector clips (F) from the fuel rail.
8. Remove the injectors (G) from the fuel rail.



9. Coat the new O-rings (black) (A) with clean engine oil, and insert the injectors (B) into the fuel rail (C).
10. Install the injector clips (D).
11. Coat the new injector O-rings (brown) (E) with clean engine oil.
12. Install the fuel rail and the injectors in the cylinder head (F).
13. Install the fuel rail mounting nuts (G).
14. Connect the injector connectors (H).
15. Connect the quick-connect fitting (I).
16. Turn the ignition switch to ON (II), but do not operate the starter. After the fuel pump runs for about 2 seconds, the fuel rail will be pressurized. Repeat this two or three times, then check for fuel leakage.
17. Reinstall the intake manifold, and intake manifold chamber.



MIL Circuit Troubleshooting



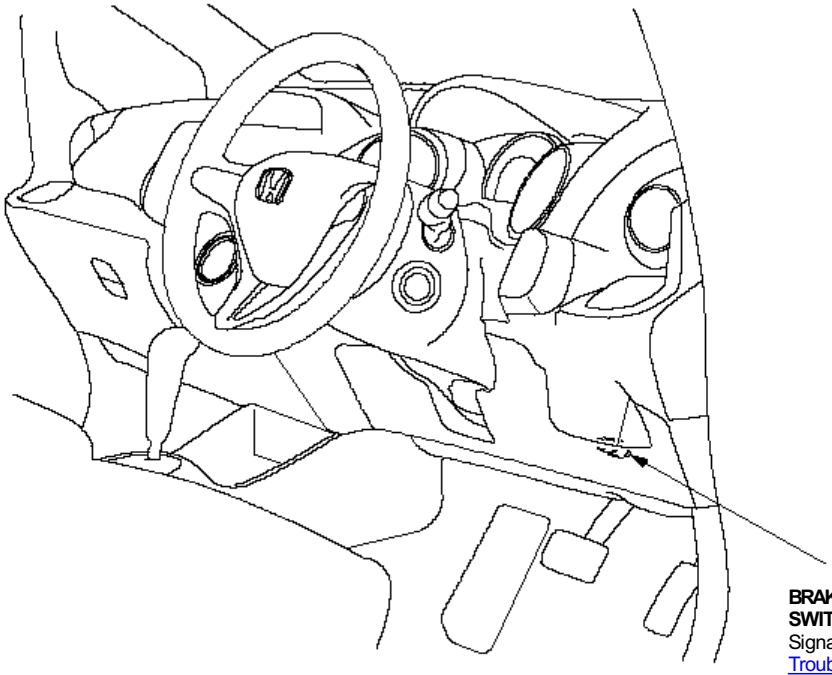
1. Turn the ignition switch to ON (II).
2. Do the gauge self-diagnostic function.

   Does the MIL indicator flash?
   YES - Go to Step 3 .
   NO - Substitute a known-good gauge control module, and recheck. If the symptom/indication goes away with a known-good gauge control module, replace the original gauge control module. ■
3. Connect the HDS to the DLC.
4. Check the SCS in the DATA LIST with the HDS.

   Is a short indicated?
   YES - Go to Step 5 .
   NO - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■
5. Turn the ignition switch to LOCK (0).
6. Disconnect ECM/PCM connector A (49P), then disconnect the HDS.
7. Check for continuity between ECM/PCM connector terminal A32 and body ground.

   Is there continuity?
   YES - Repair short in the wire between the ECM/PCM (A32) and the DLC.■
   NO - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■

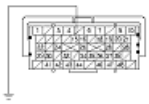
Idle Control System Component Location Index



BRAKE PEDAL POSITION SWITCH
Signal Circuit
Troubleshooting,

*: This illustration shows RHD model.
*: This illustration shows RHD model.

A/C Signal Circuit Troubleshooting



1. Start the engine, and let it idle.
2. Turn the blower switch on.
3. Turn the A/C switch on.
4. Check the A/C CLUTCH in the DATA LIST with the HDS.

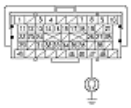
   Does it indicate ON?
   YES - Go to Step 5 .
   NO - Do the A/C system test. ■
5. Check the A/C system.

   Does the A/C system operate?
   YES - The air conditioning system circuit is OK.■
   NO - Go to Step 6 .
6. Turn the ignition switch to LOCK (0).
7. Turn the ignition switch to ON (II).
8. Activate the A/C CLUTCH in the INSPECTION MENU with the HDS.

   Is there a clicking noise from the A/C compressor clutch?
   YES - Do the A/C system test. ■
   NO - Go to Step 9 .
9. Turn the ignition switch to LOCK (0).
10. Jump the SCS line with the HDS.
11. Disconnect ECM/PCM connector A (49P).
12. Turn the ignition switch to ON (II).
13. Momentarily connect ECM/PCM connector terminal A15 to body ground with a jumper wire several times.

    Is there a clicking noise from the A/C compressor clutch?
    YES - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■
    NO - Check for poor connections or loose terminals at the A/C compressor clutch relay and the ECM/PCM. If the connections are OK, check the A/C compressor clutch relay, repair open in the wire between the ECM/PCM (A15) and the A/C compressor clutch relay and the other A/C systems.■

Alternator FR Signal Circuit Troubleshooting



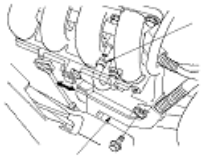
1. Start the engine, and let it idle.
2. Monitor the ALTERNATOR in the DATA LIST with the HDS.
3. Check if the indicated percentage varies when the headlight switch is turned on.

   Does the percentage vary?
   YES - The alternator signal circuit is OK.■
   NO - Go to Step 4 .
4. Turn the headlight switch off and the ignition switch to LOCK (0).
5. Jump the SCS line with the HDS.
6. Disconnect the alternator 4P connector.
7. Disconnect ECM/PCM connector B (49P).
8. Check for continuity between body ground and ECM/PCM connector terminal B47.

   Is there continuity?
   YES - Repair short in the wire between the ECM/PCM (B47) and the alternator.■
   NO -
   - Troubleshoot the alternator and regulator circuit. ■
   - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■

Intake Manifold Removal and Installation

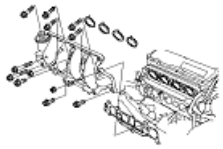
[Exploded View]



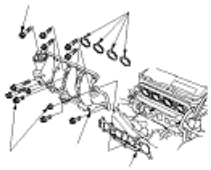
Removal

1. Remove the harness holder mounting bolt, then remove the harness holder (A) from the bracket.
2. Remove the positive crankcase ventilation (PCV) hose (B).
3. Disconnect the exhaust gas recirculation (EGR) valve connector.
4. Remove the dipstick.

5. Remove the intake manifold.

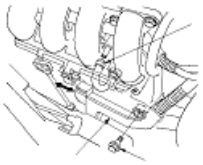


Installation



1. Install the intake manifold (A) with new gaskets (B), and tighten the bolts and nuts in a crisscross pattern in three steps, beginning with the inner bolt.
2. Install the dipstick.
3. Connect the EGR valve connector.

4. Install the PCV hose (A) and harness holder (B).



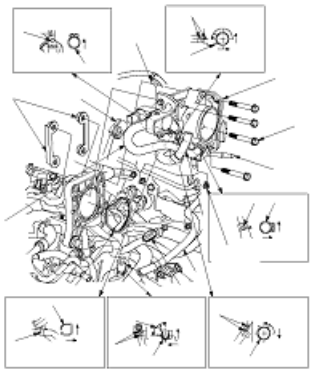
Throttle Body Test

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the ECM/PCM. If it doesn't, go to the DLC circuit troubleshooting.
4. Start the engine. Hold the engine speed at 3,000 rpm (min^{-1}) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
5. Check REL TP SENSOR in the DATA LIST the HDS. The reading should be below 2.46 deg. If it is not, clean the throttle body.

Throttle Body Removal/Installation

⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.



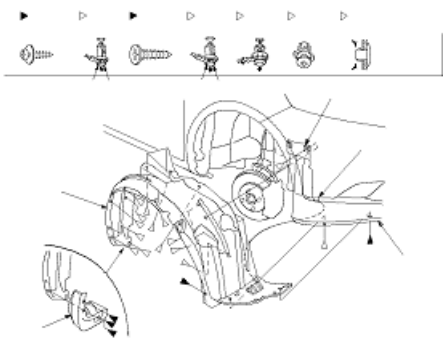
1. Remove the air cleaner.
2. Remove the harness clamp (A).
3. Disconnect the throttle body connector (B), and the EVAP canister purge valve connector (C).
4. Disconnect and plug the water bypass hoses (D), the purge hose (E).
5. Remove the throttle body (F).
6. Remove the purge pipe (G), the water bypass hoses, and the purge hose from the throttle body.
7. Install the parts in the reverse order of removal with a new gasket (H), then refill the radiator with engine coolant.
   NOTE:
   - If you replace or clean the throttle body, go to Step 8 .
   - If you did not replace or clean the throttle body, this procedure is complete.
   - Be careful not to damage to drops the plates (I).
   - Align the marks (J) on the hose and throttle body, then insert the hose. Make sure the clamp (K) is positioned as shown.
   - Align the mark (L) on the hose as shown, then insert the hose. Make sure the clamp (M) is positioned as shown.

8. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
9. Turn the ignition switch ON (II).
10. Reset the ECM/PCM with the HDS.
11. Select the ETCS TEST in the INSPECTION MENU with the HDS.
12. Select TP POSITION CHECK and clear the throttle position (TP) learned value.
13. Turn the ignition switch to LOCK (0).
14. Turn the ignition switch to ON (II), and wait 2 seconds without pressing the accelerator pedal.
15. Do the ECM/PCM idle learn procedure.

Front Inner Fender Replacement

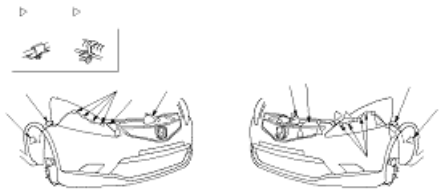
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the body.



1. For some models: Remove the side sill panel.
2. Remove the front inner fender (A).
   -1. On the back of the wheel arch, remove the screws (B), and remove the front splash guard (C) (for some models).
   -2. From under the front bumper (D), remove the screw (E) securing the front bumper, the splash shield (F), and the front inner fender.
   -3. Remove the clip (G) securing the front bumper and the front inner fender.
   -4. From the wheel arch, remove the screw (H), clip (I, J, K), clip (L).
   -5. Release the hook (M) of the splash shield, then remove the front inner fender.
   NOTE: To remove the clips G, I, pry the inner the clip up at the edge near the line (N) on its head.
3. Install the inner fender in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips and the hook into place securely.

Hood Opener Cable Replacement



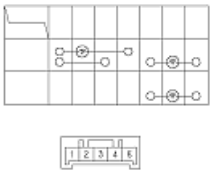
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the body and the related parts.

1. Remove these items:
   - Front inner fender
   - Kick panel, driver's side
2. Disconnect the hood opener cable (A) from the hood latch (B), and disconnect the hood opener cable from the hood release handle (C). Take care not to kink the cable.
3. Using a clip remover, detach the clips (D, E), and peel the vinyl tapes (F) being wound onto the opener cable off, then remove the hood opener cable from the grommet (G). Take care not to kink the cable.
4. Install the cable in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Make sure the cable is connected properly.
   - Make sure the hood opens properly and locks securely.

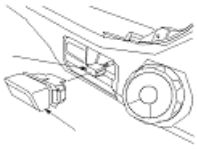
A/C Switch Test

1. Remove the A/C switch.
2. Check for continuity between the terminals in each switch position according to the table.
3. If the continuity is not as specified, replace the bulbs or the switch.

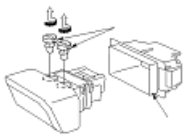


A/C Switch Replacement

1. Remove the heater control panel.
2. Disconnect the 5P connector (A) and push out the A/C switch (B) from behind the heater control panel.

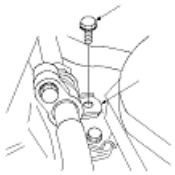


3. Remove the holder (A) and bulbs (B).
4. Install the A/C switch in the reverse order of removal.

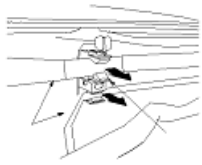


A/C Evaporator Core Replacement

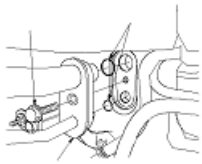
1. Recover the refrigerant with a recovery/recycling/charging station.
2. Remove the cowl cover and the under-cowl panel.
3. Remove the air cleaner.
4. Remove the bolt from the A/C line clamp (A).



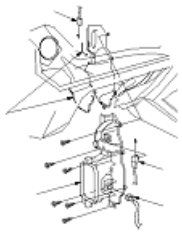
5. Open the clamp (A), then remove the A/C lines (B).
6. Remove the blower unit.



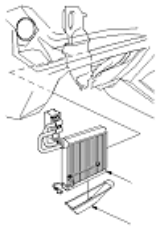
7. Remove the bolt, then disconnect the A/C line (A) from the evaporator core and remove the O-rings (B).



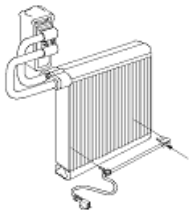
8. Disconnect the connectors (A) from the evaporator temperature sensor and the blower resistor, then remove the connector clip (B). Remove the self-tapping screws, the expansion valve cover (C), and the seal (D).



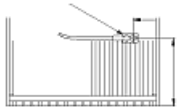
9. Carefully pull out the evaporator core assembly (A) without bending the lines, then remove the plate (B).



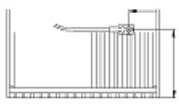
10. Pull out the evaporator temperature sensor (A) from the evaporator core.



11. Install the evaporator temperature sensor in the evaporator core, and note these items:
    - When the evaporator temperature sensor (A) is installed into the new evaporator core, set the sensor into the factory-preset position (B, C).
    - When the evaporator temperature sensor is reinstalled into the original evaporator core, set the sensor into the new position (D, E) because the fin may be deforming by the previous installation.

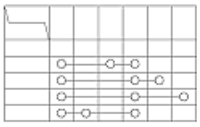


12. Install the core in the reverse order of removal and note these items:
    - If you're installing a new evaporator core, add refrigerant oil (SP-10).
    - Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
    - Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
    - Do not spill the refrigerant oil on the vehicle; it may damage the paint; if the refrigerant oil contacts the paint, wash it off immediately.
    - Make sure that there is no air leakage.
    - Charge the system.



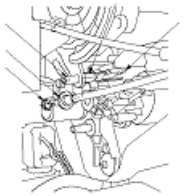
Heater Fan Switch Test

1. Remove the heater control panel.
2. Check for continuity between the terminals in each switch position according to the table.
3. If the continuity is not as specified, replace the heater fan switch.



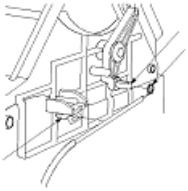
Heater Control Cable Removal/Installation

Mode Control Cable



1. Open the globe box. Release the glove box stop on each side, then let the glove box hang down.
2. Set the mode control dial to VENT ( ).
3. Detach the mode control cable housing from the clamp (A), and disconnect the inner cable (B) from the mode control linkage (C).
4. Install the cable in the reverse order of removal, and note these items:
   - Make sure insert the ring (D) in the groove (E).
   - After installation, operate the control panel controls to see whether it works properly.

Recirculation Control Cable



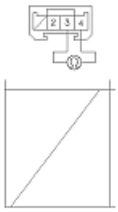
1. Open the globe box. Release the glove box stop on each side, then let the glove box hang down.
2. Set the recirculation control lever to RECIRCULATE ( ).
3. Detach the recirculation control cable housing from the clamp (A), and disconnect the inner cable (B) from the recirculation control linkage (C).
4. Turn the recirculation control linkage fully clockwise, and hold it. Attach the recirculation control cable to the recirculation control linkage, then snap the recirculation control cable housing into the clamp.
5. After installation, operate the control panel controls to see whether it works properly.

Air Mix Control Cable (Except KZ, KP, and MA models)

1. Open the globe box. Release the glove box stop on each side, then let the glove box hang down.
2. Set the temperature control dial to MAX COOL.
3. Detach the air mix control cable housing from the clamp (A), and disconnect the inner cable (B) from the air mix control linkage (C).
4. Install the cable in the reverse order of removal, and note these items:
   - Make sure insert the ring (D) in the groove (E).
   - After installation, operate the control panel controls to see whether it works properly.

Temperature Control Dial Test

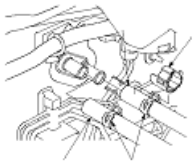
KZ, KP, and MA models



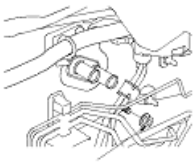
1. Remove the heater control panel, and disconnect the temperature control dial 4P connector.
2. Measure the resistance between the temperature control dial No. 3 and No. 4 terminals while rotating the adjusting dial and compare them with shown in the graph.
3. If the resistance is not as specified, replace the temperature control dial.

Heater Unit/Core Replacement

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.

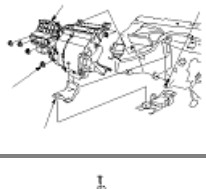


1. Do the battery terminal disconnection procedure.
2. Disconnect the A/C lines from the evaporator core.
3. Except KZ, KP, and MA models:
   - Drain the engine coolant from the radiator.
   - From the inlet heater hose, remove the clip (A). Slide the hose clamps (B) back, then disconnect the inlet heater hose (C) and the outlet heater hose (D) from the heater unit. Engine coolant will run out when the hoses are disconnected; drain it into a clean drip pan. Be sure not to let coolant spill on the electrical parts or the painted surfaces. If any coolant spills, rinse it off immediately.

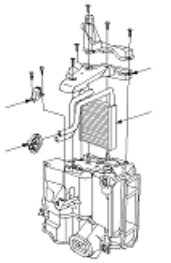


4. Remove the mounting nut from the heater unit. Take care not to damage or bend the fuel lines or brake lines, etc.
5. Remove the dashboard.

6. Disconnect the connector (A) from the evaporator sensor. Remove the wire harness (B).



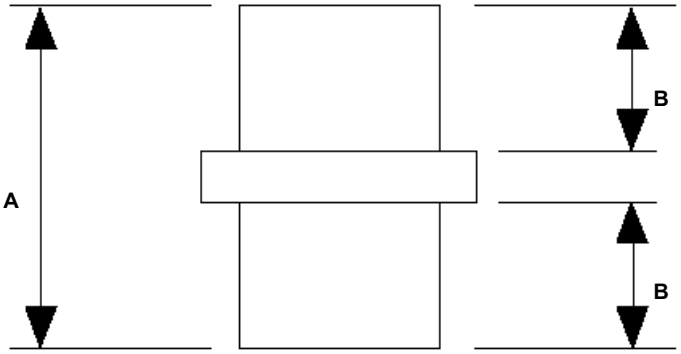
7. Remove the duct (A) and the drain hose (B). Remove the mounting nuts and blower-heater unit (C).



8. Remove the self-tapping screws and the heater core cover (A).
9. Except KZ, KP, and MA models; Remove the stay (B), grommet (C), and carefully pull out the heater core (D).
10. Install the heater core, and the evaporator core in the reverse order of removal.
11. Install the heater unit in the reverse order of removal, and note these items:
    - Except KZ, KP, and MA models:
      - Do not interchange the inlet and outlet heater hoses, and install the hose clamps securely.
      - Refill the cooling system with engine coolant.
      - Make sure that there is no coolant leakage.
    - Make sure that there is no air leakage.
    - Refer to the evaporator core replacement.
12. Do the battery terminal reconnection procedure.

Manual Transmission and M/T Differential (i-SHIFT)

Item	Measurement	Qualification	Standard or New	Service Limit
Manual transmission fluid	Capacity Use genuine Honda MTF	Fluid change	1.4 L (1.5 US qt, 1.2 Imp qt)	
		Overhaul	1.6 L (1.7 US qt, 1.4 Imp qt)	
Mainshaft	End play		0.11–0.18 mm (0.004–0.007 in.)	Adjust
	Diameter of bushing surface		14.870–14.890 mm (0.5854–0.5862 in.)	14.77 mm (0.5815 in.)
	Diameter of distance collar		28.992–29.005 mm (1.1414–1.1419 in.)	28.93 mm (1.139 in.)
	Diameter of ball bearing contact area (clutch housing side)		25.977–25.990 mm (1.0227–1.0232 in.)	25.92 mm (1.020 in.)
	Diameter of needle bearing contact area		34.984–35.000 mm (1.3773–1.3780 in.)	34.93 mm (1.375 in.)
	Diameter of ball bearing contact area (transmission housing side)		24.987–25.000 mm (0.9837–0.9843 in.)	24.93 mm (0.981 in.)
	Runout		0.02 mm (0.001 in.) max.	0.05 mm (0.002 in.)
Mainshaft 3rd, 4th, 5th, and 6th gears	I.D.	3rd/4th/5th	39.009–39.025 mm (1.5358–1.5364 in.)	38.95 mm (1.533 in.)
		6th	35.009–35.025 mm (1.3783–1.3789 in.)	34.95 mm (1.376 in.)
	Clearance	2nd-3rd	0.06–0.21 mm (0.002–0.008 in.)	0.30 mm (0.012 in.)
	End play	4th	0.06–0.19 mm (0.002–0.007 in.)	0.28 mm (0.011 in.)
		5th	0.06–0.14 mm (0.002–0.006 in.)	0.23 mm (0.009 in.)
		6th	0.06–0.16 mm (0.002–0.006 in.)	0.25 mm (0.010 in.)
	Thickness	3rd	27.02–27.07 mm (1.064–1.066 in.)	26.95 mm (1.061 in.)
		4th	25.52–25.57 mm (1.005–1.007 in.)	25.45 mm (1.002 in.)
		5th	22.42–22.47 mm (0.883–0.885 in.)	22.35 mm (0.880 in.)
		6th	23.92–23.97 mm (0.942–0.944 in.)	23.85 mm (0.939 in.)
Mainshaft 4th/5th gears distance collar	I.D.		29.014–29.024 mm (1.1423–1.1427 in.)	29.03 mm (1.143 in.)
	O.D.		34.989–35.000 mm (1.3775–1.3780 in.)	34.94 mm (1.376 in.)
	Length	A	48.97–49.03 mm (1.9279–1.9303 in.)	———
			37–0.888 in.)	———
Mainshaft 6th gear distance collar			34–0.985 in.)	25.12 mm (0.989 in.)
			46–0.948 in.)	———
Countershaft			.0244–1.0249 in.)	25.97 mm (1.022 in.)
			.3386–1.3392 in.)	33.95 mm (1.337 in.)
			.5349–1.5354 in.)	38.94 mm (1.533 in.)
			ax.	0.05 mm (0.002 in.)
			5–0.0039 in.)	Adjust
Countershaft 1st gear			.9098–1.9104 in.)	48.58 mm (1.913 in.)
			-0.006 in.)	0.25 mm (0.010 in.)
			43–0.845 in.)	———
Countershaft 2nd gear			.9098–1.9104 in.)	48.52 mm (1.910 in.)
			-0.006 in.)	0.23 mm (0.009 in.)
	Thickness		40–1.042 in.)	———



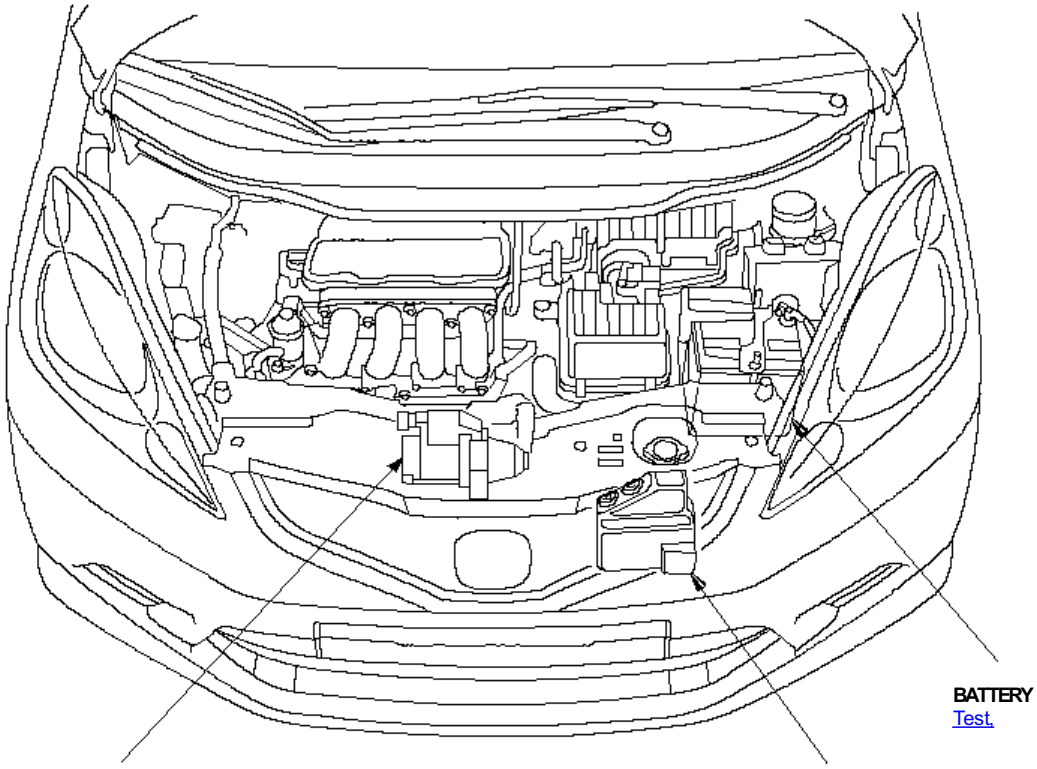
Manual Transmission and M/T Differential (i-SHIFT) (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft 1st gear distance collar	I.D.		39.00–39.01 mm (1.5354–1.5358 in.)	39.02 mm (1.536 in.)
	O.D.		44.489–44.500 mm (1.7515–1.7520 in.)	44.44 mm (1.750 in.)
	Length		21.53–21.58 mm (0.848–0.850 in.)	———
Countershaft 2nd gear distance collar	I.D.		39.00–39.01 mm (1.5354–1.5358 in.)	39.02 mm (1.536 in.)
	O.D.		44.489–44.5 mm (1.7515–1.7520 in.)	44.44 mm (1.750 in.)
	Length		26.53–26.56 mm (1.044–1.046 in.)	———
Reverse idler gear	I.D.		18.016–18.043 mm (0.7093–0.7104 in.)	18.08 mm (0.712 in.)
	Gear-to-reverse gear shaft clearance		0.032–0.077 mm (0.0013–0.003 in.)	0.14 mm (0.006 in.)
Synchro ring	Ring-to-gear clearance	Ring pushed against gear	0.655–1.334 mm (0.026–0.053 in.)	0.4 mm (0.016 in.)
Shift fork	Finger thickness	1st-2nd fork	6.7–6.9 mm (0.26–0.27 in.)	———
		3rd-4th and 5th-6th fork	7.4–7.6 mm (0.29–0.30 in.)	———
	Fork-to-synchro sleeve clearance		0.35–0.65 mm (0.014–0.026 in.)	1.0 mm (0.039 in.)
Reverse shift fork	Finger width		14.7–14.9 mm (0.527–0.587 in.)	———
	Fork-to-reverse idler gear clearance		0.20–0.60 mm (0.007–0.024 in.)	1.2 mm (0.047 in.)
Shift arm	I.D.		14.013–14.058 mm (0.5517–0.5535 in.)	———
	Shift piece diameter at contact area		0.20–0.60 mm (0.008–0.024 in.)	0.7 mm (0.028 in.)

Item	Measurement	Qualification	Standard or New	Service Limit
	Shift arm-to-change lever clearance		0.013−0.085 mm (0.0005−0.0033 in.)	———
Select lever	O.D.		13.941−13.968 mm (0.5489−0.5499 in.)	———
	Shift arm cover clearance		0.032−0.127 mm (0.0013−0.0050 in.)	———
Inter lock	I.D.		14.000−14.077 mm (0.5512−0.5542 in.)	———
	Inter lock to select lever		0.032−0.136 mm (0.0013−0.0054 in.)	———
Shift piece	I.D.		14.000−14.068 mm (0.5512−0.5539 in.)	———
	Shift-piece-to select lever clearance		0.032−0.127 mm (0.0013−0.0050 in.)	———
	Shift fork diameter at contact area		0.2−0.5 mm (0.008−0.020 in.)	———
M/T differential pinion gear	Backlash		0.05−0.15 mm (0.002−0.006 in.)	———
M/T differential 80 mm shim	80 mm shim-to-bearing outer race clearance in transmission housing		0.01−0.10 mm (0.0004−0.0039 in.)	Adjust

Starting System Component Location Index

i-SHIFT model



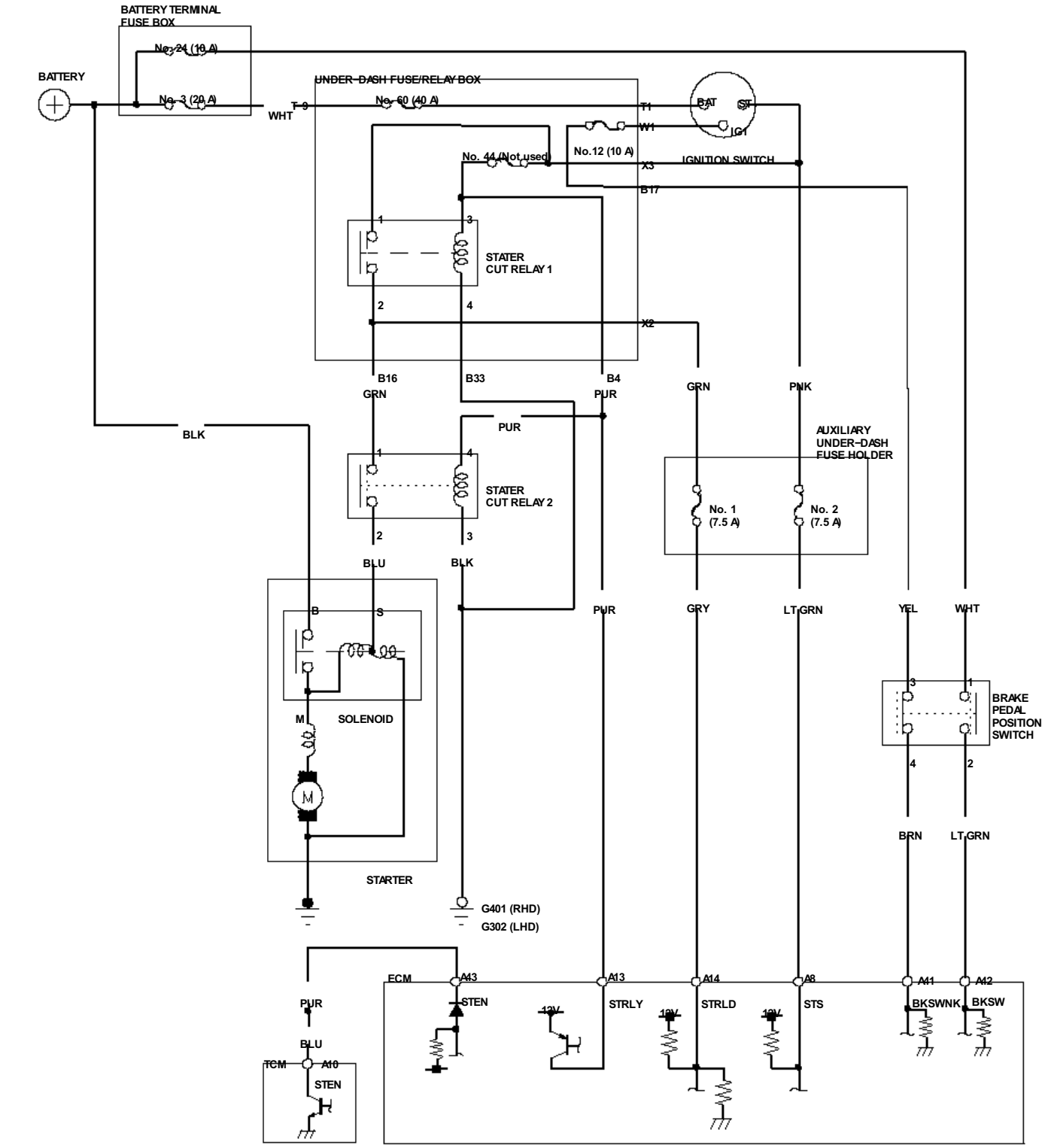
BATTERY
Test.

STARTER
Starter System Circuit Troubleshooting.
Performance Test.
in the Shop Manual, P/N 62TF000A
Removal/Installation.
in the Shop Manual, P/N 62TF000A
Overhaul.
in the Shop Manual, P/N 62TF000A

TRANSMISSION CONTROL MODULE
Function Test.
Replacement.

Starting System Circuit Diagram

i-SHIFT model



Starter System Circuit Troubleshooting

i-SHIFT model
NOTE:

- Air temperature must be between 15 and 38 °C (59 and 100 °F) during this procedure.
- After this inspection, you must reset engine control module (ECM), otherwise the ECM will continue to stop the fuel injectors from functioning. Select ECM reset using the Honda Diagnostic System (HDS).
- The battery must be in good condition and fully charged.

1. Check the No. 24 (10 A) fuse in the under-hood fuse/relay box.

   Is the fuse OK?
   YES - Go to Step 2 .
   NO - Replace the fuse and recheck.■

2. Connect the HDS to the data link connector (DLC).
3. Turn the ignition switch to ON (II).
4. Make sure the HDS communicates with the vehicle and the ECM. If it does not, troubleshoot the DLC circuit.
5. Check the BRAKE SWITCH in the DATA LIST with the HDS.

   Dose it indicate OFF?
   YES - Go to Step 6 .
   NO - Inspect the brake pedal position switch.

6. Press the brake pedal, and check the BRAKE SWITCH in the DATA LIST with the HDS.

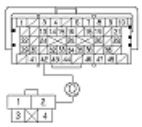
   Dose it indicate ON?
   YES - Go to Step 13 .
   NO - Go to Step 7 .

7. Turn the ignition switch OFF.
8. Disconnect the brake pedal position switch 4P connector.
9. Measure the voltage between brake pedal position switch 4P connector terminal No. 1 and body ground.

   Is there battery voltage?
   YES - Go to Step 10 .
   NO - Repair open in the wire between the brake pedal position switch 4P connector terminal No. 1 and under-hood fuse/relay box.■

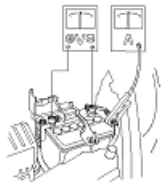
10. Turn the ignition switch to ON (II).
11. Jump the SCS line with the HDS, then turn the ignition switch OFF.
    NOTE: This step must be done to protect the ECM from damage.

12. Check for continuity between ECM connector terminal A42 and the brake pedal position switch 4P connector terminal No. 2.



    Is there continuity?
    YES - Inspect the brake pedal position switch. ■
    NO - Repair open in the wire between ECM (A42) and the brake pedal position switch 4P connector terminal No. 2.■

13. Hook up the following equipment:
    - Ammeter, 0−400 A
    - Voltmeter, 0−20 V (accurate within 0.1 V)



14. Turn the ignition switch to ON (II).
15. Select PGM-FI, INSPECTION, then ALL INJECTORS OFF on the HDS.
16. With the shift lever in N position, the brake pedal pressed, turn the ignition switch ON (II), and press the engine start switch.

    Did the starter crank the engine normally?
    YES - The starting system is OK. Go to Step 21 .
    NO - Go to Step 17 .

17. Check the battery condition. Check electrical connections at the battery, the negative battery cable to body, the engine ground cables, and the starter for looseness and corrosion. Then try cranking the engine again.

    Did the starter crank the engine?
    YES - Repairing the loose connection corrected the problem. The starting system is OK. Go to Step 23 .
    NO - Check the following:

    - If the starter will not crank the engine at all, go to Step 18 .
    - If the starter cranks the engine erratically or too slowly, go to Step 20 .
    - If the starter does not disengage from the flywheel ring gear when you release the switch, replace the starter, or remove and disassemble it and check for the following:
      - Solenoid plunger and switch malfunction
      - Dirty drive gear or damaged overrunning clutch

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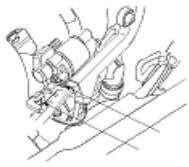
18. Make sure the transmission is in Neutral, and set the parking brake. Disconnect the connector (A) from the starter solenoid S terminal. Connect a jumper wire from the battery positive terminal to the solenoid terminal.



    Did the starter crank the engine?
    YES - Go to Step 19 .
    NO - Remove the starter, and repair or replace as necessary.■

19. Check the following items in the order listed until you find the open circuit:
    - The BLK wire and connectors between the under-dash fuse/relay box and the starter cut relay 2.
    - The BLU wire and connectors between the starter cut relay 2 and the starter.
20. While cranking the engine, check the cranking voltage and the current draw.

    Is the cranking voltage greater than or equal to 8.0 V (KQ, KZ models), 9.0 V (Except KQ, KZ models) and the current draw less than or equal to 200 A (KQ, KZ models), 150 A (Except KQ, KZ models)?
    YES - Go to Step 21 .
    NO - Replace the starter, or remove and disassemble it, and check for the following:

    - Drag in the starter armature
    - Shorted armature winding
    - Excessive drag in the engine

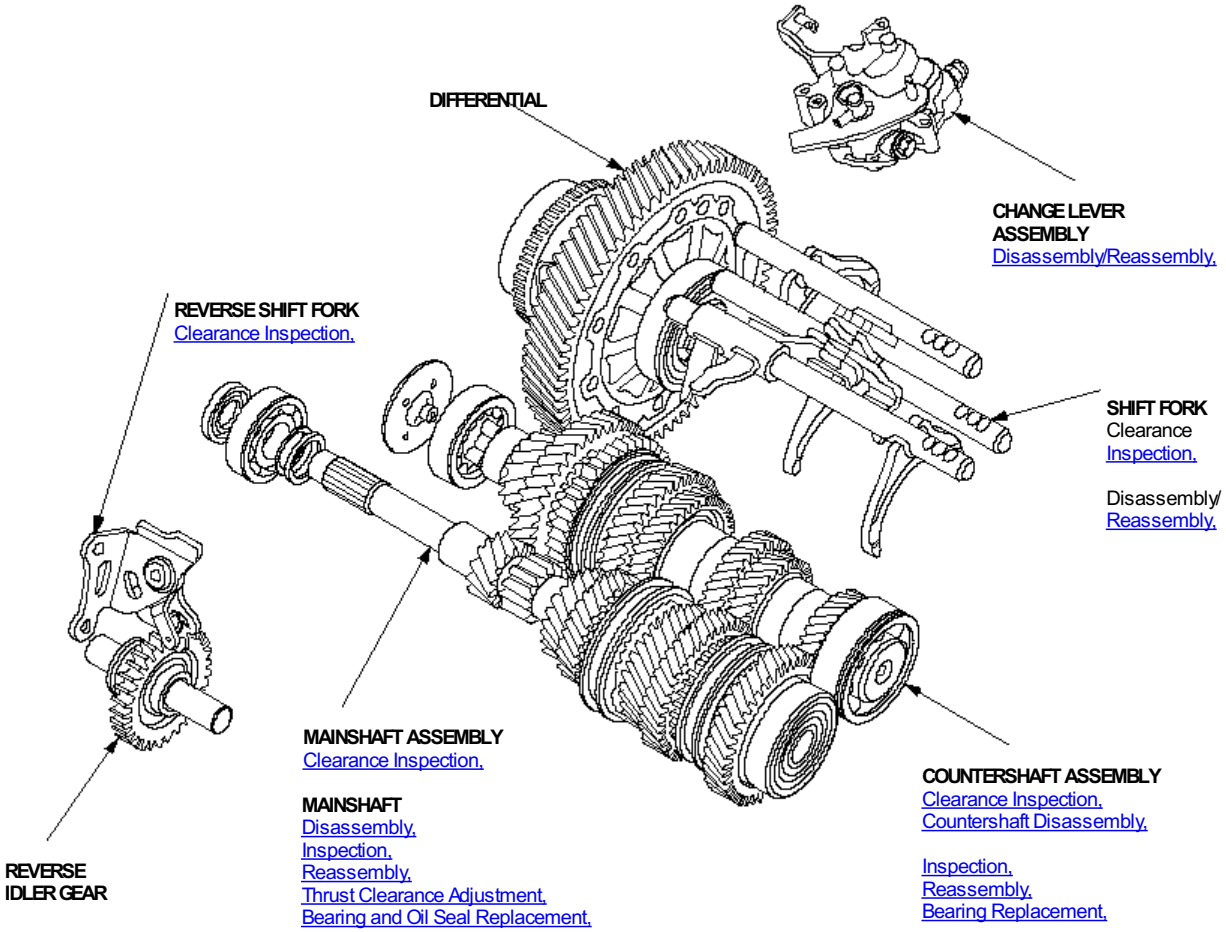
21. Check the engine speed while cranking the engine.

    Is the engine speed above 100 rpm (min^{-1})?
    YES - Go to Step 22 .
    NO - Replace the starter, or remove and disassemble it, and check for the following:

    - Open circuit in the starter armature commutator segments
    - Excessively worn starter brushes
    - Open circuit in the commutator brushes
    - Dirty or damaged helical splines or drive gear
    - Faulty drive gear clutch

22. Remove the starter, and inspect its drive gear and the flywheel ring gear for damage. Replace any damaged parts.
23. Select ECM reset to cancel ALL INJECTORS OFF on the HDS.

M/T Component Location Index



Hard to shift into 1st gear

Diagnostic procedure

1. Check and/or replace the MTF.
2. Check the clutch.
3. Check the change lever assembly.
4. Check the 1st synchro ring and the 1st gear.
5. Check the 1st/2nd synchro sleeve and hub.

Hard to shift into 2nd gear

Diagnostic procedure

1. Check and/or replace the MTF.
2. Check the change lever assembly.
3. Check the 2nd synchro ring and the 2nd gear.
4. Check the 1st/2nd synchro sleeve and hub.

Hard to shift into 3rd gear

Diagnostic procedure

1. Check and/or replace the MTF.
2. Check the change lever assembly.
3. Check the 3rd synchro ring and the 3rd gear.
4. Check the 3rd/4th synchro sleeve and hub.

Hard to shift into 4th gear

Diagnostic procedure

1. Check and/or replace the MTF.
2. Check the change lever assembly.
3. Check the 4th synchro ring and the 4th gear.
4. Check the 3rd/4th synchro sleeve and hub.

Hard to shift into 5th gear

Diagnostic procedure

1. Check and/or replace the MTF.
2. Check the change lever assembly.
3. Check the 5th synchro ring and the 5th gear.
4. Check the 5th/6th synchro sleeve and hub.

Hard to shift into 6th gear

Diagnostic procedure

1. Check and/or replace the MTF.
2. Check the change lever assembly.
3. Check the 6th synchro ring and the 6th gear.
4. Check the 5th/6th synchro sleeve and hub.

Hard to shift into reverse

Diagnostic procedure

1. Check and/or replace the MTF.
2. Check the clutch.
3. Check the change lever assembly.
4. Check the reverse shift fork and reverse idler gear.
5. Check reverse gears.

HDS does not communicate with the ECM or the vehicle

Diagnostic procedure

1. Troubleshoot the DLC circuit.

Noise from the transmission

Diagnostic procedure

1. Check and/or replace the MTF.
2. Check the MTF level (unfilled or in surplus the transmission with the MTF).
3. Check the transmission gears.
4. Check the transmission bearings.
5. Check the differential carrier, the final driven gear, and the carrier bearings.

Transmission jumps out of gear

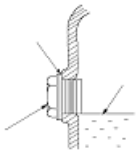
Diagnostic procedure

1. Check and/or replace the MTF.
2. Check the detent ball springs.
3. Check the teeth of the synchro rings and the gears.
4. Check for bent, deform, or damage of the shift forks.

M/T System Symptom Troubleshooting

Symptom	Diagnostic procedure
Hard to shift into 1st gear	1.Check and/or replace the MTF. 2.Check the clutch. 3.Check the change lever assembly. 4.Check the 1st synchro ring and the 1st gear. 5.Check the 1st/2nd synchro sleeve and hub.
Hard to shift into 2nd gear	1.Check and/or replace the MTF. 2.Check the change lever assembly. 3.Check the 2nd synchro ring and the 2nd gear. 4.Check the 1st/2nd synchro sleeve and hub.
Hard to shift into 3rd gear	1.Check and/or replace the MTF. 2.Check the change lever assembly. 3.Check the 3rd synchro ring and the 3rd gear. 4.Check the 3rd/4th synchro sleeve and hub.
Hard to shift into 4th gear	1.Check and/or replace the MTF. 2.Check the change lever assembly. 3.Check the 4th synchro ring and the 4th gear. 4.Check the 3rd/4th synchro sleeve and hub.
Hard to shift into 5th gear	1.Check and/or replace the MTF. 2.Check the change lever assembly. 3.Check the 5th synchro ring and the 5th gear. 4.Check the 5th/6th synchro sleeve and hub.
Hard to shift into 6th gear	1.Check and/or replace the MTF. 2.Check the change lever assembly. 3.Check the 6th synchro ring and the 6th gear. 4.Check the 5th/6th synchro sleeve and hub.
Hard to shift into reverse	1.Check and/or replace the MTF. 2.Check the clutch. 3.Check the change lever assembly. 4.Check the reverse shift fork and reverse idler gear. 5.Check reverse gears.
HDS does not communicate with the ECM or the vehicle	Troubleshoot the DLC circuit.
Noise from the transmission	1.Check and/or replace the MTF. 2.Check the MTF level (unfilled or in surplus the transmission with the MTF). 3.Check the transmission gears. 4.Check the transmission bearings. 5.Check the differential carrier, the final driven gear, and the carrier bearings.
Transmission jumps out of gear	1.Check and/or replace the MTF. 2.Check the detent ball springs. 3.Check the teeth of the synchro rings and the gears. 4.Check for bent, deform, or damage of the shift forks.

MTF Inspection and Replacement



1. Park the vehicle on level ground, and turn the engine OFF.
2. Raise the vehicle on a lift and make sure it is securely supported.
3. Remove the splash shield.
4. Remove the filler plug (A) and sealing washer (B), check the condition of the MTF and make sure it is at the proper level (C).

5. If the MTF is dirty, remove the drain plug (A) and drain the MTF.
6. Reinstall the drain plug with a new sealing washer (B), and refill the transmission with MTF to the proper level. Always use Genuine Honda Manual Transmission Fluid (MTF).

   Fluid Capacity

   1.4 L (1.5 US qt, 1.2 Imp qt) at fluid change
   1.6 L (1.7 US qt, 1.4 Imp qt) at overhaul

7. Install the filler plug (C) with a new sealing washer (D).
8. Install the splash shield.
9. Lower the vehicle on the lift.
10. Without service reminder system, this procedure is complete.

With service reminder system

11. If the service reminder system required to replace the MTF, reset the service reminder system, and this procedure is complete. If the service reminder system did not require to replace the MTF, go to Step 12 and reset the MTF life with the HDS.
12. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC).
13. Turn the ignition switch to ON (II).
14. Make sure the HDS communicates with the vehicle and the ECM. If it doesn't communicate, troubleshoot the DLC circuit.
15. Select BODY ELECTRICAL with the HDS.
16. Select ADJUSTMENT in the GAUGES MENU with the HDS.
17. Select SERVICE REMINDER in the EU MAINTENANCE MINDER with the HDS.
18. Reset SERVICE REMINDER ITEM 3 (shows MTF) with the HDS.

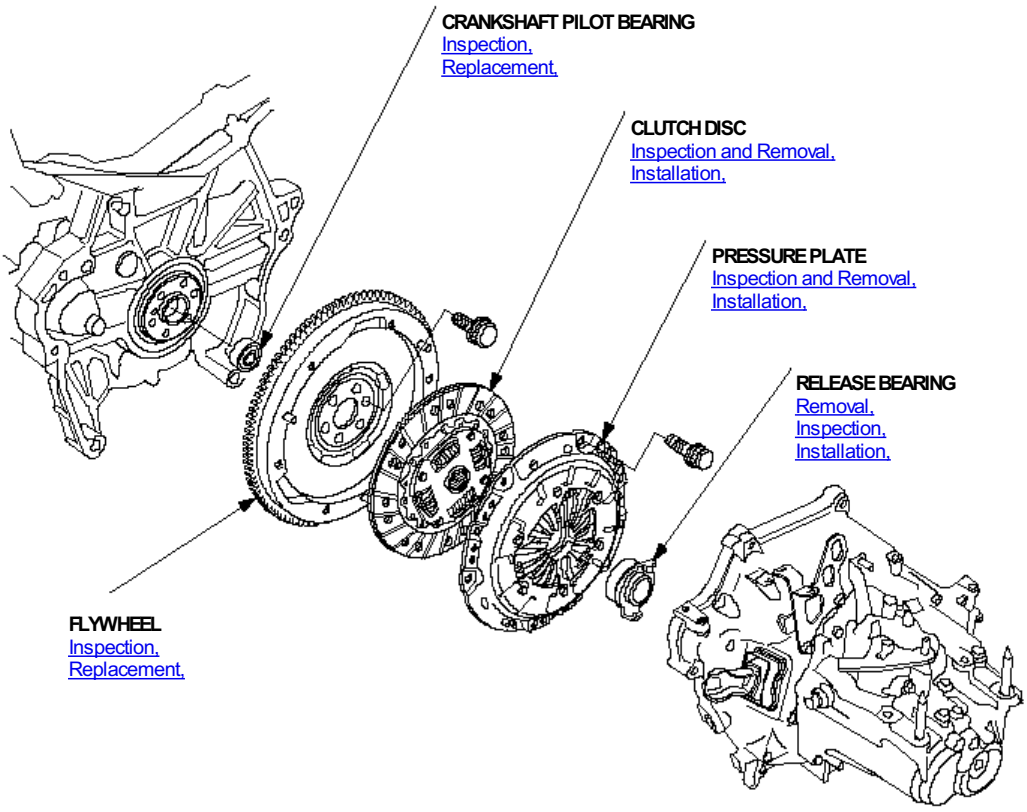
Manual transmission fluid

Item	Measurement	Qualification	Standard or New	Service Limit
Manual transmission fluid	Capacity Use genuine Honda MTF	Fluid change	1.4 L (1.5 US qt, 1.2 Imp qt)	
		Overhaul	1.6 L (1.7 US qt, 1.4 Imp qt)	

Clutch System Description

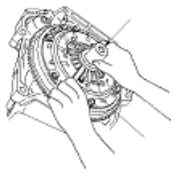
Self-Adjusting Clutch (SAC)

Clutch Component Location Index



Clutch Replacement

Special Tools Required



Stop collar
070AF-SMGC150

Ring gear holder
07LAB-PV00100

Pressure plate compressor
070AE-0010100

Center shaft
070AF-SMGC140

Bearing remover shaft 15
07936-KC10100

Bearing remover head 15
07936-KC10200

Driver handle, 15 x 135L
07749-0010000

Bearing driver attachment, 28 x 30 mm
07946-1870100

Engine Side

NOTICE

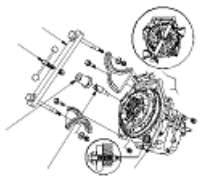
You must use the pressure plate compressor, the center shaft, and the stop collar required to remove and install the clutch pressure plate or you will damage it.

Pressure Plate Inspection and Removal

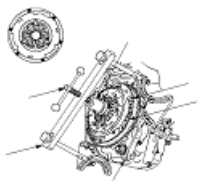
1. Remove the transmission.
2. Remove the transmission mount.
3. Check the evenness of the height of the diaphragm spring fingers using the center shaft, the stop collar (A), and a feeler gauge (B). If the height difference is more than the service limit, replace the pressure plate and clutch disc as a set.

Standard (New):	**0.8 mm (0.03 in.) max.**
Service Limit:	**1.0 mm (0.04 in.)**

4. Install the center shaft (A), the stop collar (B), the pressure plate compressor (C), and the ring gear holder (D).
5. Turn the center screw (E) clockwise by hand to apply pressure on the diaphragm spring. Continue turning the center screw until it stops.

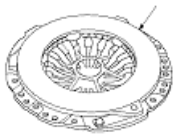


6. Loosen the pressure plate mounting bolts (A) in the pattern shown in several steps, then remove the bolts.
7. Turn the center screw (B) on the pressure plate compressor counterclockwise by hand to release the pressure, then install two pressure plate mounting bolts by finger-tight to hold the pressure plate (C).
8. Remove the stop collar, the pressure plate compressor, then remove the finger-tightened bolts and the pressure plate.



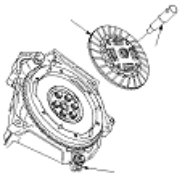
9. Inspect the fingers of the diaphragm spring (A) for wear at the release bearing contact area.

10. Inspect the pressure plate surface (A) for wear, cracks, and burning.



11. Inspect for warpage using a straight edge (A) and a feeler gauge (B). Measure across the pressure plate (C). If the most measurement difference is more than the service limit, replace the pressure plate and clutch disc as a set.
    Standard (New): **0.03 mm (0.001 in.) max.**
    Service Limit: **0.15 mm (0.006 in.)**

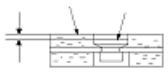
Clutch Disc Inspection and Removal



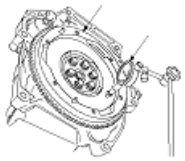
12. Remove the clutch disc (A) and clutch center shaft (B).
13. Inspect the lining of the clutch disc for signs of slippage or oil. If the clutch disc looks burnt or is oil soaked, replace the clutch disc and the pressure plate as a set. If the clutch disc is oil soaked, find and repair the source of the oil leak.

14. Measure clutch disc thickness. If the measurement is less than the service limit, replace the clutch disc and pressure plate as a set.
    Standard (New): **7.6−8.0 mm (0.299−0.315 in.)**
    Service Limit: **6.0 mm (0.236 in.)**

15. Measure the rivet depths from the clutch disc lining surface (A) to the rivets (B) on both sides. If the measurement is less than the service limit, replace the clutch disc and pressure plate as a set.
    Standard (New): **1.1 mm (0.043 in.) min.**
    Service Limit: **0.3 mm (0.012 in.)**

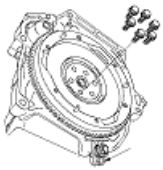


Flywheel Inspection



16. Remove the ring gear holder.
17. Inspect the ring gear teeth for wear and damage.
18. Inspect the clutch disc mating surface on the flywheel for wear, cracks and burning.
19. Measure the flywheel (A) runout using a dial indicator (B). Through at least two full turns with pushing against the flywheel each time you turn it to take up the crankshaft thrust washer clearance. If the measurement is not within the standard, replace the flywheel, and recheck the runout. Go to Step 20 .
    Standard (New): **0.05 mm (0.002 in.) max.**

Flywheel Replacement



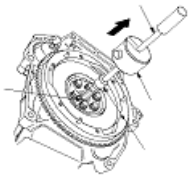
20. Install the ring gear holder.
21. Loosen the flywheel mounting bolts in a crisscross pattern in several steps. Remove the bolts, then remove the flywheel and the ring gear holder.
22. Install the flywheel on the crankshaft, and install the mounting bolts finger-tight.

23. Install the ring gear holder (A), then torque the flywheel mounting bolts (B) in a crisscross pattern in several steps.

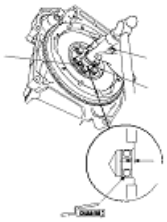
Pilot Bearing Inspection

24. Inspect the crankshaft pilot bearing for wear and damage.
25. Inspect the inside surface of the crankshaft pilot bearing with your finger. If the crankshaft pilot bearing is not smooth, replace it; go to Step 26 .

Pilot Bearing Replacement

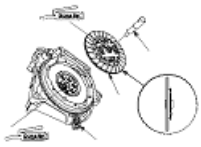


26. Remove the crankshaft pilot bearing (A) using the bearing remover shaft (B), bearing remover head (C), and the sliding hammer weight (D).



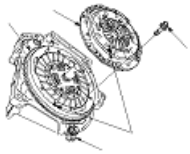
27. Install the new pilot bearing (A) into the crankshaft using the 15 x 135L driver handle (B) and 28 x 30 mm bearing driver attachment (C). Apply a light coat of molybdenum grease to the bearing surface.

Clutch Disc and Pressure Plate Installation

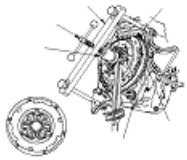


NOTE: The clutch disc and pressure plate are a matched set and must be replaced together.

28. Temporarily install the clutch disc onto the splines of the transmission mainshaft. Make sure the clutch disc slides freely on the mainshaft.
29. Apply a light coat of molybdenum grease to the crankshaft pilot bearing (A).
30. Apply molybdenum grease to the splines (B) of the clutch disc (C), then install the clutch disc using the clutch center shaft (D).

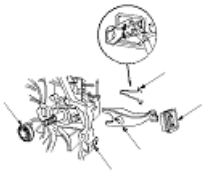


31. Align point marks (A) across the pressure plate (B) and flywheel (C).
32. Install the pressure plate and the mounting bolts (D) by finger-tight.



33. Install the stop collar (A) and the pressure plate compressor (B).
34. Turn the center screw (C) clockwise by hand to apply pressure on the diaphragm spring. Continue turning the center screw until it stops.
35. Be careful not to damage the pressure plate (D). Tighten (180 degrees apart) the pressure plate mounting bolts (E) in the pattern as shown in several steps.
    Specified Torque: **25 N·m (2.6 kgf·m, 19 lbf·ft)**
36. Turn the center screw on the pressure plate compressor counterclockwise by hand to release the pressure. Remove the pressure plate compressor, the stop collar, the center shaft, and the ring gear holder.
37. Make sure the diaphragm spring fingers are all the same height.
38. Do the release bearing inspection, and replace if it necessary.
39. Install the transmission mount.
40. Install the transmission.

Transmission Side
Release Bearing Removal

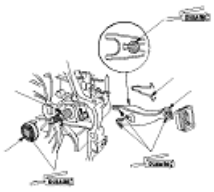


1. Remove the transmission.
2. Remove the release fork boot (A) from the clutch housing (B).
3. Remove the release fork (C) from the clutch housing by squeezing the release fork set spring (D). Remove the release bearing (E).

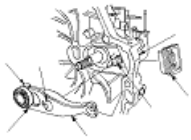
Release Bearing Inspection

4. Check the play of the release bearing by spinning it by hand. If there is excessive play or noise, replace the release bearing.
   NOTE: The release bearing is packed with grease. Do not wash it in solvent.

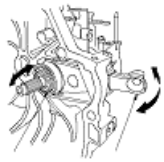
Release Bearing Installation



5. Apply molybdenum grease to the release fork (A), release fork bolt (B), the release bearing (C), and the release bearing guide (D) in the shaded areas, then set the release fork set spring (E).
   NOTE: Replace the release fork bolt if necessary.



6. With the release fork (A) slide between the release bearing pawls (B), install the release bearing on the mainshaft while inserting the release fork through the hole (C) in the clutch housing.
7. Align the detent (D) of the release fork with the release fork bolt (E), then press the detent of the release fork over the release fork bolt squarely.
8. Install the release fork boot (F). Make sure the boot seals around the release fork and clutch housing.



9. Move the release fork (A) right and left to make sure that it fits properly against the release bearing (B) and that the release bearing slides smoothly. Wipe off any excess grease.
10. Install the transmission.

Clutch disc

Item	Measurement	Qualification	Standard or New	Service Limit
Clutch disc	Rivet head depth		1.1 mm (0.043 in.)	0.3 mm (0.012 in.)
	Thickness		7.6−8.0 mm (0.299−0.315 in.)	6.0 mm (0.236 in.)

Pressure plate

Item	Measurement	Qualification	Standard or New	Service Limit
Pressure plate	Warpage		0.03 mm (0.001 in.) max.	0.15 mm (0.006 in.)
	Height of diaphragm spring fingers measured with feeler gauge and special tool		0.8 mm (0.03 in.)	1.0 mm (0.04 in.)

Flywheel

Item	Measurement	Qualification	Standard or New	Service Limit
Flywheel	Runout on clutch mating surface		0.05 mm (0.002 in.) max.	———

i-SHIFT System Fail Safe Action Index

SAE Fault Code (DTC)	Malfunction Criteria	Fail Safe Action
P0504	Diagnosis by the brake information in the F-CAN signal. • Received brake signal did not change for 3 drive cycles or more. i-SHIFT drive cycle is established under these conditions (Once all of these conditions mentioned are satisfied, 1 drive cycle is established.): - Two minutes elapsed after the ignition switch is turned ON. - Gear is shifted to the 3rd gear or higher. - Speed has reached 16 km/h or more.	Driving in manual mode is impossible.
P0512	Diagnosis by Starter Switch Signal (STS).	None
P0562	Diagnosis by voltage input. • Monitors the VBATT (+B) signal when voltage has reached 9 V or less.	i-SHIFT indicator comes on (When voltage decreases, symptoms such as delay in motor operation occur).
P0563	Diagnosis by voltage input. • Monitors the VBATT (+B) signal when voltage reached 28 V or more.	i-SHIFT indicator comes on.
P0603	Diagnosis by the TCM internal circuit check function. • Performs ROMSUM check of the Keep Alive Memory (KAM), and assumes a malfunction if the RONSUM value does not match.	• i-SHIFT indicator comes on. • Control is terminated and the condition when a malfunction has been detected (gear position, clutch position) is kept.
P0605	Diagnosis by the TCM internal circuit check function. • Checks the RONSUM in the rewritable part of the ROM, and assumes a malfunction if the RONSUM value does not match.	• i-SHIFT indicator comes on. • Control is terminated and the condition when a malfunction has been detected (gear position, clutch position) is kept.
P0666	Diagnosis by the TCM internal temperature sensor signal. • When the input value is higher or lower than the designed value.	i-SHIFT indicator comes on.
P0702	Determination by VCC voltage input value. • When the input value is higher or lower than the designed value.	• i-SHIFT indicator comes on. • Control is terminated and the condition when a malfunction has been detected (gear position, clutch position) is kept.
P0780	Diagnosis by shift position while shifting gears. • Even if synchro position is not reached, but reaching the connecting part in the gear has failed at least three times.	i-SHIFT indicator comes on.
P0810	Diagnosis by the value from the clutch actuator position sensor. • When the position sensor value does not change even if the clutch actuator has been commanded to operate.	• i-SHIFT indicator comes on. • When vehicle speed exceedes a certain speed (varies with the speed gear retained), the clutch actuator position when the malfunction occurred is retained, and control is performed. • When vehicle speed is below a certain speed, the mode becomes Neutral. • Although the engine can be restarted, the time elapsed to start the engine after pressing the starter switch is longer than usual (about 1 sec).
P0882	Diagnosis by input voltage value and F-CAN signal value. • When voltage input value in the TCM is almost 0 V, even if the IG1 signal (received F-CAN value) of the ECM is ON.	i-SHIFT indicator comes on (If the F-CAN signal from the ECM is sent continuously, control continues until the IG1 in the ECM turns OFF).

SAE Fault Code (DTC)	Malfunction Criteria	Fail Safe Action
P0883	Diagnosis by input voltage value and F-CAN signal value. • When voltage input value in the TCM is almost equal or more than the battery voltage, even if the IG1 signal (received F-CAN value) of the ECM is OFF.	i-SHIFT indicator comes on.
P0904	Diagnosis by sensor signal. • Monitors PULSES SELECT signal. • When the line for PULSES SELECT signal is open. • When the line for PULSES SELECT signal is about 0 V (GND short). • When the line for PULSES SELECT signal is almost equal to the battery voltage (BATT short).	• i-SHIFT indicator comes on. • Fixed at the speed gear when a malfunction has been confirmed (connects or disconnects the clutch by vehicle speed).
P0909	Diagnosis by neutral width. • When the neutral width of the change actuator is 15.5 mm or above, or 25.5 mm or below	i-SHIFT indicator comes on.
P0910	Diagnosis by sensor signal. • Output from the sensor does not change even if the output value in the select actuator position does not detect electrical malfunction in the sensor.	i-SHIFT indicator comes on.
P0914	Diagnosis by sensor signal. • Monitors PULSES SHIFT signal. • When the line for PULSES SHIFT signal is open. • When the line for PULSES SHIFT signal is about 0 V (GND short). • When the line for PULSES SHIFT signal is almost equal to the battery voltage (BATT short).	• i-SHIFT indicator comes on. • Fixed at the speed gear at the time a malfunction has been confirmed. Connects or disconnects the clutch by vehicle speed.
P0919	Diagnosis by time spent in neutral position learning. • When confirmation of a neutral position is not possible.	i-SHIFT indicator comes on.
P0920	Diagnosis by sensor signal. • Output from the sensor does not change even if the output value in the shift actuator position does not detect electrical malfunction in the sensor.	i-SHIFT indicator comes on.
P0942	Diagnosis by in-gear action. • When synchro position cannot be achieved even if shift/select is operated and in-gear action is performed of halt condition.	i-SHIFT indicator comes on.
P16C0	CPU performs self-diagnosis while ignition switch is ON, and determines whether the malfunction has been recorded or not.	• i-SHIFT indicator comes on. • Control termination other than alteration of information.
P19E4	Diagnosis by gear actuator's input energy (calculated value). • For a certain period of time, an input from 2400 W to 3000 W, or an energy input from 1600 W to 2000 W occurred.	Transmission Temp indicator comes on.

SAE Fault Code (DTC)	Malfunction Criteria	Fail Safe Action
P19E5	Diagnosis by the value from the clutch actuator position sensor. • Clutch actuator position sensor value is beyond the range of design value.	• i-SHIFT indicator comes on. • When vehicle speed exceedes a certain speed (varies with the speed gear retained), the clutch actuator position when the malfunction occurred is retained, and control is performed. • When vehicle speed is below a certain speed, the mode becomes Neutral. • Although the engine can be restarted, the time elapsed to start the engine after pressing the starter switch is longer than usual (about 1 sec).
P19E6	Diagnosis by clutch temperature value. • If clutch temperature value reaches 300 °C (572 °F) or more.	Creep termination.
P19E7	Diagnose when Clutch Contact Position 3 Learning was not completed or in progress.	i-SHIFT indicator comes on.
P19E8	Diagnosis using VSPOUT signal. • When VSPOUT signal is 0 V or approximately equal to the battery voltage.	i-SHIFT indicator comes on.
P19E9	Diagnosis by ECU BRAKE AND signal. • When ECU BRAKE AND signal is 0 V or approximately equal to the battery voltage.	i-SHIFT indicator comes on.
P19EA	Diagnosis by Starter Enable signal return input value. • When Starter Enable signal return value is 0 V or approximately equal to the battery voltage.	i-SHIFT indicator comes on.
P19EB	Diagnosis using F-CAN signal. • Diagnostic software protection not active.	None (Cannot perform commands and alteration necessary for KEY inspection.)
P19EC	Diagnosis by SUPPLY signal. • Monitors SENSOR SUPPLY SHIFT signal. • When SENSOR SUPPLY SHIFT signal is about 0 V (GND short).	• i-SHIFT indicator comes on. • Fixed at the speed gear when malfunction was confirmed (connects or disconnects the clutch by vehicle speed).
P19ED	Diagnosis by SUPPLY signal. • Monitors SENSOR SUPPLY SHIFT signal. • When the line for SENSOR SHIFT signal is open.	• i-SHIFT indicator comes on. • Fixed at the speed gear when a malfunction has been confirmed (connects or disconnects the clutch by vehicle speed).
P19EE	Diagnosis by SUPPLY signal. • Monitors SENSOR SUPPLY SHIFT signal. • When the line for SENSOR SUPPLY SHIFT signal is almost equal to the battery voltage (BATT short).	• i-SHIFT indicator comes on. • Fixed at the speed gear when a malfunction has been confirmed (connects or disconnects the clutch by vehicle speed).
P19EF	Diagnosis by GND signal. • Monitors SENSOR GND SHIFT signal. • When the line for SENSOR GND SHIFT signal is open.	• i-SHIFT indicator comes on. • Fixed at the speed gear when a malfunction has been confirmed (connects or disconnects the clutch by vehicle speed).
P19F0	Diagnosis by SENSOR signal. • Monitors DIRECTION SHIFT signal. • When the line for DIRECTION SHIFT signal is about 0 V (GND short).	• i-SHIFT indicator comes on. • Fixed at the speed gear when a malfunction has been confirmed (connects or disconnects the clutch by vehicle speed).
P19F2	Diagnosis by SENSOR signal. • Monitors DIRECTION SHIFT signal. • When the DIRECTION SHIFT signal is almost equal to the battery voltage (BATT short). • When the line for DIRECTION SHIFT signal is open.	• i-SHIFT indicator comes on. • Fixed at the speed gear when a malfunction has been confirmed (connects or disconnects the clutch by vehicle speed).

SAE Fault Code (DTC)	Malfunction Criteria	Fail Safe Action
P19F3	Diagnosis by SUPPLY signal. • Monitors SENSOR SUPPLY SELECT signal. • When SENSOR SELECT signal is about 0 V (GND short).	• i-SHIFT indicator comes on. • Fixed at the speed gear when a malfunction has been confirmed (connects or disconnects the clutch by vehicle speed).
P19F4	Diagnosis by SUPPLY signal. • Monitors SENSOR SUPPLY SELECT signal. • When the line for SENSOR SELECT signal is open.	• i-SHIFT indicator comes on. • Fixed at the speed gear when a malfunction has been confirmed (connects or disconnects the clutch by vehicle speed).
P19F5	Diagnosis by SUPPLY signal. • Monitors SENSOR SUPPLY SELECT signal. • When the line for SENSOR SUPPLY SELECT signal is almost equal to the battery voltage (BATT short).	• i-SHIFT indicator comes on. • Fixed at the speed gear when a malfunction has been confirmed (connects or disconnects the clutch by vehicle speed).
P19F6	Diagnosis by GND signal. • Monitors SENSOR GND SELECT signal. • When the line for SENSOR GND SELECT signal is open.	• i-SHIFT indicator comes on. • Fixed at the speed gear when a malfunction has been confirmed (connects or disconnects the clutch by vehicle speed).
P19F7	Diagnosis by SENSOR signal. • Monitors DIRECTION SELECT signal. • When the line for DIRECTION SELECT signal is about 0 V (GND short).	• i-SHIFT indicator comes on. • Fixed at the speed gear when a malfunction has been confirmed (connects or disconnects the clutch by vehicle speed).
P19F9	Diagnosis by SENSOR signal. • Monitor of DIRECTION SELECT signal. • When DIRECTION SELECT signal is a rough voltage of the battery (BATT short). • When the line for DIRECTION SELECT signal is open.	• i-SHIFT indicator comes on. • Fixed at the speed gear when a malfunction has been confirmed (connects or disconnects the clutch by vehicle speed).
P19FA	Diagnosis using F-CAN signal. • Torque instability signal received at the TCM is set at 10 minutes. or above.	None
P19FB	Diagnose when Clutch Contact Position 1/2 Learning was completed or in progress. • When all phases of learning was not completed.	None (1st or reverse gear only can be shifted. Drive at very slow speed available.)
P19FC	Diagnosis when Shift Change Actuator Position Learning and Synchronizing Position Learning is completed or in progress.	• i-SHIFT indicator comes on. • Control terminated (Engine startup impossible).
P19FD	Diagnosis by Shift Change Actuator Position Learning value. • Shift Position Gear 1/3/5 is +11.4 mm or above, +7.4 mm or below. • Shift Position Gear 2/4/6/R is −6.2 mm or above, −10.2 mm or below. • Select Position Gear 1/2 is −2.8 mm or above, −5.8 mm or below. • Select Position Gear 3/4 is +2.1 mm or above, −0.9 mm or below. • Select Position Gear 5/6 is +7.6 mm or above, +4.6 mm or below. • Select Position Gear R is +11.95 mm or above, +9.45 mm or below. • Synchronizer Position Gear 1/3/5 is +8.2 mm or above, +0.2 mm or below. • Synchronizer Position Gear 2/4/6 is +1.1 mm or above, −6.9 mm or below. A fault code is recorded if one of the conditions above exists.	None

SAE Fault Code (DTC)	Malfunction Criteria	Fail Safe Action
P19FE	Diagnosis by Clutch Contact Position learning value. • Clutch Contact Position (long term) is 14 mm or above, or 7 mm or below. • Clutch Contact Position (medium term) is 14 mm or above, or 7 mm or below. • Clutch Contact Position (short term) is 14 mm or above, or 7 mm or below. A fault code is recorded if one of the conditions above exists.	None
P19FF	Diagnosis by Friction Coefficient value. • Friction Coefficient #1 is 865 or above, or 171 or below. • Friction Coefficient #2 is 865 or above, or 171 or below. • Friction Coefficient #3 is 865 or above, or 171 or below. • Friction Coefficient General is 865 or above, or 171 or below. A fault code is recorded if one of the conditions above exists.	None
P2785	Diagnosis by motor temperature value and PCB sensor's input value. • Motor temperature is 195 °C or above. • PCB sensor's input value is 118 °C or above. A fault code is recorded if one of the conditions above exists.	• Transmission Temp indicator comes on. • Gearshift limit (from 1st to 5th and R only) by Shift map for use during occurrence of malfunction.
P2786	Diagnosis by gear actuator's input energy (calculated value). • For a certain period of time, an input of 3000 W or more, or an energy input of 2000 or more occurred.	• i-SHIFT indicator comes on. • Fixed at the speed gear when a malfunction has been confirmed (connects or disconnects the clutch by vehicle speed).
P2787	Diagnosis by clutch temperature value. • If clutch temperature value reaches 400 °C or more.	• Transmission Temp indicator comes on. • Creep termination.
U0100	Diagnosis using CAN signal. • When TCM cannot receive signals from the ECM.	• i-SHIFT indicator comes on. • When vehicle speed exceedes a certain speed (varies with the speed gear retained), the clutch actuator position when the malfunction occurred is retained, and control is performed. • When vehicle speed is below a certain speed, the mode becomes Neutral. • Although the engine can be restarted, the time elapsed to start the engine after pressing the starter switch is longer than usual (about 1 sec).
U0103	Diagnosis using CAN signal. • When TCM cannot receive signals from gear shift control module.	• i-SHIFT indicator comes on. • If vehicle speed is over 5 km/h, the position at malfunction is retained, and control is done (change in auto mode from manual mode). • When vehicle speed is below 5 km/h, the mode becomes Neutral.
U0155	Diagnosis using CAN signal. • When TCM cannot receive signals from gauge control module.	i-SHIFT indicator comes on.

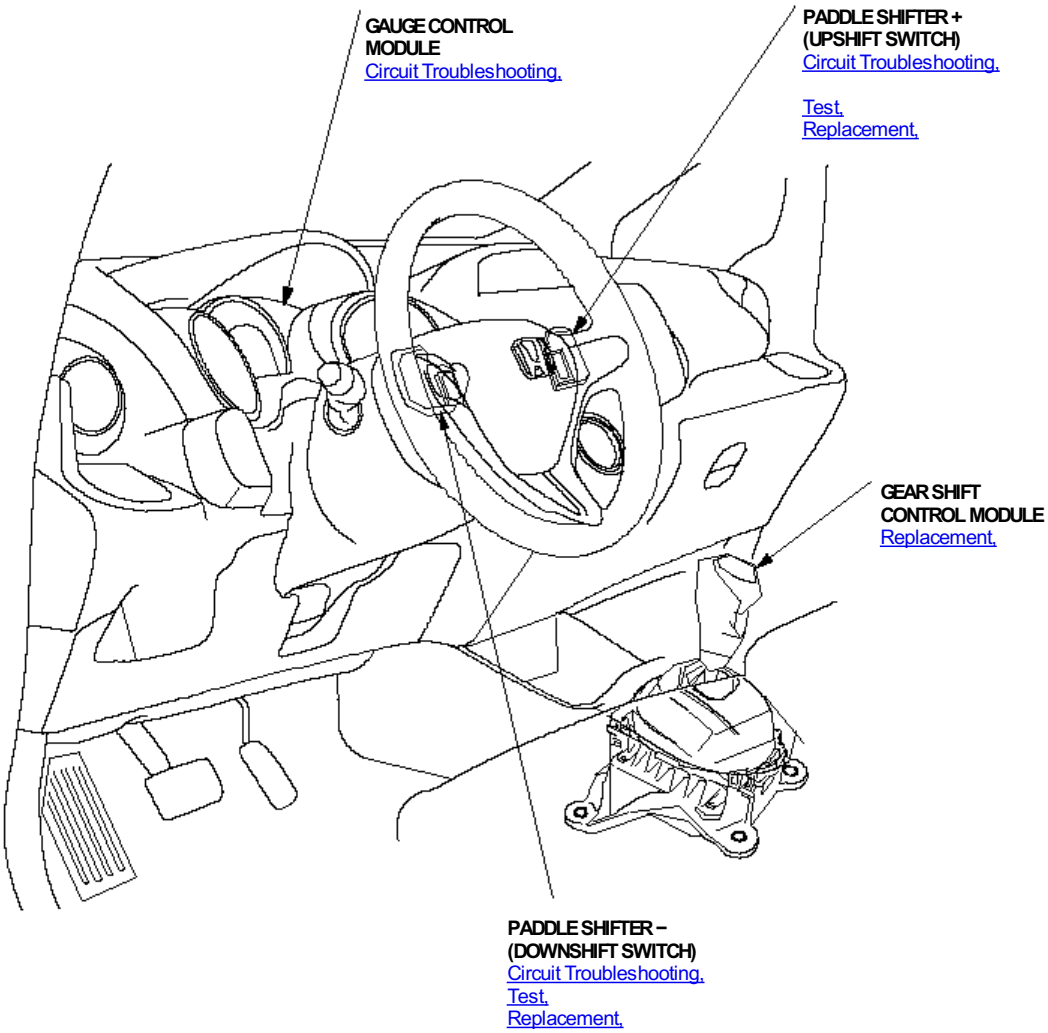
SAE Fault Code (DTC)	Malfunction Criteria	Fail Safe Action
U0401	Diagnosis using CAN signal. • When an INVALID value is included in the ECM data received by the TCM.	• DTC set caused by IAT sensor malfunction/ECT sensor malfunction: None • For DTC set caused by other ECM malfunctions: When vehicle speed exceedes a certain speed (varies with the speed gear retained), the clutch actuator position when the malfunction occurred is retained, and control is performed. • When vehicle speed is below a certain speed, the mode becomes Neutral. • Although the engine can be restarted, the time elapsed to start the engine after pressing the starter switch is longer than usual (about 1 sec).
U0404	Diagnosis using CAN signal. • If the data received by the TCM from the gear shift control module contains an abnormal or INVALID value.	Fail safe action is classified according to malfunction mode. • Auto/Manual range abnormality: i-SHIFT indicator comes on. However, shifting between Automatic and manual is not possible. • For abnormality in other range and abnormality in the data received: i-SHIFT indicator comes on. • If vehicle speed is over 5 km/h, the position at malfunction is retained, and control is done. When vehicle speed is below 5 km/h, the mode becomes Neutral.
U1261	Diagnosis using CAN signal. • When TCM cannot receive signals from ABS or VSA.	• i-SHIFT indicator comes on. • If the shift lever is not at the N position: Speed gear is fixed at malfunction occurrence. However, to prevent engine stall, clutch opening and closing is controlled. • When shift lever is at the N position: Shifts gear to Neutral, and thereafter, Neutral mode is maintained even if shift lever is moved to other positions.
U1400	Diagnosis using CAN signal. • Abnormality exists in the ECM data received by TCM.	• When vehicle speed exceedes a certain speed (varies with the speed gear retained), the clutch actuator position when the malfunction occurred is retained, and control is performed. • When vehicle speed is below a certain speed, the mode becomes Neutral. • Although the engine can be restarted, the time elapsed to start the engine after pressing the starter switch is longer than usual (about 1 sec).
U1401	Diagnosis using CAN signal. • TCM received a shift down request, but when gear is shifted, maximum engine speed is exceeded.	None
U1402	Diagnosis using CAN signal. • Before TCM received 5-gear-down request, it received 4-gear-down request.	None
U1403	Diagnosis using CAN signal. • INVALID value in the ABS or VSA data received by TCM. When 1 piece of data is included.	• i-SHIFT indicator comes on. • When ABS or VSA unit detects malfunction: Disables downshift when brake is depressed. • If ABS or VSA unit did not detect a malfunction: None

SAE Fault Code (DTC)	Malfunction Criteria	Fail Safe Action
U1404	Diagnosis using CAN signal. • Abnormality exists in the ABS or VSA data received by TCM.	• When ABS or VSA unit detects malfunction: Disables downshift when brake is depressed. • If ABS or VSA unit has not detect a malfunction: None
U1405	Diagnosis using CAN signal. • When multiple INVALID values are included in the ABS or VSA data received by the TCM.	• i-SHIFT indicator comes on. • If shift lever is not at the N position: Speed gear is fixed at malfunction occurrence. However, to prevent engine stall, clutch opening and closing is controlled. • When shift lever is at the N position: Shifts gear to Neutral, and thereafter, Neutral mode is maintained even if shift lever is moved to other positions.

i-SHIFT System Description - Overview

[i-SHIFT](#)
[Gear Shift Control Module and Paddle Shifter](#)
[Transmission Control Module (TCM)](#)
[Clutch Actuator](#)
[Transmission Shift Change Actuator (Shift Actuator Motor)](#)
[Transmission Shift Change Actuator (Select Actuator Motor)](#)
[Auto Mode Gear-shifting Map](#)
[Manual Mode Gear-shifting Map](#)
[Prevents Mis-shifting System](#)
[TCM Inputs and Outputs at Connector A (37P)](#)
[TCM Inputs and Outputs at Connector B (42P)](#)

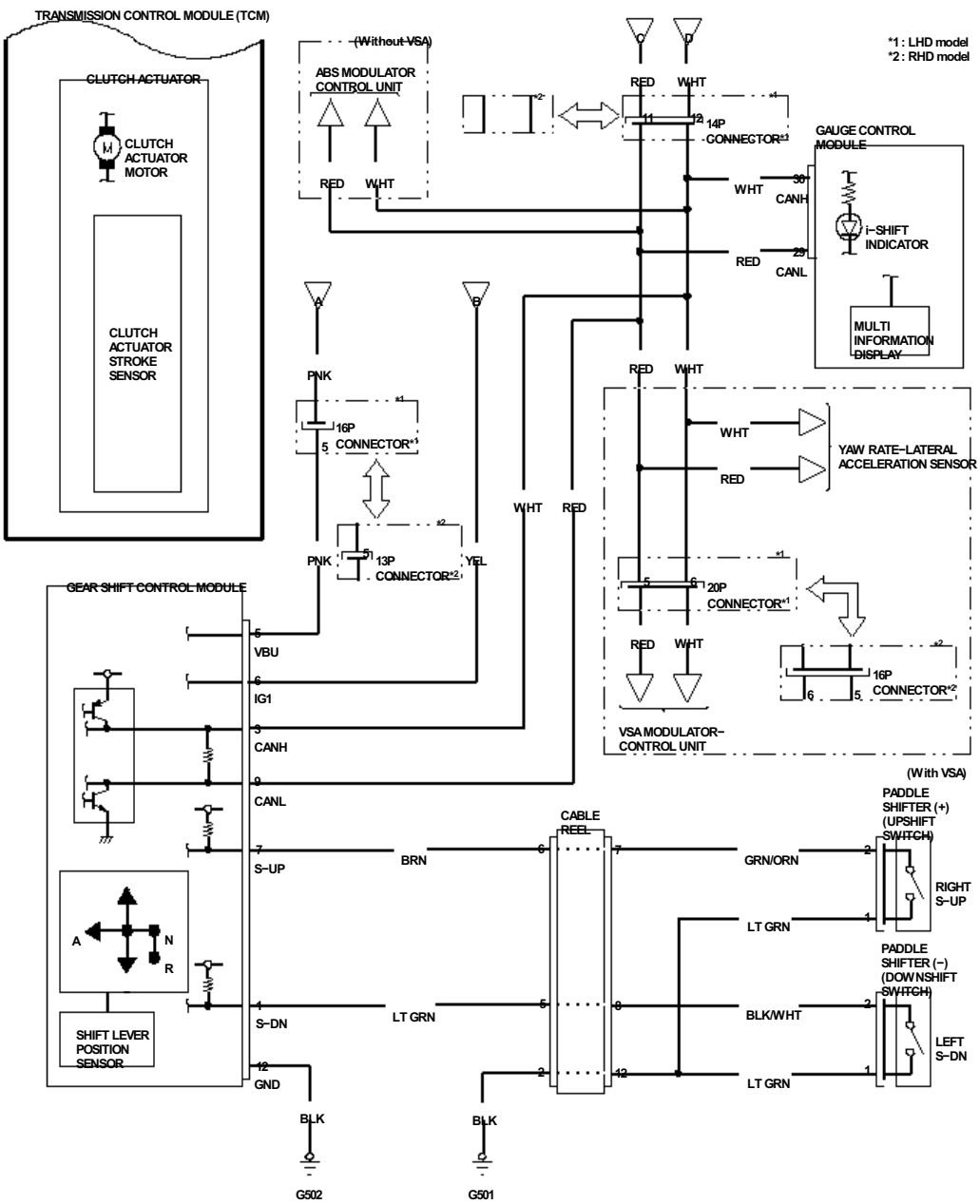
i-SHIFT System Component Location Index



The illustration shows the LHD model; RHD model is similar.

Removal/Installation,
Replacement,

i-SHIFT System Circuit Diagram



i-SHIFT System Symptom Troubleshooting - Engine doesn't crank

Engine Doesn't Crank

1. Turn the ignition switch to ON (II).
2. Press the brake pedal, and change the shift lever to the N position.
3. Check the MECHANICAL GEAR STACK FOR STARTER ENABLE in the DATA LIST with the HDS.

   Is the starter enable signal OK?
   YES - Test the starter. ■
   NO - Go to Step 4 .
4. Check the FOOTBRAKE ON SIGNAL FOR STARTER ENABLE in the DATA LIST with the HDS.

   Is the starter enable signal OK?
   YES - Go to Step 5 .
   NO - Do the brake pedal position switch signal circuit troubleshooting. ■
5. Check the CLUTCH OPEN SIGNAL FOR STARTER ENABLE in the DATA LIST with the HDS.

   Is the starter enable signal OK?
   YES - Go to Step 7 .
   NO - Go to Step 6 .
6. Check the CLUTCH POSITION in the DATA LIST with the HDS.

   Is there more 15 mm (0.6 in.)?
   YES - Check for these conditions, and repair if necessary:■

   - Clutch disc and pressure plate
   - Diaphragm spring
   - Release bearing

   NO - Check for these conditions, and repair if necessary:■

   - Slave cylinder
   - Release fork
7. Check the NEUTRAL SHIFTER SIGNAL FOR STARTER ENABLE in the DATA LIST with the HDS.

   Is the starter enable OK?
   YES - Go to Step 9 .
   NO - Go to Step 8 .
8. Move the shift lever in N, then check the SHIFT VALID N FROM SHIFTER in the DATA LIST with the HDS.

   It is OK?
   YES - Go to Step 9 .
   NO - Replace the gear shift control module. ■
9. Check the ENGAGE GEAR NEUTRAL in the DATA LIST with the HDS.

   Does the gear change into the N position?
   YES - Go to Step 11 .
   NO - Repair the transmission internal failure.■
10. Make sure the battery is fully charged.
11. Try to start the engine.

    Does the engine start?
    YES - Troubleshooting is complete.■
    NO - Substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM . ■

i-SHIFT System Symptom Troubleshooting - No transmission power to wheels

No Transmission Power to Wheels

1. Start the engine.
2. Press the brake pedal, and change the shift lever to the A/M position.
3. Check the BRAKE SWITCH in the DATA LIST with the HDS.

   Is the brake switch OK?
   YES - Go to Step 4 .
   NO - Do the brake pedal position switch signal circuit troubleshooting. ■
4. Check that the gear position indicator is displayed in 1st gear while in Auto mode.
   NOTE: When all the doors are closed, the gear position indicator should not flash. If the gear position indicator flashes, go to Step 5 .

   Is the gear position displayed?
   YES - Go to Step 8 .
   NO - Go to Step 5 .
5. Check for these conditions:
   - Leaks at hoses and line joints and connections, and repair if necessary.
   - Clutch lines for damage and leaks. Also check for bent clutch lines.
   - Reservoir level.

   Are they OK?
   YES - Go to Step 6 .
   NO - Repair the problems, then go through Step 1 to 4 and make sure it is normal.■
6. Do the i-SHIFT system learning (static mode).
7. Check that the gear position indicator is displayed in 1st gear while in Auto mode.

   Is the 1st gear position displayed?
   YES - Go to Step 9 .
   NO - Update the TCM if it does not have the latest software, or substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■
8. Read out error memory and remove errors if present.
9. Check the clutch, concentric slave cylinder.

   It is OK?
   YES - Go to Step 10 .
   NO - Repair the problems, then go through Step 1 to 4 and make sure it is normal.■
10. Do the ENGAGE GEARS in the FUNCTIONAL TEST MENU with the HDS, and try to shift the position that cannot be shifted.

    Does the actuator move normally?
    YES - Update the TCM if it does not have the latest software, or substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■
    NO - Repair the transmission internal failure, then go through Step 1 to 4 and make sure it is normal.■

i-SHIFT System Symptom Troubleshooting - Non-Creep

Non-creep

NOTE: The creep function is only supported in gears, 1, 2, and R.

1. Turn the ignition switch to ON (II).
2. Check these parameters in the DATA LIST with the HDS (check signal change inactive/active):
   - IDLE SWITCH
   - BRAKE SWITCH
   - PARKING BRAKE SWITCH
   - CLUTCH TEMPERATURE (with a clutch temperature increased to higher degrees, creeping torque is reduced linearly. With a clutch temperature of 300 °C creeping function is inactive).

   Do they show the proper valve?
   YES - Go to Step 3 .
   NO - Repair the items that did not show the proper valve.■
3. Press the brake pedal, and change the shift lever to the A/M position.
4. Compare the TARGET GEAR and the ACTUAL GEAR in the DATA LIST with the HDS.

   Is the gear position OK?
   YES - Go to Step 5 .
   NO - Update the TCM if it does not have the latest software, or substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■
5. Do the i-SHIFT system learning (static mode).

   Is the i-SHIFT system learning OK?
   YES - Go to Step 6 .
   NO - Repeat the i-SHIFT system learning (static mode) and the i-SHIFT system bleeding. ■
6. Test-drive, under these conditions:
   - Full load start at least five times.
   - Shift to every gear.

   NOTE: During test drive, read out the actual clutch temperature with the HDS. Do not start test drive with clutch temperature of 100 °C.
7. Clear any DTCs with the HDS.
8. Check the creep condition.

   Is it OK?
   YES - Vehicle is normal.■
   NO - Go to Step 1 and recheck.

Engine Stalls When Stopping

1. Check the clutch line for leaks and low fluid level.

   Is there any problems?
   YES - Repair the problem part, then go to Step 2 .
   NO - Go to Step 3 .

2. Clear the DTCs with the HDS (invoked due to repair).

3. Bleed hydraulic system to remove any air bubbles.

4. Do the i-SHIFT system learning (static mode).

   Was the i-SHIFT system learning (static mode) successfully completed?
   YES - Go to Step 6 .
   NO - Go to Step 5 .

5. Check for DTCs with the HDS.

   Are any DTCs indicated?
   YES - Go to the indicated DTC's troubleshooting.■
   NO - Bleed hydraulic system to remove any air bubbles, then do the i-SHIFT system learning (static mode). ■

6. Test-drive the vehicle for 10 minutes with at least 5 full load start.
   NOTE: During the test-drive, read out the actual clutch temperature with the HDS. Do not start test-drive with clutch temperature above 100 °C (212 °F).

   Was the test successfully completed?
   YES - Troubleshooting is complete.■
   NO - Go to Step 7 .

7. Check for DTCs with the HDS.

   Are any DTCs indicated?
   YES - Go to the indicated DTC's troubleshooting.■
   NO - Bleed the hydraulic system to remove any air bubbles, then do the i-SHIFT system learning (static mode). ■

i-SHIFT indicator stay on, but no DTCs are stored

1. Turn the ignition switch to ON (II).
2. Do the gauge self-diagnostic function.

   Does the i-SHIFT indicator flash?
   YES - Go to Step 3 .
   NO - Update the TCM if it does not have the latest software, or substitute a known-good gauge control module, and recheck. If the i-SHIFT indicator circuit is OK, replace the original gauge control module. ■
3. Connect the HDS to the DLC.
4. Make sure the HDS communicates with the vehicle and the TCM. If it does not, troubleshoot the DLC circuit.
5. Check for DTCs with the HDS.

   Is DTC U0155 indicated?
   YES - Go to the troubleshooting DTC U0155. ■
   NO - Update the TCM if it does not have the latest software, or substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■

i-SHIFT System Functional Test

Clutch Actuator Full Stroke Operation

By the command from the HDS, the master cylinder in the clutch actuator is moved to full stroke position.
This functional test can be done under these conditions:

- IG switch on.
- Engine not running.
- N position.
- Drivers side door closed.

Engage Gears

By the command from the HDS, the clutch actuator and transmission shift change actuator operates, and shifts to any gear.
This functional test can be done under these conditions:

- IG switch on.
- Engine not running.
- N position.
- Synchronizing position learning has been completed.

NOTE:

- Specify a gear, and forcibly shift to that gear (usual paddle shifter is until 2nd).
- When diagnosing malfunction of the TCM or Motor, use it depending on the cause of malfunction.

HDS does not communicate with the TCM or the vehicle

Diagnostic procedure

1. Troubleshoot the DLC circuit.

i-SHIFT indicator does not come on

Diagnostic procedure

1. Do the gauge control module troubleshooting.
2. Check the i-SHIFT INDICATOR LIGHT F-CAN in the DATA LIST with the HDS. If it is NG, replace the TCM.

i-SHIFT indicator stays on, but no DTCs are stored

Diagnostic procedure

1. Symptom troubleshooting.

i-SHIFT position indicator does not come on

Diagnostic procedure

1. Do the gauge control module troubleshooting.
2. Substitute a known-good TCM, then recheck. If it is OK, replace the original TCM.

i-SHIFT position indicator does not change or a gear position does not match

Diagnostic procedure

1. Do the gauge control module troubleshooting.
2. Move the shift lever to all position then check the SHIFT VALID N or D or A/M or + or − or R FROM SHIFTER in the DATA LIST with the HDS. If it is NG, replace the gear shift control module.

Paddle shifter + (upshift switch) does not gear change

Diagnostic procedure

1. Paddle shifter + (upshift switch) circuit troubleshooting.
2. Paddle shifter + (upshift switch) test.
3. Substitute a known-good TCM, then recheck. If it is OK, replace the original TCM.

Paddle shifter − (downshift switch) does not gear change

Diagnostic procedure

1. Paddle shifter − (downshift switch) circuit troubleshooting.
2. Paddle shifter − (downshift switch) test.
3. Substitute a known-good TCM, then recheck. If it is OK, replace the original TCM.

Manual mode does not gear change of gear shift control module

Diagnostic procedure

1. Move the shift lever to all positions then check the SHIFT VALID N or D or A/M or + or − or R FROM SHIFTER in the DATA LIST with the HDS. If it is NG, replace the gear shift control module.

Engine doesn't crank

Diagnostic procedure

1. Symptom troubleshooting.

No transmission power to wheels

Diagnostic procedure

1. Symptom troubleshooting.

Non-creep

Diagnostic procedure

1. Symptom troubleshooting.

Engine stalls when stopping

Diagnostic procedure

1. Symptom troubleshooting.

All segments of the gear position indicator turn on. (When starting the engine, N is not indicated on the gear position indicator although the shift lever is at N position)

Diagnostic procedure

1. Make sure the shift lever is at N position, press the brake pedal and keep it pressed.
2. Turn the ignition switch to ON (II).
3. Keep the brake pedal pressed until the gear position indicator indicates N. If the gear position indicator does not change to N, inspect the battery.

i-SHIFT System Symptom Troubleshooting

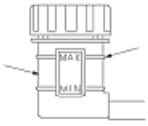
When the vehicle has one of these symptoms, check for a diagnostic trouble code (DTC) with the HDS. If there is no DTC, do the diagnostic procedure for the symptom, in the sequence listed, until you find the cause.

Symptom	Diagnostic procedure
HDS does not communicate with the TCM or the vehicle	Troubleshoot the DLC circuit.
i-SHIFT indicator does not come on	1Do the gauge control module troubleshooting. 2Check the i-SHIFT INDICATOR LIGHT F-CAN in the DATA LIST with the HDS. If it is NG, replace the TCM.
i-SHIFT indicator stays on, but no DTCs are stored	Symptom troubleshooting.
i-SHIFT position indicator does not come on	1Do the gauge control module troubleshooting. 2Substitute a known-good TCM, then recheck. If it is OK, replace the original TCM.
i-SHIFT position indicator does not change or a gear position does not match	1Do the gauge control module troubleshooting. 2Move the shift lever to all position then check the SHIFT VALID N or D or A/M or + or − or R FROM SHIFTER in the DATA LIST with the HDS. If it is NG, replace the gear shift control module.
Paddle shifter + (upshift switch) does not gear change	1Paddle shifter + (upshift switch) circuit troubleshooting. 2Paddle shifter + (upshift switch) test. 3Substitute a known-good TCM, then recheck. If it is OK, replace the original TCM.
Paddle shifter − (downshift switch) does not gear change	1Paddle shifter − (downshift switch) circuit troubleshooting. 2Paddle shifter − (downshift switch) test. 3Substitute a known-good TCM, then recheck. If it is OK, replace the original TCM.
Manual mode does not gear change of gear shift control module	Move the shift lever to all positions then check the SHIFT VALID N or D or A/M or + or − or R FROM SHIFTER in the DATA LIST with the HDS. If it is NG, replace the gear shift control module.
Engine doesn't crank	Symptom troubleshooting.
No transmission power to wheels	Symptom troubleshooting.
Non-creep	Symptom troubleshooting.
Engine stalls when stopping	Symptom troubleshooting.
All segments of the gear position indicator turn on. (When starting the engine, N is not indicated on the gear position indicator although the shift lever is at N position)	1Make sure the shift lever is at N position, press the brake pedal and keep it pressed. 2Turn the ignition switch to ON (II). 3Keep the brake pedal pressed until the gear position indicator indicates N. If the gear position indicator does not change to N, inspect the battery.

i-SHIFT System Bleeding

NOTE:

- Do not reuse the drained fluid. Use only clean genuine Honda DOT 4 Brake Fluid from an unopened container. Using a non-Honda brake fluid can cause corrosion and shorten the life of the system.
- Make sure dirt or other foreign matter is allowed to contaminate the brake fluid.
- Do not spill brake fluid on the vehicle, it may damage the paint; if brake fluid does contact the paint, wash it off immediately with water.



1. Make sure the brake fluid level in the reservoir (A) is at the MAX (upper) level line (B).

2. Remove the bleeder screw cap. Attach a hose to the bleeder (A), and suspend the hose in a container of brake fluid.
3. Do the CLUTCH FILLING in the ADJUSTMENT MENU with the HDS.
4. Tighten the bleeder screw securely.
5. Do the CLUTCH FLUID AIR BLEEDING in the ADJUSTMENT MENU with the HDS.
6. Refill the brake fluid in the reservoir to the MAX (upper) level line.
7. Check the clutch operation and check for leaking fluid.

i-SHIFT System Learning

The i-SHIFT learning must be done so the TCM can learn characteristic information of the system. There are two learning modes, ‘‘Dynamic mode" and ‘‘Static mode", and the learning information is different between these two. It can only be done by doing the DYNAMIC MODE LEARNING or the STATIC MODE LEARNING in the ADJUSTMENT MENU with the HDS. The ‘‘Dynamic mode" requires driving procedures, and the ‘‘Static mode" does not require any driving procedures.

i-SHIFT System Learning (Dynamic Mode)

i-SHIFT system learning (Dynamic Mode) is learned through the following steps with the HDS.

1. Shift change actuator position learning.
2. Synchronizing position learning.
3. Clutch contact position 1 learning.
4. Clutch contact position 2 learning.
5. Clutch friction learning.
6. Clutch contact position 3 learning.
   Tasks necessary in the learning process.
   - Replace the clutch actuator (TCM).
   - Replace the clutch disc.
   - Replace the pressure plate.
   - Replace the flywheel.

i-SHIFT System Learning (Static Mode)

i-SHIFT system learning (static mode) is learned through the following steps with the HDS.

1. Shift change actuator position learning.
2. Synchronizing position learning.
3. Clutch contact position 1 learning.
4. Clutch contact position 2 learning.
5. Clutch contact position 3 learning.
   Tasks necessary in the learning process.
   - Replace the transmission shift change actuator.
   - Removal/installation the slave cylinder.
   - Disassembly/reassembly the transmission.
   - Removal/installation the transmission.

   When performing the following maintenance, perform Learning.

	i-SHIFT System Learning (Dynamic Mode)	i-SHIFT System Learning (Static Mode)
Replace the clutch actuator (TCM).	○	×
Replace the transmission shift change actuator.	×	○
Removal/installation the slave cylinder.	×	○
Replace the clutch disc.	○	×
Replace the pressure plate.	○	×
Replace the flywheel.	○	×
Removal/installation the transmission.	×	○
Disassembly/reassembly the transmission.	×	○

○: Maintenance to fall under
×: Maintenance to not fall under

Shift Change Actuator Position Learning

The transmission shift change actuator operates automatically and learns the transmission's neutral position (neutral reference) and the gear end position (from 1st to 6th and R) and stores the learning value into the TCM.
The shift change actuator position learning is required after these maintenance operations:

- Replace the clutch actuator (TCM).
- Removal/installation the transmission shift change actuator.
- Removal/installation the transmission.
- Disassembly/reassembly the transmission.

The shift change actuator position learning can be done by using the HDS under these conditions:

- IG switch on.
- Engine not running.
- N position.

NOTE:

- The commands are sorted for each gear, and can be shifted by the HDS.
- Depending on the gear position, shifting may become difficult. If unsuccessful after trying three times to shift, it is considered Fail.
- Usually, learning is done in the order R-1-2-3-4-5-6; but if there is failure at 2nd gear, try to relearn by shifting to

another gear at once as in the order R-1-2-3-2-4-2-5-6.

Synchronizing Position Learning

The transmission shift change actuator operates automatically and learns the synchro-timing (determined from the change of engine torque) just before gear is applied, and stores the learning value to the TCM.
The synchronizing position learning is required after these maintenance operations:

- Replace the clutch actuator (TCM).
- Removal/installation the transmission shift change actuator.
- Removal/installation the transmission.
- Disassembly/reassembly the transmission.

Synchronizing position learning can be done by using the HDS under these conditions:

- Engine running.
- N position.
- Foot brake on.
- Parking brake on.
- Shift change actuator position learning has been completed.

NOTE:

- The commands are sorted for each gear, and can be shifted by the HDS.
- In synchronizing position learning, a failure once is considered as fail.
- When performed together with shift change actuator position learning, learning values for both processes are stored in the EEPROM.

Clutch Contact Point 1·2 Learning

The clutch actuator automatically operates, learns the initial torque application on the clutch disc, and stores the learning value into the TCM.
‘‘1" means that the clutch actuator operated once and has learned the temporary value; ‘‘2" means that the clutch actuator operated twice and has done accurate learning. The learning value is stored in the TCM.
The clutch contact position 1·2 learning is required after these maintenance operations:

- Removal/installation the slave cylinder.
- Replace the clutch actuator (TCM).
- Removal/installation the transmission.
- Disassembly/reassembly the transmission.
- Replace the clutch disc.
- Replace the pressure plate.
- Replace the fly wheel.

Clutch contact position 1 and 2 learning can be done by using the HDS under these conditions:

- Engine running.
- N position.
- Foot brake on.
- Parking brake on.
- Synchronizing position learning has been completed.
- After the engine has warmed up (Engine torque is stable).

NOTE:

- The trigger has been set, and the function starts to operate when the shifter is changed from N to D.
- Perform the learning of clutch contact Position 1 and 2 in succession.
- If this learning process is not completed, the vehicle cannot be driven.

Clutch Friction Learning

The HDS stores the initial values specified for a certain model into the TCM.
Also, the HDS commands to increase the learning speed and perform driving test, and sends the frictional coefficient adjustment of the initial value to the TCM.
The clutch friction learning is required after these maintenance operations:

- Replace the clutch actuator (TCM).
- Replace the clutch disc.
- Replace the pressure plate.
- Replace the flywheel.

The clutch friction learning can be done by using the HDS under the these conditions:

- Clutch contact position 2 learning has been completed.
- With the road surface resistance acting, rotate the wheels of the vehicle, and apply 1st gear until 6th gear.

NOTE:

- Since there is no driving load during lift-up, correct adjustment cannot be achieved, thus connect the HDS and perform the driving test.
- In the Driving Test Mode, the specialized Shift Pattern and Auto does not perform downshift.

Clutch Contact Position 3 Learning

After the coefficient of friction is input during the clutch friction learning, the procedure is done in the same manner as in clutch contact position 2 and the final learning is performed and stored in the TCM.
The clutch contact position learning is required after these maintenance operations:

- Replace the clutch actuator (TCM).
- Replace the clutch disc.
- Replace the pressure plate.
- Replace the flywheel.
- Removal/installation the slave cylinder.*1
- Removal/installation the transmission.*1
- Disassembly/reassembly the transmission.*1

The clutch contact position 3 learning can be done by using the HDS under these conditions:

- Engine running.
- N position.
- Foot brake on.
- Parking brake on.
- Synchronizing position learning has been completed.
- After the engine has warmed up (Engine torque is stable).

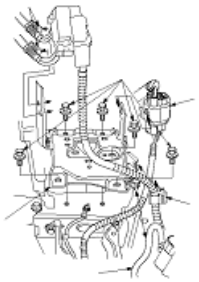
NOTE:

- The trigger has been set, and the function starts to operate when the shifter is changed from N to D.
- Driving Test is not needed when performing the maintenance for*1, so perform clutch contact position 1, 2, and 3 learning in succession.

i-SHIFT Clutch Actuator/TCM Removal/Installation

NOTE:

- Take care not to scratch body.
- Use fender covers to avoid damaging painted surfaces.



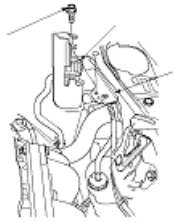
1. Do the battery terminal disconnection procedure.
2. Do the battery removal procedure.
3. Remove the air cleaner housing.
4. Remove the battery harness clamps (A), then release the lock and remove the clutch actuator connector (B).
5. Remove the battery base bolts (C) and the reservoir tube (D), then remove the battery base (E).

---

6. Remove the bolts (A) from the slave cylinder (B) so as not to bend the clutch line.

---

7. Remove the clutch reservoir tank (A) from the bulkhead (B).
   NOTE:
   - Do not spill brake fluid from the reservoir tank.
   - When remove the reservoir tank, fix the reservoir tank by hand.



---

8. Disconnect the clutch actuator connector (A) and the ground cable (B).

---

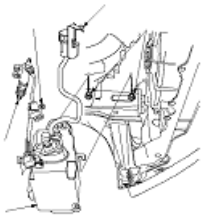
9. Release the lock and remove the transmission shift change actuator connector (A), then remove the transmission shift change actuator harness cover (B) and the harness clip (C).

---

10. Disconnect the transmission shift change actuator connector (A).
11. Raise the vehicle, and make sure it is securely supported.
12. Remove the splash shield.

---

13. Loosen the bolts (A), then remove the clutch actuator (B) with the clutch pipe comp (C) and the clutch fluid tube assembly (D).
14. Install the clutch actuator in the reverse order of removal.
15. Do the battery installation procedure.
16. Bleed the clutch hydraulic system.
17. Do the i-SHIFT system learning (dynamic mode).
18. Test-drive the vehicle.



i-SHIFT Clutch Fluid Tube Assembly Replacement

NOTE:

- Use fender covers to avoid damaging painted surfaces.
- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid does contact the paint, wash it off immediately with water.

1. Raise the vehicle, and make sure it is securely supported.
2. Remove the splash shield.
3. Disconnect the clutch fluid tube (A) from the clutch actuator (B). Plug the end of the clutch fluid with a shop towel to prevent brake fluid from coming out.
4. Lower the vehicle, and make sure it is securely supported.

---

5. Remove the clutch reservoir tank (A) from the bulkhead (B), then remove the reservoir tube (C) from the clips (D). Replace to the new clutch fluid tube assembly.

---

6. Install the clutch reservoir tank (A) on the bulkhead (B), then install the reservoir tube (C), from the clips (D).
   NOTE:
   - Make a mark (E) on this side and insert the tube into the clip.
   - When install the reservoir tank, fix the reservoir tank by hand.
7. Raise the vehicle, and make sure it is securely supported.

---

8. Connect the clutch fluid tube (A) on to the clutch actuator (B).
   NOTE:
   - Match the mark of tube (C) with the mark of grommet (D).
   - Install the tube till the mark is matched to the protrusion of tube.
   - Application of oil is not allowed.
9. Install the splash shield.
10. Bleed the clutch hydraulic system.
11. Do the i-SHIFT system learning (static mode).
12. Check the clutch operation and check for leaking fluid.
13. Test-drive the vehicle.

i-SHIFT Clutch Pipe Assembly Replacement

NOTE:

- Use fender covers to avoid damaging painted surface.
- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid does contact the paint, wash it off immediately with water.

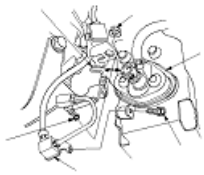
1. Remove the slave cylinder (A) from the transmission housing (B), so as not to bend the clutch line.
2. Raise the vehicle, and make sure it is securely supported.
3. Remove the splash shield.

---

4. Remove the clip (A) then Disconnect the clutch pipe comp (B) from the clutch actuator (C). Plug the end of the clutch line with a shop towel to prevent brake fluid from coming out.

---

5. Connect the clutch pipe comp (A) with the new O-ring (B) then install the clip (C) from the clutch actuator (D).
   NOTE:
   - No clip protrude after install.
   - Confirm the connector being set certainly.
   - Application of oil is not allowed.
6. Install the splash shield.
7. Lower the vehicle, and make sure it is securely supported.

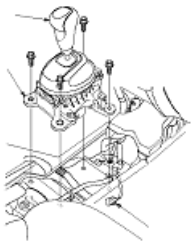


---

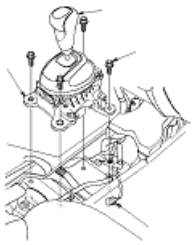
8. Pull the boot (A) back, and apply grease to the boot and slave cylinder rod (B). Reinstall the boot.
9. Apply a light coat of molybdenum grease to the tip of the push rod the slave cylinder and the release fork.
10. Install the slave cylinder (C) on the transmission housing (D).
11. Bleed the clutch hydraulic system.
12. Do the i-SHIFT system learning (static mode).
13. Check the clutch operation and check for leaking fluid.
14. Test-drive the vehicle.

i-SHIFT Gear Shift Control Module Replacement

NOTE: LHD model is shown, RHD model is similar.



1. Remove the center console.
2. Disconnect the connector (A), then remove the gear shift control module (B).
   NOTE: If the gear shift control module needs to be replaced, remove the shift lever knob (C) from the gear shift control module.



3. Install the gear shift control module (A), then connect the connector (B).
   NOTE: If the gear shift control module was replaced, install the shift lever knob (C) to the gear shift control module (turn the shift lever knob clockwise for 11 to 13 times, and make sure the shift pattern on the knob is at the right place).
4. Install the center console.
5. Test-drive the vehicle.

Paddle Shifter - (Downshift Switch) Circuit Troubleshooting

SRS components are located in this area. Review the SRS component locations, and the precautions and procedures before doing repair or service.

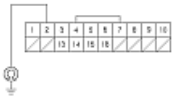
1. Remove the steering wheel.
2. Check for continuity between steering switch harness 20P connector terminals No. 8 and No. 12 while pressing paddle shifter − (downshift switch) and when the switch is released.

   Is there continuity while pressing paddle shifter − (downshift switch) and no continuity when the switch released?
   YES - Go to Step 5 .
   NO - Go to Step 3 .
3. Disconnect the paddle shifter − (downshift switch) connector.

---

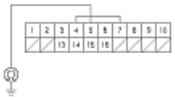
4. Check for continuity between paddle shifter − (downshift switch) connector terminals while pressing the switch and when the switch is released.

   Is there continuity while pressing the switch and no continuity when the switch released?
   YES - Replace the steering switch harness.■
   NO - Replace the paddle shifter − (downshift switch).
5. Remove the cable reel.



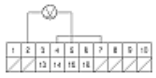
6. Check for continuity cable reel 20P connector terminal No. 2 and body ground.

   Is there continuity?
   YES - Go to Step 7 .
   NO - Repair open in the wire between cable reel 20P connector terminal No. 2 and ground (G501), or repair poor ground (G501).■



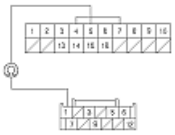
7. Check for continuity between cable reel 20P connector terminal No. 5 and body ground.

   Is there continuity?
   YES - Repair short to ground in the wire between cable reel 20P connector terminal No. 5 and gear shift control module 12P connector terminal No. 1.■
   NO - Go to Step 8 .
8. Turn the ignition switch to ON (II), and shift to the A position.



9. Measure voltage between cable reel 20P connector terminal No. 2 and No. 5.

   Is there battery voltage in neutral position and no voltage while pressing shift − (minus) switch?
   YES - Replace the cable reel. ■
   NO - Go to Step 10 .
10. Turn the ignition switch to LOCK (0).
11. Jump the SCS line with the HDS.
12. Disconnect gear shift control module 12P connector.



13. Check for continuity between gear shift control module 12P connector terminal No. 1 and cable reel 20P connector terminal No. 5.

    Is there continuity?
    YES - Check for loose or poor connections at gear shift control module 12P connector terminal No. 1. If the connection is OK, substitute a known-good gear shift control module and recheck.■
    NO - Repair open in the wire between gear shift control module 12P connector terminal No. 1 and cable reel 20P connector.■

Paddle Shifter - (Downshift Switch) Test

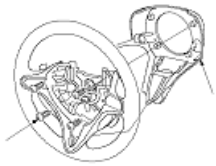
SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.

1. Remove the steering wheel.
2. Check the paddle shifter − (downshift switch) for continuity between steering switch harness 20P connector terminals No. 8 and No. 12.
   There should be continuity while pressing the paddle shifter − (downshift switch), and no continuity when the switch is released.
3. Paddle shifter − (downshift switch) test has finished if the test result is OK.
   If the switch works incorrectly at the 20P connector, test the switch at the switch connector.

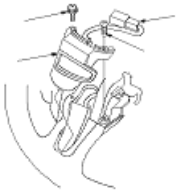
4. Remove paddle shifter − (downshift switch) connector from its holder, and disconnect the connector.
5. Check the paddle shifter − (downshift switch) for continuity between the switch connector terminals while pressing the switch and when the switch is released.
   There should be continuity while pressing the switch, and no continuity when the switch is released.
6. Replace the paddle shifter − (downshift switch) if the switch works incorrectly.
7. Replace the steering switch harness if the switch is OK.

Paddle Shifter - (Downshift Switch) Replacement

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.



1. Remove the steering wheel.
2. Remove the four screws (A) securing the steering wheel rear cover (B), then remove the steering wheel rear cover.



3. Remove the paddle shifter − (downshift switch) connector (A) from its holder, and disconnect the connector.
4. Remove the screws (B) securing the paddle shifter − (C), remove the paddle shifter −, and replace it with a new one.
5. Install the new paddle shifter − on the steering wheel, and secure it with the screws.
6. Connect the paddle shifter − connector securely, and install the connector in the connector holder.
7. Install the steering wheel rear cover, and secure the rear cover with the four screws.
8. Install the steering wheel.

Paddle Shifter + (Upshift Switch) Circuit Troubleshooting

SRS components are located in this area. Review the SRS component locations, and the precautions and procedures before doing repair or service.

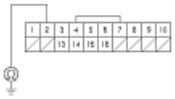
1. Remove the steering wheel.
2. Check for continuity between steering switch harness 20P connector terminals No. 7 and No. 12 while pressing paddle shifter + (upshift switch) and when the switch is released.

   Is there continuity while pressing paddle shifter + (upshift switch) and no continuity when the switch released?
   YES - Go to Step 5 .
   NO - Go to Step 3 .
3. Disconnect the paddle shifter + (upshift switch) connector.

---

4. Check for continuity between paddle shifter + (upshift switch) connector terminals while pressing the switch and when the switch is released.

   Is there continuity while pressing the switch and no continuity when the switch released?
   YES - Replace the steering switch harness.■
   NO - Replace the paddle shifter + (upshift switch).
5. Remove the cable reel.



6. Check for continuity cable reel 20P connector terminal No. 2 and body ground.

   Is there continuity?
   YES - Go to Step 7 .
   NO - Repair open in the wire between cable reel 20P connector terminal No. 2 and ground (G501), or repair poor ground (G501).■

---

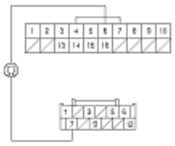
7. Check for continuity between cable reel 20P connector terminal No. 6 and body ground.

   Is there continuity?
   YES - Repair short to ground in the wire between cable reel 20P connector terminal No. 6 and gear shift control module 12P connector terminal No. 7.■
   NO - Go to Step 8 .
8. Turn the ignition switch to ON (II), and shift to the A position.

---

9. Measure voltage between cable reel 20P connector terminal No. 2 and No. 6.

   Is there about 5 V in neutral position and no voltage while pressing paddle shifter + (upshift switch)?
   YES - Replace the cable reel. ■
   NO - Go to Step 10 .
10. Turn the ignition switch to LOCK (0).
11. Jump the SCS line with the HDS.
12. Disconnect gear shift control module 12P connector.

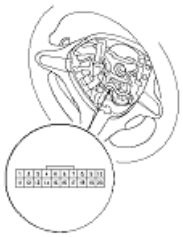


13. Check for continuity between gear shift control module 12P connector terminal No. 7 and cable reel 20P connector terminal No. 6.

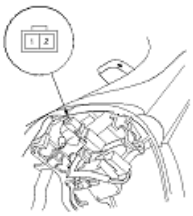
   Is there continuity?
   YES - Check for loose or poor connections at gear shift control module 12P connector terminal No. 7 If the connection is OK, substitute a known-good gear shift control module and recheck.■
   NO - Repair open in the wire between gear shift control module 12P connector terminal No. 7 and cable reel 20P connector.■

Paddle Shifter + (Upshift Switch) Test

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.



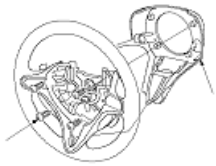
1. Remove the steering wheel.
2. Check the paddle shifter + (upshift switch) for continuity between steering switch harness 20P connector terminals No. 7 and No. 12.
   There should be continuity while pressing the paddle shifter + (upshift switch), and no continuity when the switch is released.
3. Paddle shifter + (upshift switch) test has finished if the test result is OK.
   If the switch works incorrectly at the 20P connector, test the switch at the switch connector.



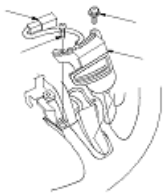
4. Remove paddle shifter + (upshift switch) connector from its holder, and disconnect the connector.
5. Check the paddle shifter + (upshift switch) for continuity between the switch connector terminals while pressing the switch and when the switch is released.
   There should be continuity while pressing the switch, and no continuity when the switch is released.
6. Replace the paddle shifter + (upshift switch) if the switch works incorrectly.
7. Replace the steering switch harness if the switch is OK.

Paddle Shifter + (Upshift Switch) Replacement

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.



1. Remove the steering wheel.
2. Remove the four screws (A) securing the steering wheel rear cover (B), then remove the steering wheel rear cover.

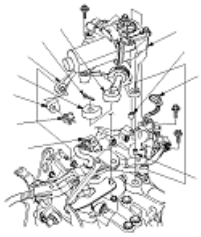


3. Remove the paddle shifter + (upshift switch) connector (A) from its holder, and disconnect the connector.
4. Remove the screws (B) securing the paddle shifter + (C), remove the paddle shifter +, and replace it with a new one.
5. Install the new paddle shifter + on the steering wheel, and secure it with the screws.
6. Connect the paddle shifter + connector securely, and install the connector in the connector holder.
7. Install the steering wheel rear cover, and secure the rear cover with the four screws.
8. Install the steering wheel.

i-SHIFT Transmission Shift Change Actuator Replacement

NOTE: Use fender covers to avoid damaging painted surface.

1. Do the battery terminal disconnection procedure.
2. Remove the air cleaner housing.
3. Remove the transmission shift change actuator harness cover (A) and the harness clip (B).

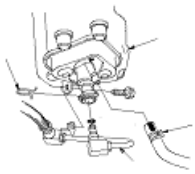


4. Disconnect the transmission shift change actuator connectors (A). Remove the cotter pin (B) and select wire washer (C).
5. Disconnect the select actuator rod (D) and shift actuator rod (E) with joint covers (F) from the change lever assembly (G).
6. Remove the transmission shift change actuator (H), then remove the dowel pins (I) from the top of the transmission housing.
7. Install the transmission shift change actuator in the reverse order of removal with the new cotter pin.
   NOTE:
   - Be careful of assemble direction of joint cover.
   - Application of grease is not allowed at installation to the rods.
   - Install the select wire washer certainly.
8. Do the battery terminal reconnection procedure.
9. Do the i-SHIFT system learning (static mode).
10. Test-drive the vehicle.

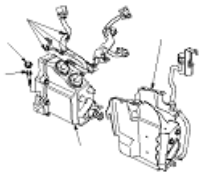
TCM Replacement

NOTE:

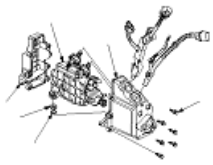
- Take care not to scratch the body.
- Use fender covers to avoid damaging painted surfaces.



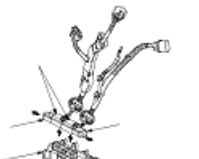
1. Remove the clutch actuator from the body.
2. Remove the clip (A) then remove the clutch pipe comp (B) and the clutch fluid tube assembly (C) from the clutch actuator (D). Plug the end of the clutch line with a shop towel to prevent brake fluid from coming out.



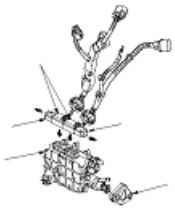
3. Remove the clutch actuator cover cap (A) and bolt (B). Remove the harness clips (C).
4. Remove the clutch actuator (D) from the clutch actuator bracket (E).



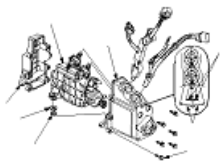
5. Remove the bolts (A) then remove the clutch actuator cover (B) from the clutch actuator case (C). Remove the clutch actuator case with the clutch actuator collar (D) and the O-ring (E) from the clutch actuator (F).
   NOTE: Do not damage the wire harness.



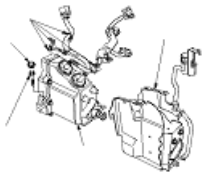
6. Pull the fixtures (A) then disconnect the clutch actuator connectors (B). Remove the clutch actuator grommet (C) from the clutch actuator (D). Replace to the new clutch actuator.



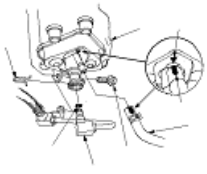
7. Connect the clutch actuator connectors (A) on the new clutch actuator (B), then fix the connectors by pushing the fixtures (C). Install the clutch actuator grommet (D) on the clutch actuator.



8. Install the clutch actuator (A) on the clutch actuator case (B) with the clutch actuator collar (C) and the O-ring (D).
   NOTE:
   - Do not damage the wire harness.
   - Match the mark of harness grommet with the mark of case at the angle shown.
   - Install the O-ring in the ditch of the collar certainly.
9. Install the clutch actuator cover (E) on the clutch actuator case.



10. Install the clutch actuator (A) from the clutch actuator bracket (B).
11. Install the bolt (C) and new clutch actuator cover cap (D). Install the harness clips (E).



12. Install the clutch fluid tube assembly (A) to the clutch actuator (B). Install the clutch pipe comp (C) with the new O-ring (D) then install the clip (E) to the clutch actuator.
    NOTE:
    - Match the mark of tube (F) with the mark of grommet (G).
    - Install the tube till the mark is matched to the protrusion of tube.
    - No clip protrude after install.
    - Confirm the connector being set certainly.
    - Application of oil is not allowed.
    - Apply industrial alcohol to the clutch tube assembly is allowed of installation.
13. Install the clutch actuator on the body.
14. Bleed the clutch hydraulic system.
15. Do the i-SHIFT system learning (dynamic mode).
16. Test-drive the vehicle.

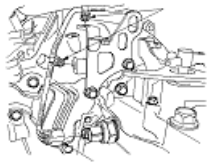
M/T Assembly Removal

Special Tools Required

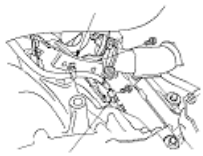
Engine support hanger
AAR-T-1256-J00
NOTE: Use fender covers to avoid damaging painted surfaces.

1. Secure the hood in the wide open position (support rod in the lower hole).
2. Remove the windshield wiper arms.
3. Remove the cowl covers and hood hinge cover.
4. Remove the wiper motor.
5. Remove under-cowl panel.
6. Do the battery terminal disconnection procedure.
7. Do the battery removal procedure.
8. Remove the clutch actuator (TCM).
9. Remove the transmission shift change actuator.
10. Remove the air cleaner stay.

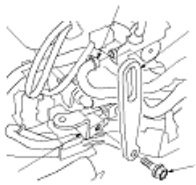
11. Disconnect the back-up light switch connector (A), then remove the harness clips (B).



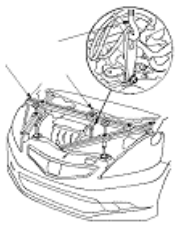
12. Disconnect the vehicle speed sensor (VSS) connector (A), then remove the harness clamp bracket (B).



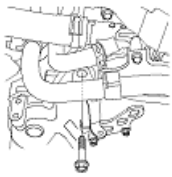
13. Remove the purge control SOL.V. hose (A). Install the hanger plate (B) to the air cleaner housing mounting bracket (C) with the 8 x 1.25 mm bolt (D).



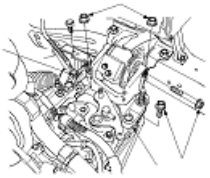
14. Install the engine support hanger (A) with the hook (B) to the vehicle. Tighten the wing nut (C) by hand, and lift and support the engine.



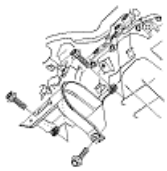
15. Remove the one upper transmission mounting bolt.



16. Remove the ground cable (A), transmission mount nuts (B), and transmission mount bolts (C), from the transmission bracket (D).
17. Raise the vehicle on a lift, and make sure it is securely supported.
18. Remove the splash shield.
19. Drain the transmission fluid. Reinstall the drain plug using a new sealing washer.
20. Remove the right and left driveshafts.

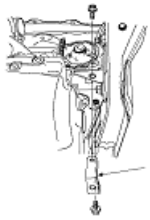


21. Remove the heat cover.

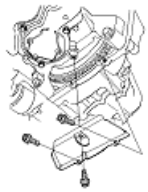


22. Remove the clutch pipe stay.

23. Remove the transmission mount bracket (A).
    NOTE: The bracket is used in the production process, not necessary to be reinstalled.



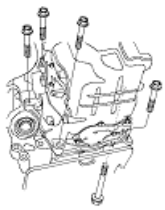
24. Remove the clutch case cover.
25. Securely support the transmission with a transmission jack.



26. Remove the torque rod.

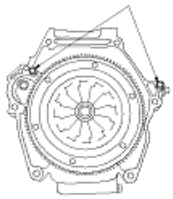
27. Remove the torque rod bracket.

28. Remove the lower transmission mounting bolts.
29. Pull the transmission away from the engine until the transmission mainshaft clears the clutch pressure plate.
30. Slowly lower the transmission. Check once again that all hoses and electrical wiring are disconnected and free from the transmission then lower it completely. Remove the two dowel pins.



M/T Assembly Installation

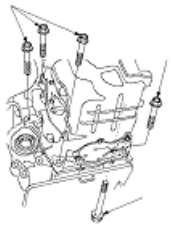
Special Tools Required



Engine support hanger
AAR-T-1256-J00
NOTE: Use fender covers to avoid damaging painted surfaces.

1. Make sure two dowel pins (A) are installed in prescribed hole on the engine block as shown.
2. Check the release bearing, and reinstall the release bearing and the release fork with applying appropriate grease.
3. Place the transmission on the transmission jack, and raise it to the engine unit level.

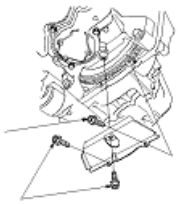
4. Install the lower transmission mounting bolts.



5. Install the torque rod bracket with new bolt (A) and bolts (B).

6. Loosely install the torque rod new bolt (A), new nut (B) and new bolt (C), then remove the transmission jack.

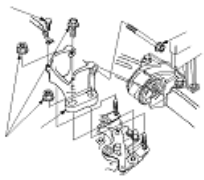
7. Install the clutch case cover.



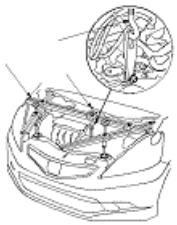
8. Install the clutch pipe stay.

9. Install the heat cover.
10. Install the right and left driveshafts.
11. Lower the vehicle on the lift.

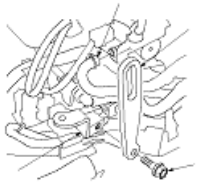
12. Install the transmission mount bracket (A), and loosely tighten the new transmission mount bracket mounting bolts and nuts (B).
13. Install the ground cable (C).



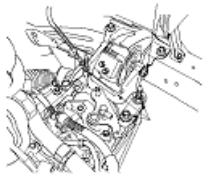
14. Loosen the wing nut (A). Remove the hook (B) and engine support hanger (C) from the vehicle.



15. Remove the hanger plate (A) to the air cleaner housing mounting bracket (B) with the 8 x 1.25 mm bolt (C). Install the purge control SOL.V. hose (D).

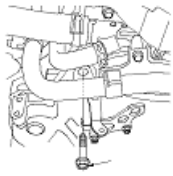


16. Tighten the transmission mount mounting bolts and nuts in the numbered sequence shown.

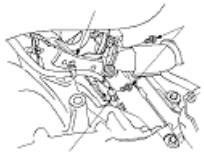


17. Tighten the torque rod with the bolts and nut to the specified torque value.

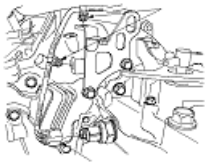
18. Install the one upper transmission mounting bolts.



19. Connect the vehicle speed sensor (VSS) connector (A), then install the harness clamp bracket (B).



20. Connect the back-up light switch connector (A), then install the harness clips (B).

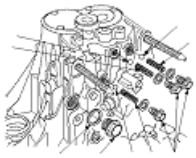


21. Install the air cleaner stay.
22. Install the transmission shift change actuator.
23. Install the clutch actuator (TCM).
24. Do the battery installation procedure.
25. Refill the transmission fluid to the proper level.
26. Install the splash shield.
27. Install the under-cowl panel.
28. Install the wiper motor.
29. Install the hood hinge cover and cowl cover.
30. Install the windshield wiper arms.
31. Do the i-SHIFT system learning (static mode).
32. Check the clutch operation.
33. Check the wheel alignment and adjust it if necessary.
34. Test-driver the vehicle.

M/T Assembly Disassembly

Exploded View - Clutch Housing

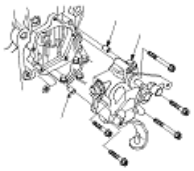
Exploded View - Transmission Housing



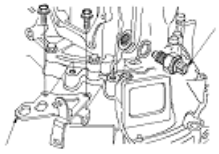
NOTE: Place the clutch housing on two pieces of wood thick enough to keep the mainshaft from hitting the workbench.

1. Remove the detent bolts (A), springs (B), steel balls (C).
2. Remove the 20 mm bolt (D) and 20 mm washer (E).

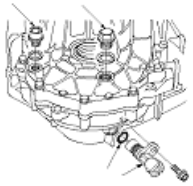
3. Remove the change lever assembly (A) and the 8 x 10 mm dowel pins (B).



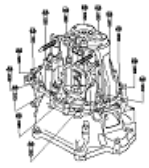
4. Remove the transmission hanger (A) and back-up light switch (B).



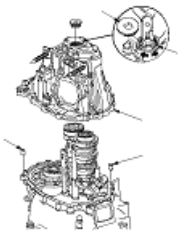
5. Remove the drain plug (A), filler plug (B) and the speed sensor (C), then remove the O-ring (D).



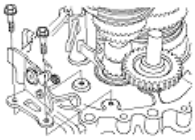
6. Remove the 8 mm flange bolts in a crisscross pattern in several steps.



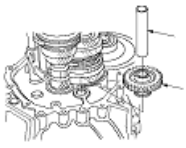
7. Remove the 32 mm sealing cap (A).
8. Expand the 69 mm snap ring (B) on the countershaft ball bearing, and remove it from the groove using a pair of snap ring pliers.
9. Remove the transmission housing (C) and 14 x 20 mm dowel pins (D).



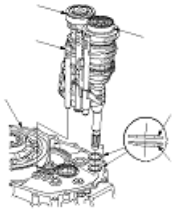
10. Remove the reverse shift fork.



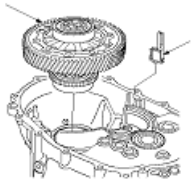
11. Remove the reverse idler gear (A) and reverse gear shaft (B).



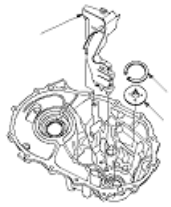
12. Apply tape to the mainshaft splines to protect the seal, then remove the mainshaft assembly (A) and countershaft assembly (B) with the shift forks (C) from the clutch housing (D).
13. Remove the 36 mm spring washer (E) and 26 mm washer (F).



14. Remove the differential assembly (A) and magnet (B).



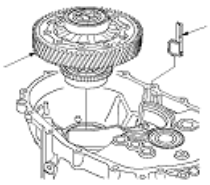
15. Remove the oil gutter plate (A), 52 x 62 mm shim (B), and oil guide plate M.



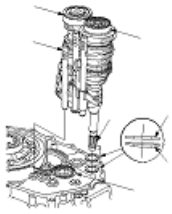
M/T Assembly Reassembly

NOTE: Prior to reassembling, clean all the parts in solvent, dry them, and apply lubricant to any contact surfaces.

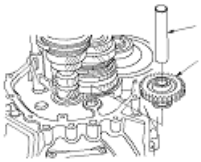
1. Install the magnet (A) and differential assembly (B).



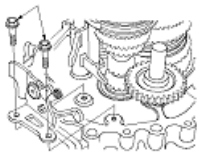
2. Install the 36 mm spring washer (A) and 26 mm washer (B) over the ball bearing (C). Note the installation direction of the spring washer.
3. Apply tape on the mainshaft spline (D) to protect the seal. Install the mainshaft and countershaft (E) into the shift forks (F), and install them as an assembly.



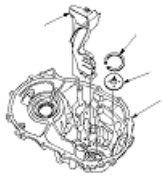
4. Install the reverse idler gear (A) and the reverse gear shaft (B).



5. Install the reverse shift fork.

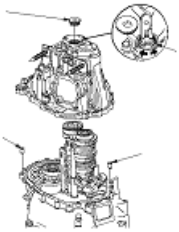


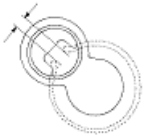
6. Select the proper size 52 x 62 mm shim (A) according to the measurements made during the mainshaft thrust clearance adjustment. Install the oil gutter plate (B), oil guide plate M, and the 52 x 62 mm shim into the transmission housing (C).



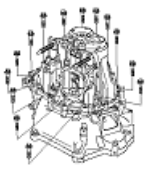
7. Remove any dirt and oil from the transmission housing sealing surface. Apply liquid gasket (P/N 08C70-K0234M, 08C70-K0334M, or 08C70-X0331S) to the sealing surface. Make sure you seal the entire circumference of the bolt holes to prevent oil leakage.
   NOTE: Do not install components if too much time has passed after applying the liquid gasket. Instead, remove the old residue and reapply the liquid gasket.

8. Install the 14 x 20 mm dowel pins (A).
9. Place the transmission housing over the clutch housing, being careful to line up the shafts.
10. Lower the transmission housing the rest of the way as you expand the 69 mm snap ring (B). Release the snap ring so it seats in the groove of the countershaft bearing.
11. Check that the 69 mm snap ring is securely seated in the groove of the countershaft bearing.
    Dimension (1) as installed:
    3.3−6.5 mm (0.13−0.25 in.)
12. Apply liquid gasket (P/N 08C70-K0234M, 08C70-K0334M, or 08C70-X0331S) to the threads of the 32 mm sealing cap (C), and install it on the transmission housing.

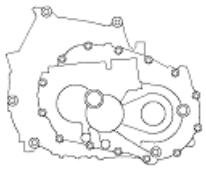




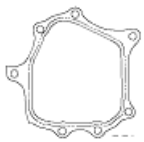
13. Install the 8 mm flange bolts finger-tight.



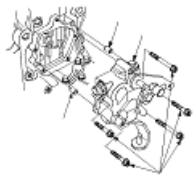
14. Tighten the 8 mm flange bolts in a crisscross pattern in several steps.
    Specified Torque: **8 x 1.25 mm 27 N·m (2.8 kgf·m, 20 lbf·ft)**



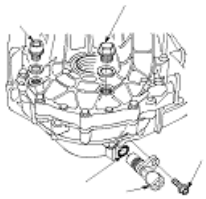
15. Remove any dirt and oil from the change lever cover sealing surface. Apply liquid gasket (P/N 08C70-K0234M, 08C70-K0334M, or 08C70-X0331S) to the sealing surface.
    NOTE: Do not install components if too much time has passed after applying the liquid gasket. Instead, remove the old residue and reapply the liquid gasket.



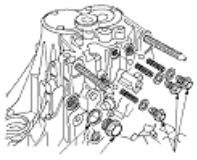
16. Install the 8 x 14 mm dowel pins (A), and change lever assembly (B).



17. Install the drain plug (A), filler plug (B), speed sensor (C), and new O-ring (D).



18. Install the detent bolts (A), the springs, and the steel balls with new washers.
19. Install the 20 mm bolt (B) and a new 20 mm washer (C).



20. Install the new washer (A), the back-up light switch (B), and the transmission hanger (C).

Back-up Light Switch Test

1. Disconnect the back-up light switch 2P connector (A).

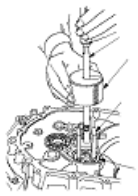
2. Check for continuity between the back-up light switch 2P connector terminals No. 1 and No. 2. There should be continuity when the shift lever is in reverse. If the result is faulty, go to Step 3 .

3. Remove the back-up light switch (A). Check for continuity between the back-up light switch 2P connector terminals No. 1 and No. 2. There should be continuity when the switch end (B) is pressed, and no continuity when the switch end is released. If the result is faulty, replace the back-up light switch. If the switch is OK, check the reverse shift piece in the transmission.

4. Install the removed or the new back-up light switch and new washer.
5. Connect the back-up light switch 2P connector.

M/T Clutch Housing Countershaft Bearing Replacement

Special Tools Required



Adjustable bearing remover head, 20–40 mm
07JAC-PH80100

Bearing remover shaft
07JAC-PH80200

Slide hammer weight
07741-0010201

Oil seal driver, 65 mm
07JAD-PL90100

1. Remove the needle bearing (A) using the special tool, then remove the oil gauge plate C.

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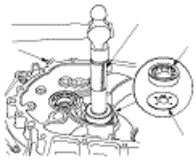
2. Position the oil guide plate C and new needle bearing (A) in the bore of the clutch housing (B).
3. Install the needle bearing using the special tools.



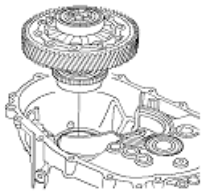
M/T Clutch Housing Differential Thrust Clearance Adjustment

Special Tools Required

Inner driver handle, 40 mm
07746-0030100

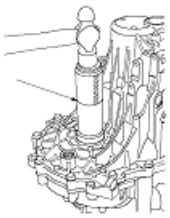
1. Install the 80 mm shim that's the same size as the one you removed.

2. Install the differential assembly into the clutch housing.



3. Install the transmission housing onto the clutch housing, then tighten the 8 mm flange bolts in a crisscross pattern in several steps.
   Specified Torque: **8 x 1.25 mm 27 N·m (2.8 kgf·m, 20 lbf·ft)**

4. Use the special tool to bottom the differential assembly in the clutch housing.



5. Measure clearance between 80 mm shim and bearing outer race in transmission housing.
   Standard: **0.01−0.10 mm (0.0004−0.0039 in.)**

6. If the clearance is more than the standard, select a new shim from the following table. If the clearance measured in step 5 is within the standard, go to Step 9 .

80 mm Shim

Type	Part Number	Thickness
A	41441-PL3-B00	1.00 mm (0.039 in.)
B	41442-PL3-B00	1.10 mm (0.043 in.)
C	41443-PL3-B00	1.20 mm (0.047 in.)
D	41444-PL3-B00	1.30 mm (0.051 in.)
E	41445-PL3-B00	1.40 mm (0.055 in.)
F	41446-PL3-B00	1.50 mm (0.059 in.)
G	41447-PL3-B00	1.60 mm (0.063 in.)
H	41448-PL3-B00	1.70 mm (0.067 in.)
J	41449-PL3-B00	1.80 mm (0.071 in.)
K	41450-PL3-B00	1.05 mm (0.041 in.)
L	41451-PL3-B00	1.15 mm (0.045 in.)
M	41452-PL3-B00	1.25 mm (0.049 in.)
N	41453-PL3-B00	1.35 mm (0.053 in.)
P	41454-PL3-B00	1.45 mm (0.057 in.)
Q	41455-PL3-B00	1.55 mm (0.061 in.)
R	41456-PL3-B00	1.65 mm (0.065 in.)
S	41457-PL3-B00	1.75 mm (0.069 in.)

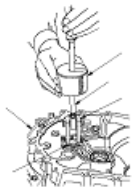
7. Remove the bolts and transmission housing.
8. Replace the thrust shim selected in step 6, then recheck the clearance.
9. Reinstall the transmission.

Reverse idler gear

Item	Measurement	Qualification	Standard or New	Service Limit
Reverse idler gear	I.D.		18.016−18.043 mm (0.7093−0.7104 in.)	18.08 mm (0.712 in.)
	Gear-to-reverse gear shaft clearance		0.032−0.077 mm (0.0013−0.003 in.)	0.14 mm (0.006 in.)

M/T Clutch Housing Mainshaft Bearing and Oil Seal Replacement

Special Tools Required



Adjustable bearing remover head, 20−40 mm
07JAC-PH80100

Bearing remover shaft
07JAC-PH80200

Slide hammer weight
07741-0010201

Driver handle, 15 x 135L
07749-0010000

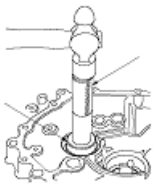
Bearing driver attachment, 42 x 47 mm
07746-0010300

Bearing driver attachment, 52 x 55 mm
07746-0010400

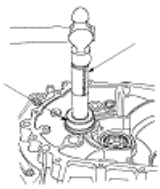
1. Remove the ball bearing (A) from the clutch housing (B) using the special tool.

2. Remove the oil seal (A) from the clutch side. Be careful when removing the seal so the clutch housing is not damaged.

3. Drive the new oil seal in from the transmission side using the special tools.

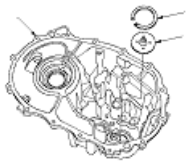


4. Drive the new ball bearing in from the transmission side using the special tools.



M/T Clutch Housing Mainshaft Thrust Clearance Adjustment

Special Tools Required



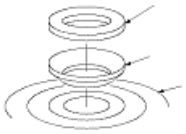
Catch adapter
07GAJ-PG20110

Base collar
07GAJ-PG20120

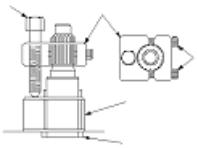
Base adapter
07GAJ-PG20130

Magnet stand base
07979-PJ40001

1. Remove the 52 x 62 mm shim (A) and oil guide plate M from the transmission housing (B).



2. Thoroughly clean the spring washer (A) and washer (B) before installing them on the ball bearing (C). Note the installation direction of the spring washer.
3. Install the 3rd/4th synchro hub, the distance collar, the 5th synchro hub, the distance collar, and ball bearing on the mainshaft.
   NOTE: Refer to the mainshaft reassembly Exploded View.
4. Install the mainshaft in the clutch housing.
5. Place the transmission housing over the mainshaft and onto the clutch housing.
6. Secure the clutch and transmission housings with several 8 mm bolts.
   NOTE: It is not necessary to use sealing agent between the housings for this procedure.
7. Light tap the mainshaft with a plastic hammer.



8. Attach the special tools to the mainshaft as follows:
   - Back-out the catch adapter bolt (A) and loosen the two hex bolts (B).
   - Fit the holder over the mainshaft so its lip is toward the transmission.
   - Align the catch adapter lip around the groove at the inside of the mainshaft splines, then tighten the hex bolts.
9. Seat the mainshaft fully by tapping its end with a plastic hammer.
10. Thread the catch adapter bolt in until it just contacts the wide surface of the base adapter.

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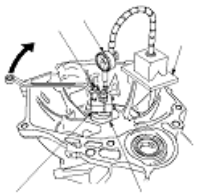
11. Zero a dial gauge (A) on the end of the mainshaft.



12. Turn the catch adapter bolt (B) clockwise; stop turning when the dial gauge (A) has reached its maximum movement. The reading on the dial gauge is the amount of mainshaft thrust clearance.
NOTE: Do not turn the catch adapter bolt more than 60 degrees after the needle of the dial gauge stop moving. Applying more pressure with the catch adapter bolt could damage the transmission.

13. If the reading is with in the standard, the clearance is correct. If the reading is not within the standards, select the appropriate shim needed from the table, and recheck the thrust clearance.
Standard: 0.11−0.18 mm (0.004−0.007 in.)

(Example)
Measure reading: 1.93 mm (0.0759 in.)

Subtract the middle of the clearance standard 0.14 mm (0.0055 in.) from the total clearance measurement.
1.93 − 0.14 = 1.79 mm (0.0705 in.)

Select the shim closest to the amount calculated, for example the 1.78 mm (0.0701 in.) shim.

14. With oil guide plate M and the appropriate size shim installed in the transmission housing, check the thrust clearance again to verify the clearance is within the standard.

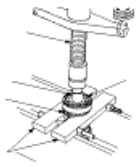
52 x 62 mm Shim

Type	Part Number	Thickness
A	23931-PZ9-000	0.85 mm (0.0335 in.)
B	23932-PZ9-000	0.88 mm (0.0346 in.)
C	23933-PZ9-000	0.91 mm (0.0358 in.)
D	23934-PZ9-000	0.94 mm (0.0370 in.)
E	23935-PZ9-000	0.97 mm (0.0382 in.)
F	23936-PZ9-000	1.00 mm (0.0394 in.)
G	23937-PZ9-000	1.03 mm (0.0406 in.)
H	23938-PZ9-000	1.06 mm (0.0417 in.)
I	23939-PZ9-000	1.09 mm (0.0429 in.)
J	23940-PZ9-000	1.12 mm (0.0441 in.)
K	23941-PZ9-000	1.15 mm (0.0453 in.)
L	23942-PZ9-000	1.18 mm (0.0465 in.)
M	23943-PZ9-000	1.21 mm (0.0476 in.)
N	23944-PZ9-000	1.24 mm (0.0488 in.)
O	23945-PZ9-000	1.27 mm (0.0500 in.)
P	23946-PZ9-000	1.30 mm (0.0512 in.)
Q	23947-PZ9-000	1.33 mm (0.0524 in.)
R	23948-PZ9-000	1.36 mm (0.0535 in.)
S	23949-PZ9-000	1.39 mm (0.0547 in.)
T	23950-PZ9-000	1.42 mm (0.0559 in.)
U	23951-PZ9-000	1.45 mm (0.0571 in.)
V	23952-PZ9-000	1.48 mm (0.0583 in.)
W	23953-PZ9-000	1.51 mm (0.0594 in.)
X	23954-PZ9-000	1.54 mm (0.0606 in.)
Y	23955-PZ9-000	1.57 mm (0.0618 in.)
Z	23956-PZ9-000	1.60 mm (0.0630 in.)
AA	23957-PZ9-000	1.63 mm (0.0642 in.)
AB	23958-PZ9-000	1.66 mm (0.0654 in.)
AC	23959-PZ9-000	1.69 mm (0.0665 in.)
AD	23960-PZ9-000	1.72 mm (0.0677 in.)
AE	23987-PZ9-000	1.75 mm (0.0689 in.)
AF	23988-PZ9-000	1.78 mm (0.0701 in.)
AG	23989-PZ9-000	1.81 mm (0.0713 in.)
AH	23990-PZ9-000	1.84 mm (0.0724 in.)
AI	23991-PZ9-000	1.87 mm (0.0736 in.)
AJ	23992-PZ9-000	1.90 mm (0.0748 in.)
AK	23993-PZ9-000	1.93 mm (0.0760 in.)
AL	23994-PZ9-000	1.96 mm (0.0772 in.)
AM	23995-PZ9-000	1.99 mm (0.0783 in.)
AN	23996-PZ9-000	2.02 mm (0.0795 in.)
AO	23997-PZ9-000	2.05 mm (0.0807 in.)
AP	23998-PZ9-000	2.08 mm (0.0819 in.)
AQ	23999-PZ9-000	2.11 mm (0.0831 in.)

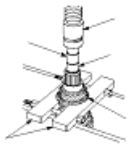
M/T Countershaft Disassembly

1. Securely clamp the countershaft assembly in a bench vise with wood blocks.
2. Remove the special bolt (left-hand threads).

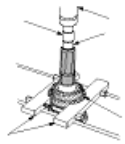
3. Support ball bearing (A) 6th gear (B) on steel blocks (C), then use a press (D) and an attachment (E) to press the countershaft out of the ball bearing.
4. Remove the 32 mm shim and distance collar.



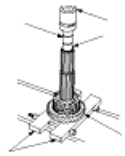
5. Support 4th gear (A) on steel blocks (B), then use a press (C) and an attachment (D) to press the countershaft (E) out of the 5th gear.



6. Support 2nd gear (A) on steel blocks (B), then use a press (C) and an attachment (D) to press the countershaft (E) out of 3rd gear.

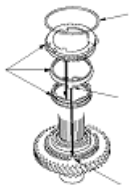


7. Support 1st gear (A) on steel blocks (B), then use a press (C) and an attachment (D) to press the countershaft (E) out of the 1st/2nd synchro.



M/T Countershaft Reassembly

Exploded View



Special Tools Required

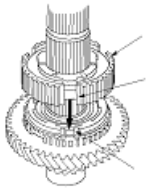
Inner driver handle, 40 mm
07746-0030100

Inner bearing driver attachment, 30 mm
07746-0030300

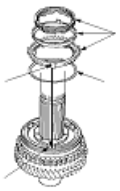
NOTE: Refer to the Exploded View as needed during this procedure.

1. Clean all parts in solvent, dry them, and apply lubricant to all contact surfaces.
2. Install the distance collar, the needle bearing, and 1st gear onto the countershaft.
3. Install the double cone synchro assembly (A) by aligning the synchro cone fingers (B) with the grooves in 1st gear (C), then install the synchro spring (D).

4. Install the 1st/2nd synchro hub (A) by aligning the synchro cone fingers (B) with the grooves in the 1st/2nd synchro hub (C).
5. Install the reverse gear.

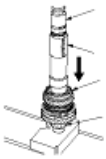


6. Install the synchro spring (A).
7. Install the double cone synchro assembly (B) by aligning the synchro cone fingers (C) with the grooves in the 1st/2nd synchro hub (D).
8. Install the distance collar and needle bearing.

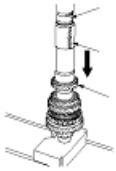


9. Install 2nd gear (A) by aligning the synchro cone fingers (B) with the grooves in 2nd gear (C).

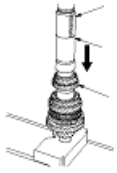
10. Support the countershaft (A) on the steel blocks, then install 3rd gear (B) using the special tool and a press (C). Do not exceed the maximum pressure.



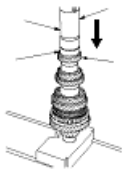
11. Install the 4th gear (A) using the special tool and a press (B). Do not exceed the maximum pressure.



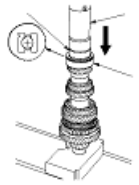
12. Install the 5th gear (A) using the special tool and a press (B). Do not exceed the maximum pressure.



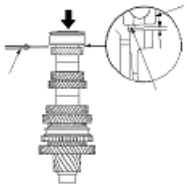
13. Install 6th gear (A) using the special tools and a press (B). Do not exceed the maximum pressure.



14. Install the 32 mm shim and the old ball bearing (A) using the special tools and a press.



15. Measure the clearance between the old bearing (A) and the 32 mm shim (B) with a feeler gauge (C).
Standard: 0.04−0.10 mm (0.0016−0.0039 in.)

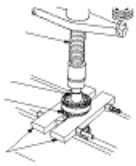


16. If the clearance is more than the standard, select a new shim from the following table. If the clearance measured in Step 17 is within the standard, replace only the new ball bearing.

32 mm Shim

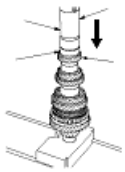
Type	Part Number	Thickness
A	23971-RPF-000	1.56 mm (0.061 in.)
B	23972-RPF-000	1.60 mm (0.063 in.)
C	23973-RPF-000	1.64 mm (0.065 in.)
D	23974-RPF-000	1.68 mm (0.066 in.)
E	23975-RPF-000	1.72 mm (0.068 in.)
F	23976-RPF-000	1.76 mm (0.069 in.)
G	23977-RPF-000	1.80 mm (0.071 in.)
H	23978-RPF-000	1.84 mm (0.072 in.)
J	23979-RPF-000	1.88 mm (0.074 in.)
K	23980-RPF-000	1.92 mm (0.076 in.)
L	23981-RPF-000	1.96 mm (0.077 in.)
M	23982-RPF-000	2.00 mm (0.079 in.)
N	23983-RPF-000	2.04 mm (0.080 in.)
P	23984-RPF-000	2.08 mm (0.082 in.)
Q	23985-RPF-000	2.12 mm (0.083 in.)
R	23986-RPF-000	2.16 mm (0.085 in.)
S	23987-RPF-000	2.20 mm (0.087 in.)
T	23988-RPF-000	2.24 mm (0.088 in.)
U	23989-RPF-000	2.28 mm (0.090 in.)
V	23990-RPF-000	2.32 mm (0.091 in.)

17. Support 6th gear (A) on steel blocks (B) then use a press (C) and an attachment (D) to press the countershaft out of the ball bearing.

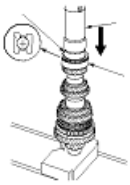


18. If necessary, install the 32 mm shim selected in step 15, then recheck the clearance.

19. Install 6th gear (A) using the special tools and a press (B). Do not exceed the maximum pressure.



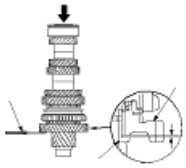
20. Install the new ball bearing (A) using the special tools and a press.



21. Tighten the new special bolt (A) (left-hand threads).

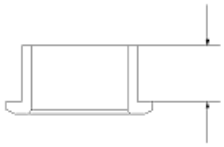
M/T Countershaft Assembly Clearance Inspection

1. Measure the clearance between the 1st gear (A) and the distance collar (B) with a feeler gauge (C). If the clearance is more than the service limit, go to Step 2 .
   Standard: **0.06−0.16 mm (0.002−0.006 in.)**
   Service Limit: **0.25 mm (0.010 in.)**



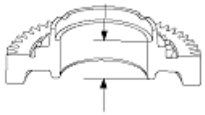
2. Measure the thickness of the distance collar.
   - If the thickness is not within than the standard, replace the distance collar.
   - If the thickness is within the standard, go to Step 3 .

   Standard: **21.53−21.58 mm (0.848−0.850 in.)**

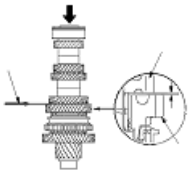


3. Measure the thickness of the 1st gear.
   - If the thickness is less than the standard, replace 1st gear.
   - If the thickness is within the standard, replace the 1st/2nd synchro hub and revers gear as a set.

   Standard: **21.42−21.47 mm (0.843−0.845 in.)**

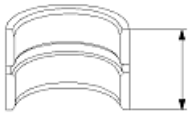


4. Measure the clearance between the 2nd gear (A) and 3rd gear (B) with a feeler gauge (C). If the clearance is more than the service limit, go to Step 5 .
   Standard: **0.06−0.14 mm (0.02−0.006 in.)**
   Service Limit: **0.23 mm (0.009 in.)**



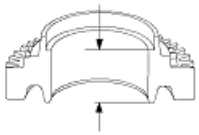
5. Measure the thickness of the distance collar.
   - If the thickness is not within the standard, replace the distance collar.
   - If the thickness is within the standard, go to Step 6 .

   Standard: **26.53−26.56 mm (1.044−1.046 in.)**



6. Measure the thickness of the 2nd gear.
   - If the thickness is less than the standard, replace 2nd gear.
   - If the thickness is within the standard, replace the 1st/2nd synchro hub and revers gear as a set.

   Standard: **26.42−26.47 mm (1.040−1.042 in.)**

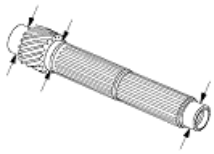


Countershaft

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft	Diameter of ball bearing contact area (transmission housing side)		26.020−26.033 mm (1.0244−1.0249 in.)	25.97 mm (1.022 in.)
	Diameter of needle bearing contact area (clutch housing side)		34.000−34.015 mm (1.3386−1.3392 in.)	33.95 mm (1.337 in.)
	Diameter of distance collar contact area		38.987−39.000 mm (1.5349−1.5354 in.)	38.94 mm (1.533 in.)
	Runout		0.02 mm (0.001 in.) max.	0.05 mm (0.002 in.)
	32 mm shim-to-bearing inner race clearance		0.04−0.10 mm (0.0016−0.0039 in.)	Adjust

M/T Countershaft Inspection

1. Inspect the gear surface and bearing surface for wear and damage, then measure the countershaft at points A, B, and C. If any part of the countershaft is less than the service limit, replace it with a new one.

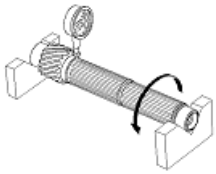


Standard:

A Ball Bearing Surface (Transmission Housing Side):
26.020−26.033 mm (1.0244−1.0249 in.)
B Distance Collar Surface:
38.987−39.000 mm (1.5349−1.5354 in.)
C Needle Bearing Surface (Clutch Housing Side):
34.000−34.015 mm (1.3386−1.3392 in.)

Service Limit:
A: 25.97 mm (1.022 in.)
B: 38.94 mm (1.533 in.)
C: 33.95 mm (1.337 in.)

2. Inspect the runout by supporting both ends of the countershaft. Rotate the countershaft two complete revolutions when measuring the runout. If the runout exceeds the service limit, replace the countershaft with a new one.
Standard: 0.02 mm (0.001 in.) max.
Service Limit: 0.05 mm (0.002 in.)



Countershaft 1st gear

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft 1st gear	I.D.		48.509−48.525 mm (1.9098−1.9104 in.)	48.58 mm (1.913 in.)
	End play		0.06−0.16 mm (0.002−0.006 in.)	0.25 mm (0.010 in.)
	Thickness		21.42−21.47 mm (0.843−0.845 in.)	———

Countershaft 2nd gear

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft 2nd gear	I.D.		48.509−48.525 mm (1.9098−1.9104 in.)	48.52 mm (1.910 in.)
	End play		0.06−0.14 mm (0.002−0.006 in.)	0.23 mm (0.009 in.)
	Thickness		26.42−26.47 mm (1.040−1.042 in.)	———

Countershaft 1st gear distance collar

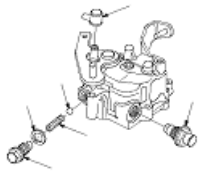
Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft 1st gear distance collar	I.D.		39.00−39.01 mm (1.5354−1.5358 in.)	39.02 mm (1.536 in.)
	O.D.		44.489−44.500 mm (1.7515−1.7520 in.)	44.44 mm (1.750 in.)
	Length		21.53−21.58 mm (0.848−0.850 in.)	———

Countershaft 2nd gear distance collar

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft 2nd gear distance collar	I.D.		39.00−39.01 mm (1.5354−1.5358 in.)	39.02 mm (1.536 in.)
	O.D.		44.489−44.5 mm (1.7515−1.7520 in.)	44.44 mm (1.750 in.)
	Length		26.53−26.56 mm (1.044−1.046 in.)	———

M/T Change Lever Assembly Disassembly/Reassembly

Exploded View

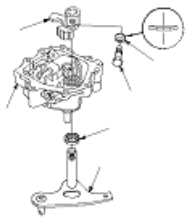


Special Tools Required

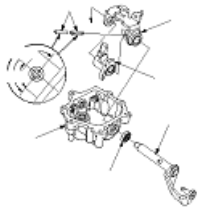
Bearing driver attachment, 24 x 26 mm
07746-0010700

Driver handle, 15 x 135L
07749-0010000

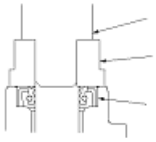
1. Remove the breather cap (A), detent bolt (B), washer (C), spring (D), and steel ball (E). Remove the detent bolt (F).



2. Remove the special bolt (A) and spring washer (B).
3. Remove the change lever (C) and shift arm (D) from the shift arm cover (E).
4. Remove the oil seal (F).
   NOTE: When installing, turn the alloy surface of the thrust washer to the shift arm cover side.



5. Remove the spring pins (A) from the select lever (B).
   NOTE: Install the spring pins into the interlock with the groove of the spring pins at the angle shown.
6. Remove the select lever from the shift arm cover (C), then remove the shift piece (D) and the interlock (E).
7. Remove the oil seal (F).
8. Install in the reverse order of removal.
9. Remove the dirt and oil from the sealing surface. Apply liquid gasket (P/N 08C70-K0234M, 08C70-K0334M, or 08C70-X0331S) to the sealing surface.
   NOTE: Do not install components if too much time has passed after applying the liquid gasket. Instead, remove the old residue and reapply the liquid gasket.



10. Install the oil seal (A) using the special tools.

Inter lock

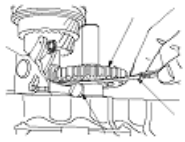
Item	Measurement	Qualification	Standard or New	Service Limit
Inter lock	I.D.		14.000−14.077 mm (0.5512−0.5542 in.)	———
	Inter lock to select lever		0.032−0.136 mm (0.0013−0.0054 in.)	———

Select lever

Item	Measurement	Qualification	Standard or New	Service Limit
Select lever	O.D.		13.941−13.968 mm (0.5489−0.5499 in.)	———
	Shift arm cover clearance		0.032−0.127 mm (0.0013−0.0050 in.)	———

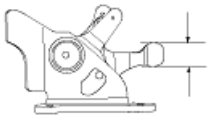
M/T Reverse Shift Fork Clearance Inspection

1. Measure the clearance between the reverse idler gear (A) and the reverse shift fork (B) with a feeler gauge (C). If the clearance is more than the service limit, go to Step 2 .
   Standard: **0.20−0.60 mm (0.007−0.024 in.)**
   Service Limit: **1.2 mm (0.047 in.)**



2. Measure the width of the reverse shift fork.
   - If distance is not within the standard, replace the reverse shift fork.
   - If distance is within the standard, replace the reverse gear.

   Standard: **14.7−14.9 mm (0.527−0.587 in.)**



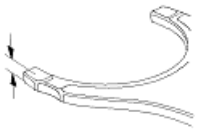
Reverse shift fork

Item	Measurement	Qualification	Standard or New	Service Limit
Reverse shift fork	Finger width		14.7−14.9 mm (0.527−0.587 in.)	———
	Fork-to-reverse idler gear clearance		0.20−0.60 mm (0.007−0.024 in.)	1.2 mm (0.047 in.)

M/T Shift Forks Clearance Inspection

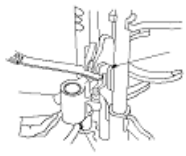
NOTE: The synchro sleeve and synchro hub should be replaced as a set.

1. Measure the clearance between each shift fork (A) and its matching synchro sleeve (B). If the clearance exceeds the service limit, go to Step 2 .
   Standard: **0.35−0.65 mm (0.014−0.026 in.)**
   Service Limit: **1.0 mm (0.039 in.)**

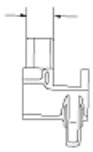


2. Measure the thickness of the shift fork fingers.
   - If the thickness is not within the standard, replace the shift fork.
   - If the thickness is within the standard, replace the synchro sleeve.

   Standard:
   1st/2nd shift fork:
   6.7−6.9 mm (0.26−0.27 in.)
   3rd/4th, 5th/6th shift fork:
   7.4−7.6 mm (0.29−0.30 in.)



3. Measure the clearance between the shift fork (A) and the shift piece (B). If the clearance exceeds the service limit, go to Step 4 .
   Standard: **0.2−0.5 mm (0.008−0.020 in.)**

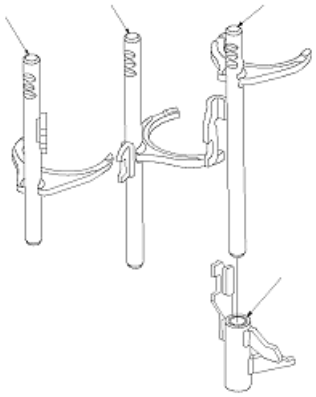


4. Measure the width of the shift piece.
   - If the width is not within the standard, replace the shift piece.
   - If the width is within the standard, replace the shift fork.

   Standard: **15.9−16.0 mm (0.626−0.630 in.)**

M/T Shift Forks Disassembly/Reassembly

Prior to reassembly, clean all the parts in solvent, dry them, and apply lubricant to any contact parts.



Shift fork

Item	Measurement	Qualification	Standard or New	Service Limit
Shift fork	Finger thickness	1st-2nd fork	6.7−6.9 mm (0.26−0.27 in.)	———
		3rd-4th and 5th-6th fork	7.4−7.6 mm (0.29−0.30 in.)	———
	Fork-to-synchro sleeve clearance		0.35−0.65 mm (0.014−0.026 in.)	1.0 mm (0.039 in.)

Shift piece

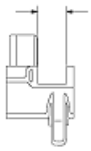
Item	Measurement	Qualification	Standard or New	Service Limit
Shift piece	I.D.		14.000−14.068 mm (0.5512−0.5539 in.)	———
	Shift-piece-to select lever clearance		0.032−0.127 mm (0.0013−0.0050 in.)	———
	Shift fork diameter at contact area		0.2−0.5 mm (0.008−0.020 in.)	———

M/T Shift Arm Clearance Inspection

1. Measure the clearance between the shift arm (A) and shift piece (B) with a feeler gauge (C). If the clearance exceeds the service limit, go to Step 2 .
   Standard: **0.20−0.60 mm (0.008−0.024 in.)**
   Service Limit: **0.7 mm (0.028 in.)**

2. Measure the diameter of the shift piece.
   - If the diameter is not within the standard, replace the shift piece.
   - If the diameter is within the standard, replace the shift arm.

   Standard: **16.00−16.20 mm (0.630−0.638 in.)**

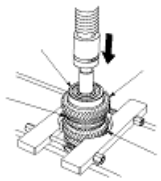


Shift arm

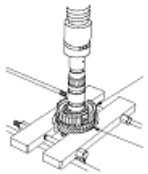
Item	Measurement	Qualification	Standard or New	Service Limit
Shift arm	I.D.		14.013−14.058 mm (0.5517−0.5535 in.)	———
	Shift piece diameter at contact area		0.20−0.60 mm (0.008−0.024 in.)	0.7 mm (0.028 in.)
	Shift arm-to-change lever clearance		0.013−0.085 mm (0.0005−0.0033 in.)	———

M/T Mainshaft Disassembly

1. Support 5th gear (A) on steel blocks, and press the mainshaft out of the 5th/6th synchro hub (B), 6th gear (C) and ball bearing (D). Use of a jaw-type puller can damage the gear teeth.



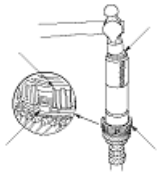
2. Support the 3rd gear (A) on steel blocks, and press the mainshaft out of the 3rd/4th synchro hub (B). Use of a jaw-type puller can damage the gear teeth.



M/T Mainshaft Reassembly

Exploded View

Special Tools Required

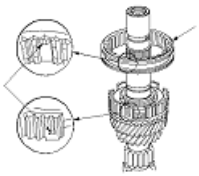


Inner driver handle, 40 mm
07746-0030100

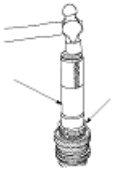
Inner bearing driver attachment, 30 mm
07746-0030300

NOTE: Refer to the Exploded View as needed during this procedure.

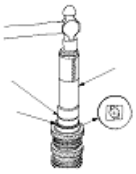
1. Clean all the parts in solvent, dry them, and apply lubricant to all contact surfaces except the 3rd/4th and 5th synchro hubs.
2. Install the needle bearing and 3rd gear on the mainshaft.
3. Install the 3rd gear synchro ring and synchro spring on the shaft.
4. Install the 3rd/4th synchro hub (A) by aligning the synchro cone fingers (B) with the grooves in 3rd/4th synchro hub (C).
5. Install the 3rd/4th synchro hub using the special tool.



6. Install the 3rd/4th synchro sleeve (A) by aligning the stops (B) with the 3rd/4th synchro sleeve and hub. After installing, check the operation of the 3rd/4th synchro hub set.
7. Install the 4th gear synchro spring and ring, 4th gear and needle bearing, the distance collar, and 5th gear and its needle bearing on the shaft.
8. Install the 5th gear synchro ring and synchro spring on the shaft.



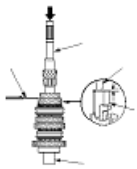
9. Install the 5th/6th synchro hub (A) using the special tool.
10. Install the 5th/6th synchro sleeve.
11. Install the distance collar and the 6th gear.



12. Install the new ball bearing (A) using the special tools.

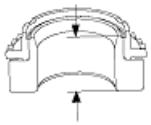
M/T Mainshaft Assembly Clearance Inspection

NOTE: If replacement is required, always replace the synchro sleeve and hub as a set.



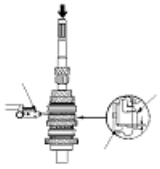
1. Support the bearing inner race with an appropriate sized socket (A), and push down on the mainshaft (B).
2. Measure the clearance between 2nd (C) and 3rd (D) gears with a feeler gauge (E).
   - If the clearance is more than the service limit, go to Step 3 .
   - If the clearance is within the service limit, go to Step 4 .

   Standard: **0.06−0.21 mm (0.002−0.008 in.)**
   Service Limit: **0.30 mm (0.012 in.)**



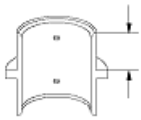
3. Measure the thickness of 3rd gear.
   - If the thickness is less than the service limit, replace 3rd gear.
   - If the thickness is within the service limit, replace the 3rd/4th synchro hub and 3rd/4th synchro sleeve as a set.

   Standard: **27.02−27.07 mm (1.064−1.066 in.)**
   Service Limit: **26.95 mm (1.061 in.)**



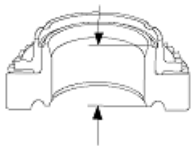
4. Measure the clearance between 4th gear (A) and the distance collar (B) with a dial indicator (C). If the clearance is more than the service limit, go to Step 5 .

   Standard: **0.06−0.19 mm (0.002−0.007 in.)**
   Service Limit: **0.28 mm (0.011 in.)**



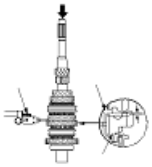
5. Measure distance (1) on the distance collar.
   - If distance (1) is not within the standard, replace the distance collar with a new one.
   - If distance (1) is within the standard, go to Step 6 .

   Standard: **22.53−22.56 mm (0.887−0.888 in.)**



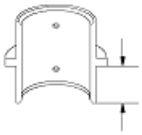
6. Measure the thickness of 4th gear.
   - If the thickness is less than the service limit, replace 4th gear.
   - If the thickness is within the service limit, replace the 3rd/4th synchro hub and 3rd/4th synchro sleeve as a set.

   Standard: **25.52−25.57 mm (1.005−1.007 in.)**
   Service Limit: **25.45 mm (1.002 in.)**



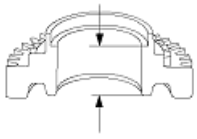
7. Measure the clearance between the distance collar (A) and 5th gear (B) with a dial indicator (C). If the clearance is more than the service limit, go to Step 8 .

   Standard: **0.06−0.14 mm (0.002−0.006 in.)**
   Service Limit: **0.23 mm (0.009 in.)**



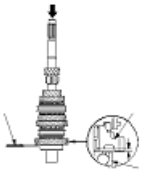
8. Measure distance (2) on the distance collar.
   - If distance (2) is not within the standard, replace the distance collar with a new one.
   - If distance (2) is within the standard, go to Step 9 .

   Standard: **22.53−22.56 mm (0.887−0.888 in.)**



9. Measure the thickness of 5th gear.
   - If the thickness is less than the service limit, replace 5th gear.
   - If the thickness is within the service limit, replace the 5th/6th synchro hub and 5th/6th synchro sleeve as a set.

   Standard: **22.42−22.47 mm (0.883−0.885 in.)**
   Service Limit: **22.35 mm (0.880 in.)**

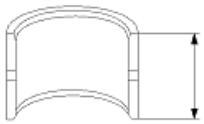


10. Measure the clearance between the 6th gear (A) and angular ball bearing (B) with a feeler gauge (C). If the clearance is more than the service limit, go to Step 11 .

    Standard: **0.06−0.16 mm (0.002−0.006 in.)**
    Service Limit: **0.25 mm (0.010 in.)**

11. Measure the thickness of the distance collar.
    - If the thickness is not within the standard, replace the distance collar.
    - If the thickness is within the standard, go to Step 12 .

    Standard: **24.03−24.08 mm (0.946−0.948 in.)**



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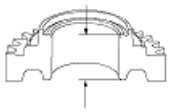
12. Measure the thickness of 6th gear.
    - If the thickness is less than the service limit, replace 6th gear.
    - If the thickness is within the service limit, replace the 5th/6th synchro hub and 5th/6th synchro sleeve as a set.

    Standard: **23.92−23.97 mm (0.942−0.944 in.)**
    Service Limit: **23.85 mm (0.939 in.)**

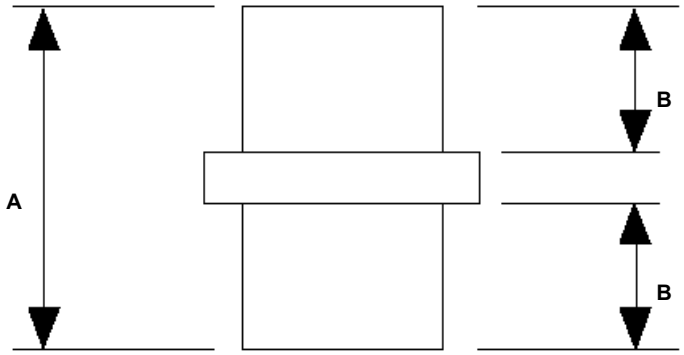


Mainshaft

Item	Measurement	Qualification	Standard or New	Service Limit
Mainshaft	End play		0.11−0.18 mm (0.004−0.007 in.)	Adjust
	Diameter of bushing surface		14.870−14.890 mm (0.5854−0.5862 in.)	14.77 mm (0.5815 in.)
	Diameter of distance collar		28.992−29.005 mm (1.1414−1.1419 in.)	28.93 mm (1.139 in.)
	Diameter of ball bearing contact area (clutch housing side)		25.977−25.990 mm (1.0227−1.0232 in.)	25.92 mm (1.020 in.)
	Diameter of needle bearing contact area		34.984−35.000 mm (1.3773−1.3780 in.)	34.93 mm (1.375 in.)
	Diameter of ball bearing contact area (transmission housing side)		24.987−25.000 mm (0.9837−0.9843 in.)	24.93 mm (0.981 in.)
	Runout		0.02 mm (0.001 in.) max.	0.05 mm (0.002 in.)

Mainshaft 4th/5th gears distance collar

Item	Measurement	Qualification	Standard or New	Service Limit
Mainshaft 4th/5th gears distance collar	I.D.		29.014−29.024 mm (1.1423−1.1427 in.)	29.03 mm (1.143 in.)
	O.D.		34.989−35.000 mm (1.3775−1.3780 in.)	34.94 mm (1.376 in.)
	Length	A	48.97−49.03 mm (1.9279−1.9303 in.)	———
			37−0.888 in.)	———

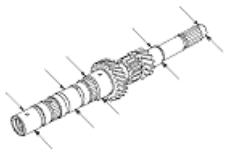


Mainshaft 6th gear distance collar

Item	Measurement	Qualification	Standard or New	Service Limit
Mainshaft 6th gear distance collar	I.D.		25.00−25.01 mm (0.984−0.985 in.)	25.12 mm (0.989 in.)
	Length		24.03−24.08 mm (0.946−0.948 in.)	———

M/T Mainshaft Inspection

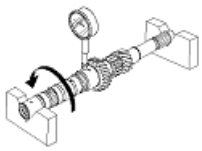
1. Inspect the gear surface and bearing surface for wear and damage, then measure the mainshaft at points A, B, C, D, and E. If any part of the mainshaft is less than the service limit, replace it with a new one.



Standard:

A Ball Bearing Surface (Transmission Housing Side):
24.987−25.000 mm (0.9837−0.9843 in.)
B Distance Collar Surface:
28.992−29.005 mm (1.1414−1.1419 in.)
C Needle Bearing Surface:
34.984−35.000 mm (1.3773−1.3780 in.)
D Ball Bearing Surface (Clutch Housing Side):
25.977−25.990 mm (1.0227−1.0232 in.)
E Bushing Surface:
14.870−14.890 mm (0.5854−0.5862 in.)
Service Limit:
A: 24.93 mm (0.981 in.)
B: 28.93 mm (1.139 in.)
C: 34.93 mm (1.375 in.)
D: 25.92 mm (1.020 in.)
E: 14.77 mm (0.5815 in.)

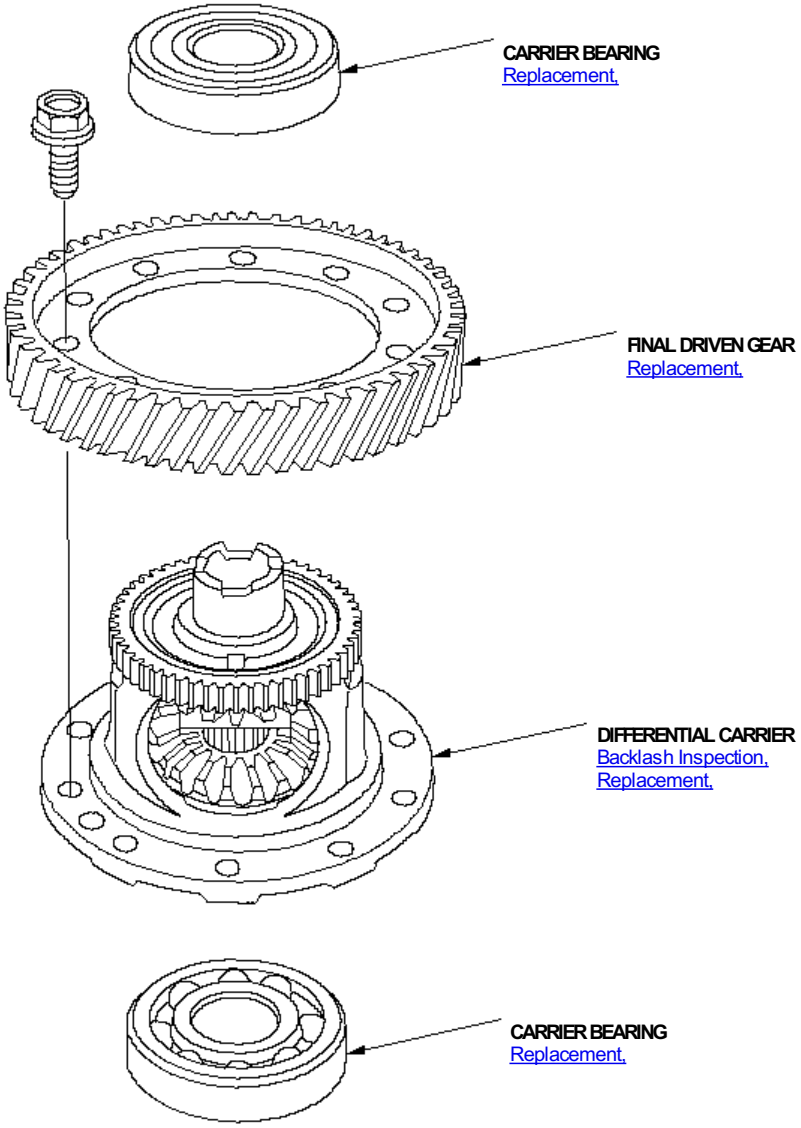
2. Inspect the runout by supporting both ends of the mainshaft. Rotate the mainshaft two complete revolutions when measuring the runout. If the runout is more than the service limit, replace the mainshaft with a new one.
Standard: 0.02 mm (0.001 in.) max.
Service Limit: 0.05 mm (0.002 in.)



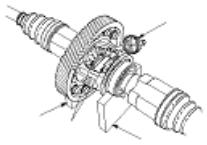
Mainshaft 3rd, 4th, 5th, and 6th gears

Item	Measurement	Qualification	Standard or New	Service Limit
Mainshaft 3rd, 4th, 5th, and 6th gears	I.D.	3rd/4th/5th	39.009−39.025 mm (1.5358−1.5364 in.)	38.95 mm (1.533 in.)
		6th	35.009−35.025 mm (1.3783−1.3789 in.)	34.95 mm (1.376 in.)
	Clearance	2nd-3rd	0.06−0.21 mm (0.002−0.008 in.)	0.30 mm (0.012 in.)
	End play	4th	0.06−0.19 mm (0.002−0.007 in.)	0.28 mm (0.011 in.)
		5th	0.06−0.14 mm (0.002−0.006 in.)	0.23 mm (0.009 in.)
		6th	0.06−0.16 mm (0.002−0.006 in.)	0.25 mm (0.010 in.)
	Thickness	3rd	27.02−27.07 mm (1.064−1.066 in.)	26.95 mm (1.061 in.)
		4th	25.52−25.57 mm (1.005−1.007 in.)	25.45 mm (1.002 in.)
		5th	22.42−22.47 mm (0.883−0.885 in.)	22.35 mm (0.880 in.)
		6th	23.92−23.97 mm (0.942−0.944 in.)	23.85 mm (0.939 in.)

M/T Differential Component Location Index



M/T Differential Backlash Inspection



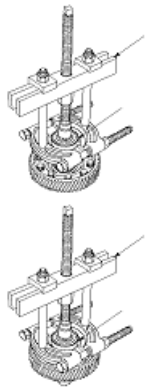
1. Place the differential assembly on V-blocks (A), and install both axles.
2. Measure the backlash of both pinion gears (B) with a dial indicator (C). If the backlash is not within the standard, replace the differential carrier.
   Standard (New): **0.05−0.15 mm (0.002−0.006 in.)**

M/T Differential Carrier Bearings Replacement

Special Tools Required

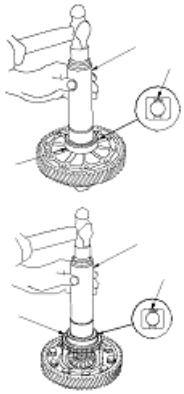
Commercially available
bearing puller

Inner driver handle, 40 mm
07746-0030100



1. Check the carrier bearings for wear and rough rotation. If they rotate smoothly and their rollers show no signs of wear, the bearings are OK.
2. Remove the carrier bearings (A) with commercially available bearing puller (B).

3. Install the new bearing (A) with the 40 mm inner driver handle and a press. Press each bearing on until it bottoms. There should be no clearance between the bearings and the carrier.
   NOTE: Turn the seal (B) part of the bearing to the outside of differential, and install it.



M/T differential 80 mm shim

Item	Measurement	Qualification	Standard or New	Service Limit
M/T differential 80 mm shim	80 mm shim-to-bearing outer race clearance in transmission housing		0.01−0.10 mm (0.0004−0.0039 in.)	Adjust

M/T Differential Oil Seal Replacement

Special Tools Required

Driver handle, 15 x 135L
07749-0010000

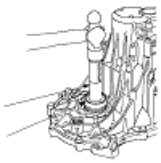
Bearing driver attachment, 52 x 55 mm
07NAD-P200100

Oil seal driver, 65 mm
07JAD-PL90100

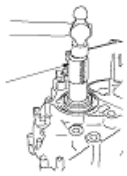
1. Remove the oil seal (A) from the transmission housing (B).
   NOTE: Be careful not to damage the transmission housing while removing the oil seals.

2. Remove the oil seal (A) from the clutch housing (B).

3. Install the new oil seal in the transmission housing with the special tools.



4. Install the new oil seal in the clutch housing with the special tools.

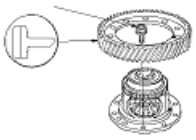


M/T differential pinion gear

Item	Measurement	Qualification	Standard or New	Service Limit
M/T differential pinion gear	Backlash		0.05−0.15 mm (0.002−0.006 in.)	———

M/T Differential Final Driven Gear/Carrier Replacement

1. Remove the bolts in a crisscross pattern in several steps, then remove the final driven gear from the differential carrier.
2. Install the final driven gear with the chamfer on the inside diameter facing the carrier. Tighten the bolts in a crisscross pattern in several steps.

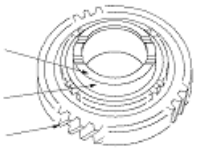


M/T Synchro Ring and Gear Inspection

1. Inspect the inside of each synchro ring (A) for wear.
   Inspect the teeth (B) on each synchro ring for wear (rounded off).

2. Inspect the teeth (A) on each synchro sleeve and matching teeth on each gear for wear (rounded off).

3. Inspect the thrust surface (A) on each gear hub for wear.
4. Inspect the cone surface (B) on each gear hub for wear and roughness.
5. Inspect the teeth on all gears (C) for uneven wear, scoring, and cracks.
6. Coat the cone surface of each gear with MTF, and place its synchro ring on it. Rotate the synchro ring, making sure that it does not slip.

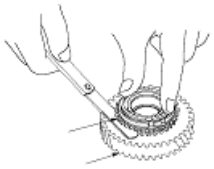


7. Measure the clearance between each gear (A) and its synchro ring (B) all around the gear. Hold the synchro ring against the gear evenly while measuring the clearance. If the clearance is less than the service limit, replace the synchro ring and gear.

   Synchro Ring-to-Gear Clearance

   Standard: **0.655−1.334 mm (0.026−0.053 in.)**

   Service Limit: **0.4 mm (0.016 in.)**



Synchro ring-to-gear

   Double Cone Synchro and Triple Cone Synchro-to-Gear Clearance

   Standard:

   (1): Outer Synchro Ring (B) to Synchro Cone (C) 0.70−1.19 mm (0.028−0.047 in.)

   (2): Synchro Cone (C) to Gear (A) 0.50−1.04 mm (0.020−0.041 in.)

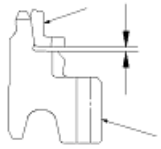
   (3): Outer Synchro Ring (B) to Gear (A) 0.95−1.68 mm (0.037−0.066 in.)

   Service Limit:

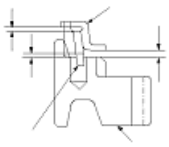
   (1): 0.3 mm (0.012 in.)

   (2): 0.3 mm (0.012 in.)

   (3): 0.6 mm (0.024 in.)



Double cone synchro and triple cone synchro-to-gear

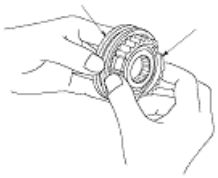


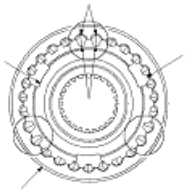
Synchro ring

Item	Measurement	Qualification	Standard or New	Service Limit
Synchro ring	Ring-to-gear clearance	Ring pushed against gear	0.655−1.334 mm (0.026−0.053 in.)	0.4 mm (0.016 in.)

M/T Synchro Sleeve and Hub Inspection and Reassembly

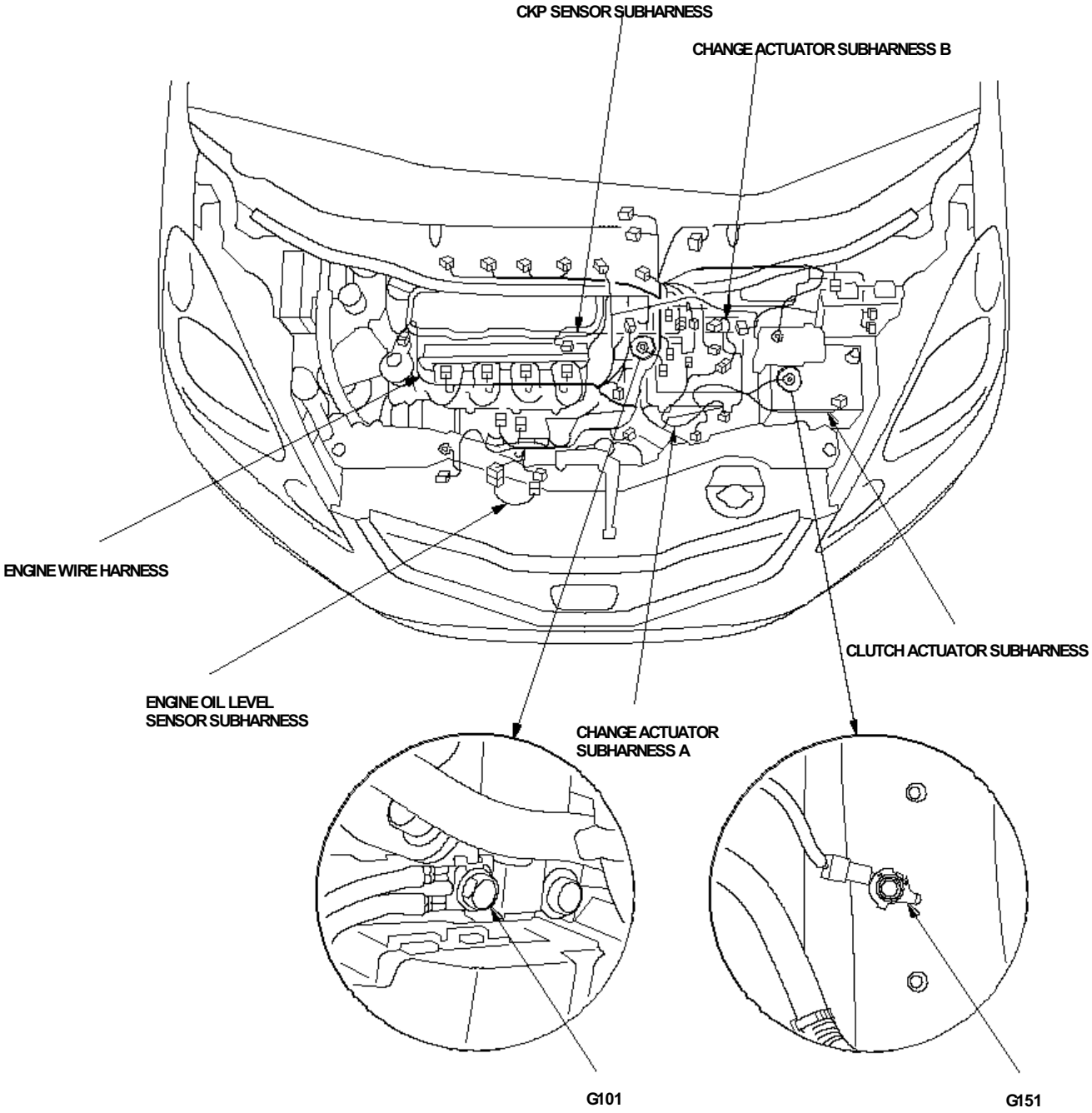
1. Inspect the gear teeth on all synchro hubs and synchro sleeves for wear (rounded off corners).
2. Install each synchro hub (A) in its mating synchro sleeve (B), and check for free movement. Make sure to match the three sets of longer teeth (C) (120 degrees apart) on the synchro sleeve with the three sets of deeper grooves (D) in the synchro hub.
   NOTE:
   - Do not install the synchro sleeve with its longer teeth in the 1st/2nd and 5th/6th synchro hub slots (E) because it will damage the spring ring.
   - If replacement is required, always replace the synchro sleeve and synchro hub as a set.





Engine Wire Harness, CKP Sensor Subharness, Change Actuator Subharness A/B, Clutch Actuator Subharness, and Engine Oil Level Sensor Subharness Locations

i-SHIFT system

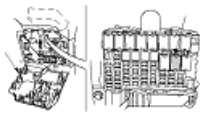


RHD model is shown, LHD model is similar.

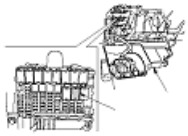
DTC Troubleshooting: P0615

DTC P0615:
Starter Relay STRLD Circuit Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

RHD model



LHD model



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0615 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at starter relay 1, starter relay 2, and the ECM.■
5. Turn the ignition switch to LOCK (0).
6. Check the 7.5 A fuse in the auxiliary under-dash fuse box.

   Is the fuse OK?
   YES - Go to Step 7 .
   NO - Replace the 7.5 A fuse in the auxiliary under-dash fuse box, then go to Step 12 .
7. Jump the SCS line with the HDS.
8. Disconnect ECM connector A (49P).
9. Open the fuse lid (A), then remove starter relay 1 (B) from the under-dash fuse/relay box.

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10. Connect starter relay 1 4P connector terminal No. 2 to body ground with a jumper wire.

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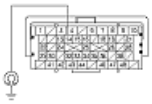
11. Check for continuity between ECM connector terminal A14 and body ground.



    Is there continuity?
    YES - Go to Step 17 .
    NO - Repair open in the wire between the ECM (A14) and starter relay 1, then go to Step 12 .
12. Reconnect all connectors.
13. Turn the ignition switch to ON (II).
14. Reset the ECM with the HDS.
15. Do the ECM idle learn procedure.
16. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0615 indicated?
    YES - Check for poor connections or loose terminals at starter relay 1, starter relay 2, and the ECM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
17. Reconnect all connectors.
18. Update the ECM if it does not have the latest software, or substitute a known-good ECM.
19. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0615 indicated?
    YES - Check for poor connections or loose terminals at starter relay 1, starter relay 2, and the ECM. If the ECM was updated, substitute a known-good ECM, then recheck. If the ECM was substituted, go to Step 1 .
    NO - If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0616

DTC P0616:
Starter Relay 2 Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

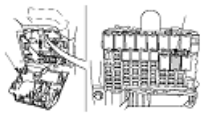
1. Turn the ignition switch to ON (II).
2. Check the STARTER CUT RELAY in the DATA LIST with the HDS.

   Is the 2.2 V or less indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at starter relay 1, starter relay 2, and the ECM.■
3. Start the engine.

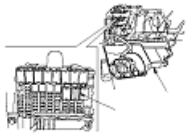
   Does the engine start?
   YES - Go to Step 4 .
   NO - Go to Step 7 .
4. Turn the ignition switch to LOCK (0).
5. Open the fuse lid (A), then remove starter relay 1 (B) for the under-dash fuse/relay box.
6. Test start relay 1.

   Is start relay 1 OK?
   YES - Replace starter relays 2, then go to Step 23 .
   NO - Replace starter relay 1, then go to Step 23 .
7. Turn the ignition switch to LOCK (0).

RHD model



LHD model



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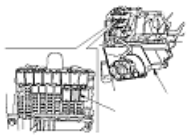
8. Open the fuse lid (A), then remove starter relay 1 (B) for the under-dash fuse/relay box.
9. Turn the ignition switch to ON (II).
10. Check the STARTER CUT RELAY in the DATA LIST with the HDS.

    Is the 2.2 V or less indicated?
    YES - Go to Step 11 .
    NO - Replace starter relay 1, then go to Step 23 .
11. Turn the ignition switch to LOCK (0).
12. Remove the starter relay 2 for the auxiliary under-dash fuse/relay box.
13. Turn the ignition switch to ON (II).
14. Check the STARTER CUT RELAY in the DATA LIST with the HDS.

    Is the 2.2 V or less indicated?
    YES - Go to Step 15 .
    NO - Replace starter relay 2, then go to Step 23 .
15. Turn the ignition switch to LOCK (0).
16. Jump the SCS line with the HDS.
17. Disconnect ECM connector A (49P).

RHD model

LHD model



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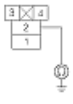
18. Check for continuity starter relay 1 4P connector terminal No. 2 to body ground.

    Is the 1 MΩ or more?
    YES - Go to Step 28 .
    NO - Go to Step 19 .



19. Disconnect under-dash fuse/relay box connector X (3P).

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20. Check for continuity under-dash fuse/relay box connector X (3P) terminal No. 2 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the ECM (A14) and the under-dash fuse/relay box, then go to Step 23 .
    NO - Go to Step 21 .

21. Disconnect under-dash fuse/relay box connector B (36P).

---

22. Check for continuity under-dash fuse/relay box connector B (36P) terminal No. 16 and body ground.

Is there continuity?

YES - Repair short in the wire between the under-dash fuse/relay box and starter relay 2, then go to Step 23 .
NO - Replace the under-dash fuse/relay box, then go to Step 23 .

23. Reconnect all connectors.
24. Turn the ignition switch to ON (II).
25. Reset the ECM with the HDS.
26. Do the idle learn procedure.
27. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0615 indicated?

YES - Check for poor connection or loose terminals at starter relay 1, starter relay 2, and the ECM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

28. Reconnect all connectors.
29. Update the ECM if it does not have the latest software, or substitute a known-good ECM.
30. Check for Temporary DTCs or DTCs with the HDS.

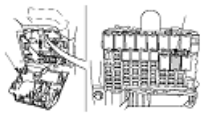
Is DTC P0615 indicated?

YES - Check for poor connections or loose terminals at starter relay 1, starter relay 2, and the ECM, If the ECM was updated, substitute a known-good ECM, then recheck. If the ECM was substituted, go to Step 1 .
NO - If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

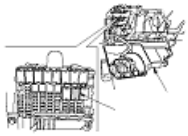
DTC Troubleshooting: P0617

DTC P0617:
Starter Relay 1 Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

RHD model



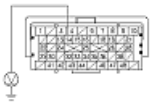
LHD model



1. Turn the ignition switch to ON (II).
2. Check the STARTER CUT RELAY in the DATA LIST with the HDS.

   Is the 3.2 V or more indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at starter relay 1, starter relay 2, and the ECM.■
3. Turn the ignition switch to LOCK (0).
4. Open the fuse lid (A), then remove starter relay 1 (B) for the under-dash fuse/relay box.
5. Turn the ignition switch to ON (II).
6. Check the STARTER CUT RELAY in the DATA LIST with the HDS.

   Is the 3.2 V or more indicated?
   YES - Go to Step 7 .
   NO - Replace starter relay 1, then go to Step 12 .
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM connector A (49P).
10. Turn the ignition switch to ON (II).



11. Measure the voltage between ECM connector terminal A14 and body ground.

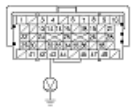
    Is there any voltage?
    YES - Repaire short to power in the wire between the ECM (A14) and starter relay 1, then go to Step 12 .
    NO - Go to Step 17 .
12. Reconnect all connectors.
13. Turn the ignition switch to ON (II).
14. Reset the ECM with the HDS.
15. Do the ECM idle learn procedure .
16. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0615 indicated?
    YES - Check for poor connections or loose terminals at starter relay 1 and the ECM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
17. Reconnect all connectors.
18. Update the ECM if it does not have the latest software, or substitute a known-good ECM.
19. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0617 indicated?
    YES - Check for poor connections or loose terminals at starter relay 1 and the ECM. If the ECM was updated, substitute a known-good ECM, then recheck. If the ECM was substituted, go to Step 1 .
    NO - If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P15B7

DTC P15B7:
Starter Control System Low Input



NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

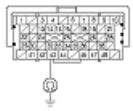
1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II), and wait 5 seconds.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P15B7 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the TCM and the ECM.■
6. Turn the ignition switch to LOCK (0).
7. Jump the SCS line with the HDS.
8. Disconnect ECM connector A (49P).
9. Turn the ignition switch to ON (II).
10. Measure the voltage between ECM connector terminal A43 and body ground.

    Is there voltage?
    YES - Substitute a known-good TCM, then go to Step 14 . If DTC P15B7 is not indicated, replace the original TCM, then go to Step 14 .
    NO - Go to Step 11 .
11. Turn the ignition switch to LOCK (0).
12. Disconnect TCM connector A (37P).

---

13. Check for continuity between ECM connector terminal A43 and body ground.



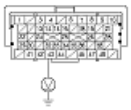
    Is there continuity?
    YES - Repair short in the wire between the ECM (A43) and the TCM, then go to Step 14 .
    NO - Go to Step 22 .
14. Turn the ignition switch to LOCK (0).
15. Reconnect all connectors and the battery.
16. Turn the ignition switch to ON (II).
17. Reset the ECM with the HDS.
18. Do the ECM idle learn procedure.
19. Turn the ignition switch to LOCK (0).
20. Turn the ignition switch to ON (II), and wait 5 seconds.
21. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P15B7 indicated?
    YES - Check for poor connections or loose terminals at the TCM and the ECM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
22. Reconnect all connectors.
23. Update the ECM if it does not have the latest software, or substitute a known-good ECM.
24. Turn the ignition switch to LOCK (0).
25. Turn the ignition switch to ON (II), and wait 5 seconds.
26. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P15B7 indicated?
    YES - Check for poor connections or loose terminals at the TCM and the ECM. If the ECM was updated, substitute a known-good ECM, then recheck. If the ECM was substituted, go to Step 1 .
    NO - If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P15B8

DTC P15B8:
Starter Control System High Input
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II), and wait 5 seconds.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P15B8 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the TCM and the ECM.■
6. Turn the ignition switch to LOCK (0).
7. Jump the SCS line with the HDS.
8. Disconnect ECM connector A (49P).
9. Turn the ignition switch to ON (II).
10. Measure the voltage between ECM connector terminal A43 and body ground.

    Is there voltage?
    YES - Substitute a known-good TCM, then go to Step 14 . If DTC P15B8 is not indicated, replace the original TCM, then go to Step 14 .
    NO - Go to Step 11 .
11. Turn the ignition switch to LOCK (0).
12. Disconnect TCM connector A (37P).

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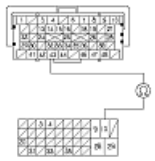
13. Check for continuity between ECM connector terminal A43 and TCM connector A (37P) terminal No. 10.



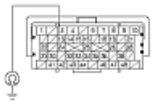
    Is there continuity?
    YES - Go to Step 22 .
    NO - Repair open in the wire between the ECM (A43) and the TCM, then go to Step 14 .
14. Turn the ignition switch to LOCK (0).
15. Reconnect all connectors.
16. Turn the ignition switch to ON (II).
17. Reset the ECM with the HDS.
18. Do the ECM idle learn procedure.
19. Turn the ignition switch to LOCK (0).
20. Turn the ignition switch to ON (II), and wait 5 seconds.
21. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P15B8 indicated?
    YES - Check for poor connections or loose terminals at the TCM and the ECM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
22. Reconnect all connectors.
23. Update the ECM if it does not have the latest software, or substitute a known-good ECM.
24. Turn the ignition switch to LOCK (0).
25. Turn the ignition switch to ON (II), and wait 5 seconds.
26. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P15B8 indicated?
    YES - Check for poor connections or loose terminals at the TCM and the ECM. If the ECM was updated, substitute a known-good ECM, then recheck. If the ECM was substituted, go to Step 1 .
    NO - If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P15BF

DTC P16BF:
Starter Relay Circuit Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS and wait 5 seconds.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P16BF indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the starter cut relay and the ECM.■
4. Turn the ignition switch to LOCK (0).
5. Jump the SCS line with the HDS.
6. Remove starter relay 1.
7. Disconnect ECM connector A (49P).
8. Check for continuity between ECM connector terminal A13 and body ground.

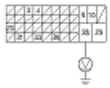
   Is there continuity?
   YES - Repair short in the wire between the ECM (A13) and starter relay 1, then go to Step 9 .
   NO - Go to Step 14 .
9. Reconnect all connectors.
10. Turn the ignition switch to ON (II).
11. Reset the ECM with the HDS.
12. Do the ECM idle learn procedure.
13. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P16BF indicated?
    YES - Check for poor connections or loose terminals at starter relay 1 and the ECM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
14. Reconnect all connectors.
15. Update the ECM if it does not have the latest software, or substitute a known-good ECM.
16. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P16BF indicated?
    YES - Check for poor connections or loose terminals at the starter cut relay and the ECM. If the ECM was updated, substitute a known-good ECM, then recheck. If the ECM was substituted, go to Step 1 .
    NO - If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: U0101

DTC U0101:
F-CAN Malfunction (ECM-TCM)
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

   Is DTC U0101 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the gauge control module, the TCM, and the ECM.■
4. Turn the ignition switch to LOCK (0).
5. Check the No. 60 AMT (40 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?
   YES - Go to Step 6 .
   NO - Repair short in the wire between the No. 60 AMT +B (40 A) fuse and the TCM. Also replace the No. 60 AMT +B (40 A) fuse, then go to Step 19 .
6. Remove the TCM.
7. Check for poor connections at TCM connector A (37P).

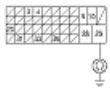
   Are the connections OK?
   YES - Go to Step 8 .
   NO - Repair the poor connections or loose terminals at TCM connector A (37P), then go to Step 19 .
8. Disconnect TCM connector A (37P).
9. Reconnect the engine compartment wire harness 10P connector; LHD model, RHD model.
10. Reconnect the ground cable of the TCM to the body ground.
11. Turn the ignition switch to ON (II).
12. Measure the voltage between TCM connector A (37P) terminal No. 28 and body ground.

    Is there battery voltage?
    YES - Go to Step 13 .
    NO - Repair open in the wire between the No. 60 AMT (40 A) fuse and the TCM, then go to Step 19 .
13. Turn the ignition switch to LOCK (0).

---

14. Check for continuity between TCM connector A (37P) terminal No. 29 and body ground.

    Is there continuity?
    YES - Go to Step 15 .
    NO - Repair open in the wire between the TCM and body ground (G151), then go to Step 19 .



15. Jump the SCS line with the HDS.
16. Disconnect ECM connector A (49P).

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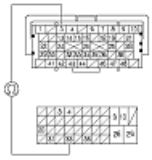
17. Check for continuity between ECM connector terminal A3 and TCM connector A (37P) terminal No. 33.

    Is there continuity?
    YES - Go to Step 18 .
    NO - Repair open in the wire between the ECM (A3) and the TCM, then go to Step 19 .



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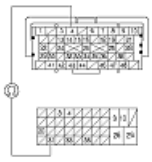
18. Check for continuity between ECM connector terminal A4 and TCM connector A (37P) terminal No. 31.



Is there continuity?

YES - Update the TCM if it does not have the latest software, or substitute a known-good TCM, then go to Step 20 and recheck. If DTC U0101 is not indicated with a known-good TCM, replace the original TCM, then go to Step 20 .

NO - Repair open in the wire between the ECM (A4) and the TCM, then go to Step 20 .

19. Turn the ignition switch to LOCK (0).

20. Install the TCM.

21. Reconnect all connectors and the battery.

22. Turn the ignition switch to ON (II).

23. Reset the ECM with the HDS.

24. Do the ECM idle learn procedure.

25. Check for Temporary DTCs or DTCs with the HDS.

Is DTC U0101 indicated?

YES - Check for poor connections or loose terminals at the gauge control module, the TCM, and the ECM, then go to Step 1 .

NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: U0103

DTC U0103:
F-CAN Malfunction (ECM-TCM)
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs in the DTCs MENU with the HDS.

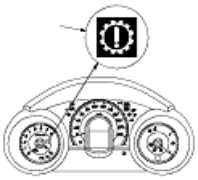
Is DTC U0103 indicated?

YES - Go to the i-SHIFT system's general troubleshooting information. ■

NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the gauge control module, the TCM, and the ECM.■

How to Troubleshoot the i-SHIFT System

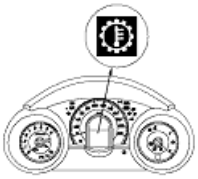
i-SHIFT Indicator



Under normal conditions, the i-SHIFT indicator (A) comes on when the ignition switch is turned to the ON (II) position, then goes off after the engine is started. This indicates that the LED and its circuit are operating correctly.
If there is a failure in the system after the engine is started, the i-SHIFT indicator will stay on.
The i-SHIFT indicator comes on under certain conditions even if the i-SHIFT system is working normally. Here are some examples:

- When you use high-powered wireless equipment in the vehicle.
- When the battery voltage suddenly drops below 9 volts or rises above 16 volts.

Transmission Temp Indicator



When the temperature of the clutch actuator, the gear actuator or the clutch actuator base rises, the indicator comes on. If this indicator comes on, avoid full-throttle acceleration, frequently shifting, and driving at high speed. The indicator will go off when the temperature of the i-SHIFT control system or clutch system drops. It is possible to continue driving normally with the indicator off.

Diagnostic Trouble Code (DTC)

- The memory can hold 10 DTCs. However, when the same DTC is detected more than once, the more recent DTC is written over the earlier one. Therefore, when the same problem is detected repeatedly, it is memorized as a single DTC.
- The DTCs are memorized in the EEPROM. Therefore, the memorized DTCs cannot be canceled by disconnecting the battery. Do the specified procedures to clear the DTCs.

Self-diagnosis

When a problem is detected by self-diagnosis, the system does the following:

- Turns the i-SHIFT indicator on.
- Memorizes the DTC.
- When the system detects a problem, the TCM shifts to fail-safe mode.

NOTE: If the malfunction indicator lamp (MIL) comes on at the same time as the i-SHIFT indicator, check for i-SHIFT system DTCs and troubleshoot them first.

Intermittent Failures

The term ‘‘intermittent failure" means a system may have had a failure, but it checks OK now. If the i-SHIFT indicator does not come on, check for poor connections or loose terminals at all connectors related to the circuit that you are troubleshooting. If the indicator comes ON, but then went out, the original problem may have been intermittent.

How to Check for DTCs with the Honda Diagnostic System (HDS)

If the i-SHIFT indicator has been reported on, or if a driveability problem is suspected, follow this procedure:

1. If the i-SHIFT indicator stays on, connect the HDS to the DLC (A).
2. Turn the ignition switch to ON (II).
3. Check the diagnostic trouble code (DTC) and note it.
   NOTE: For specific operations, refer to the user's manual that came with the HDS.
4. After recording the DTCs, clear all DTCs.
5. Recheck the system under the same conditions as the problem has been reported on. If the DTC returns, go to the DTC troubleshooting index. If the DTC does not return, there was an intermittent problem within the circuit. Make sure all pins and terminals in the circuit are tight.

How to Clear DTCs

1. With the ignition switch to LOCK (0), connect the HDS to the DLC (A).
2. Turn the ignition switch to ON (II).
3. Clear the DTC(s) with the HDS.
4. Turn the ignition switch to LOCK (0).

How to Substitute the TCM

1. Turn the ignition switch to LOCK (0).
2. Connect the HDS to the DLC (A).
3. Turn the ignition switch to ON (II).
4. Make sure the HDS communicates with the vehicle and the TCM. If it doesn't, troubleshoot the DLC circuit.
5. Replace the clutch actuator (TCM).
6. Turn the ignition switch to ON (II).
7. Update the TCM if it does not have the latest software.
8. Reset the TCM with the HDS.
9. Do the i-SHIFT Learning (dynamic mode).

How to End a Troubleshooting Session (required after any troubleshooting)

1. When the ignition switch to LOCK (0), connect the HDS to the DLC (A).
2. Turn the ignition switch to ON (II).
3. Clear the DTC(s) by following the screen prompts on the HDS.
4. Turn the ignition switch to LOCK (0).
5. Disconnect the HDS from the DLC.

How to Update the TCM

NOTE:

- Make sure you have the latest software on the HDS.
- To ensure the latest program is installed, do a TCM update whenever the TCM is substituted or replaced.
- You can not update a TCM with the program it already has. It will only accept a new program.
- Before you update the TCM, make sure the battery is fully charged.
- To prevent TCM damage, do not operate anything electrical (audio system, brakes, A/C, power windows, sunroof, door locks, etc.) during the update.
- If you need to diagnose the Honda interface module (HIM) because the HIM's red (#3) light came on or was flashing during the update, leave the ignition switch in the ON (II) position when you disconnect the HIM from the DLC. This will prevent TCM damage.
- High temperature in the engine compartment might cause the TCM to become too hot to run the update. If the engine has been running before this procedure, open the hood and cool the engine compartment.

1. Turn the ignition switch to ON (II) but do not start the engine.
2. Connect the HDS to the DLC (A).
3. If the HDS does not have the update function, disconnect the HDS from the vehicle and connect the Honda interface module (HIM).
4. If the software in the TCM is the latest, disconnect the HDS or the HIM from the DLC, and go back to the procedure that you were doing.
   If the software in the TCM is not the latest, do the TCM update procedure as described on the HIM label or in the TCM update system.
   NOTE: If the TCM update system requires you to cool the TCM, follow what is shown on the screen.
5. Do the i-SHIFT Learning (dynamic mode).

DTC Troubleshooting: P0504 (136-2)

DTC P0504:
Brake Pedal Position Signal Malfunction (from ECM by F-CAN)

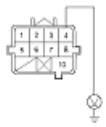
1. Check the BRAKE PEDAL POSITION SWITCH SIGNAL (NORMAL OPEN) and the BRAKE PEDAL POSITION SWITCH SIGNAL (NORMAL CLOSE) in the DATA LIST with the HDS.

   Does the NORMAL OPEN SIGNAL indicate OFF and NORMAL CLOSE SIGNAL indicate ON while the brake pedal is not pressed, and changes to the opposite when the brake pedal is pressed?

   YES - Intermittent failure, the system is OK at this time.■
   NO - Go to the brake pedal position switch circuit troubleshooting. ■

DTC Troubleshooting: P0512 (137-2)

DTC P0512:
Starter Signal Circuit Malfunction
NOTE: If the engine is started without using the starter switch, DTC P0512 is stored.



1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Start the engine.
4. Check for DTCs with the HDS.

   Is DTC P0512 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the clutch actuator subharness 10P connector from the engine compartment wire harness.
7. Turn the ignition switch to START (III).
8. Measure voltage between clutch actuator subharness 10P connector terminal No. 4 and body ground.

   Is there battery voltage?
   YES - Remove the clutch actuator assembly, then check for the clutch actuator subharness, if the wire harness is OK, substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■
   NO - Repair an open in the wire between the starter switch and the TCM.■

DTC Troubleshooting: P0562 (138-3)

DTC P0562:
TCM Power Source Circuit (+B) Low Voltage
NOTE: Before troubleshooting, check if the battery condition and charging system are OK.

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II), and wait for at least 1 second.
5. Check for DTCs with the HDS.

Is DTC P0562 indicated?

YES - Check for poor connections or loose terminals at the battery terminal fuse box, under-dash fuse/relay box and the TCM. If OK, update the TCM if it does not have the latest software, or substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■

NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: P0563 (138-4)

DTC P0563:
TCM Power Source Circuit (+B) High Voltage
NOTE: If a high voltage battery (24 V, etc.) is connected to the vehicle, this DTC can be stored.

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II), and wait for at least 1 second.
5. Check for DTCs with the HDS.

Is DTC P0563 indicated?
YES - Check the battery condition and charging system.■
NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: P0603 (0-3)

DTC P0603:
TCM Internal KAM Error

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

Is DTC P0603 indicated?

YES - Update the TCM if it does not have the latest software, or substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■

NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: P0605 (0-6)

DTC P0605:
TCM Programming Error

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

Is DTC P0605 indicated?

YES - Update the TCM if it does not have the latest software, or substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■

NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: P0666 (0-21)

DTC P0666:
TCM Internal Temperature Sensor Signal Malfunction

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

Is DTC P0666 indicated?

YES - Update the TCM if it does not have the latest software, or substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■

NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: P0702 (0-22)

DTC P0702:
TCM Internal CPU Power Supply Circuit Malfunction

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

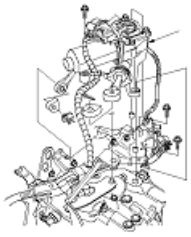
Is DTC P0702 indicated?

YES - Update the TCM if it does not have the latest software, or substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■

NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: P0780 (165-2)

DTC P0780:
Transmission Shift Change System Malfunction



1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Test-drive the vehicle and change the shift lever from 1st to 6th gear positions, and the reverse position.
4. Check for DTCs with the HDS.

   Is DTC P0780 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch to LOCK (0).
6. Check for foreign matter between the change actuator motors, the arms and the actuator rods.

   Are there any foreign matters?
   YES - Repair as necessary and recheck.■
   NO - Go to Step 7 .
7. Test-drive the vehicle and check the shift position it cannot be shifted.
8. Turn the ignition switch to LOCK (0).
9. Remove the transmission shift change actuator (A), then connect the shift actuator motor and select actuator motor 6P connectors.
10. Turn the ignition switch to ON (II).
11. Do the ENGAGE GEARS in the FUNCTIONAL TEST MENU with the HDS, and try to shift the position that could not be shifted.

    Does the actuator motor move normally?
    YES - Repair the transmission internal failure.■
    NO - Replace the change actuator motor. ■

DTC Troubleshooting: P0810 (163-3)

DTC P0810:
Clutch Operation Problem

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Do the CLUTCH ACTUATOR FULL STROKE OPERATION in the FUNCTIONAL TEST MENU with the HDS.
4. Turn the ignition switch to LOCK (0).
5. Turn the ignition switch to ON (II).
6. Check for DTCs with the HDS.

   Is DTC P0810 indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time.■
7. Turn the ignition switch to LOCK (0).
8. Check the clutch hose and pipe between the slave cylinder and the TCM if they are twisted or cracked.

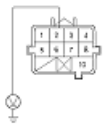
   Are they OK?
   YES - Go to Step 9 .
   NO - Replace the damaged hose or pipe.■
9. Remove the clutch pipe assembly from the clutch actuator.
10. Turn the ignition switch to ON (II).
11. Check for DTCs with the HDS.

    Is DTC P0810 indicated?
    YES - Update the TCM if it does not have the latest software, or substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■
    NO - Check for these conditions, and repair if necessary:■

    - Slave cylinder
    - Release syatem

DTC Troubleshooting: P0882 (139-3)

DTC P0882:
TCM Power Input Voltage Lower than ECM Power Input Signal
NOTE: Before troubleshooting, check for Fuel and Emissions systems DTCs. If any DTCs are indicated, troubleshoot the indicated DTCs first.



1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II), and wait for at least 1 second.
5. Turn the ignition switch to START (III).
6. Check for DTCs with the HDS.

   Is DTC P0882 indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time.■
7. Turn the ignition switch to LOCK (0).
8. Disconnect the clutch actuator subharness 10P connector.
9. Turn the ignition switch to ON (II).
10. Measure voltage between clutch actuator subharness 10P connector terminal No. 2 and body ground.

    Is there battery voltage?
    YES - Remove the clutch actuator assembly, then check for the clutch actuator subharness, if the wire harness is OK, substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■
    NO - Go to Step 11 .
11. Check the No. 12 (10 A) fuse in the under-dash fuse/relay box.

    Is the fuse OK?
    YES - Repair an open in the wire between the No. 12 (10 A) fuse in the under-dash fuse/relay box and the clutch actuator subharness 10P connector.■
    NO - Go to Step 12 .
12. Remove the No. 12 (10 A) fuse from the under-dash fuse/relay box.

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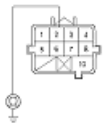
13. Check for continuity between clutch actuator subharness 10P connector terminal No. 2 and body ground.



    Is there continuity?
    YES - Repair a short in the wire between the No. 12 (10 A) fuse in the under-dash fuse/relay box and the clutch actuator subharness 10P connector, and replace the No. 12 (10 A) fuse.■
    NO - Remove the clutch actuator assembly, and check for clutch actuator subharness. If the wire harness is OK, substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■

DTC Troubleshooting: P0883 (139-4)

DTC P0883:
TCM Power Input Voltage Higher than ECM Power Input Signal
NOTE: If there is communication error between the ECM and TCM, DTC P0883 is not stored.

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

   Is DTC P0883 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■

6. Check the IGNITION SWITCH ON SIGNAL in the DATA LIST with the HDS.

   Does it indicate ON?
   YES - Remove the clutch actuator assembly, then check for the clutch actuator subharness, if the wire harness is OK, substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■
   NO - Update the ECM if it does not have the latest software, or substitute a known-good ECM . If the ECM was updated, check for IG1 line between the ignition switch and the ECM.■

DTC Troubleshooting: P0904 (162-2)

DTC P0904:
Select Actuator Motor Rotating Pulse Sensor Signal Circuit Malfunction

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Start the engine.
4. Change the shift lever in D, N, D, and N.
5. Check for DTCs with the HDS.

   Is DTC P0904 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■
6. Turn the ignition switch to LOCK (0).
7. Disconnect the select actuator motor 6P connector.
8. Turn the ignition switch to ON (II).
9. Check for DTCs with the HDS.

   Is DTC P0904 indicated?
   YES - Go to Step 10 .
   NO - Replace the transmission shift change actuator. ■
10. Turn the ignition switch to LOCK (0).
11. Disconnect the change actuator subharness B 10P connector.
12. Check for continuity between select actuator motor 6P connector terminal No. 5 and body ground.

    Is there continuity?
    YES - Repair a short to ground in the wire of the change actuator subharness B.■
    NO - Go to Step 13 .
13. Turn the ignition switch to ON (II).

---

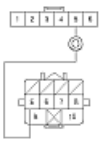
14. Measure voltage between select actuator motor 6P connector terminal No. 5 and body ground.

    Is there battery voltage?
    YES - Repair a short to power in the wire of the change actuator subharness B.■
    NO - Go to Step 15 .

---

15. Check for continuity between select actuator motor 6P connector terminal No. 5 and change actuator subharness B 10P connector terminal No. 5.

    Is there continuity?
    YES - Remove the clutch actuator assembly, and check for change actuator subharness A. If the wire harness is OK, substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■
    NO - Repair an open in the wire of the change actuator subharness B.■



DTC Troubleshooting: P0909 (162-3)

DTC P0909:
Transmission Shift Change Actuator Neutral Position Learned Value Out of Range

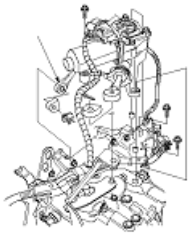
1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Do the i-SHIFT System Learning (Static Mode).
4. Check for DTCs with the HDS.

   Is DTC P0909 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch to LOCK (0).
6. Remove the transmission shift change actuator.
7. Check the shift actuator and select actuator rods.

   Are they good condition?
   YES - Replace the transmission shift change actuator. ■
   NO - Repair the transmission internal failure.■

DTC Troubleshooting: P0910 (162-4)

DTC P0910:
Select Actuator Motor System Malfunction



1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Do the i-SHIFT System Learning (Static Mode).
4. Check for DTCs with the HDS.

   Is DTC P0910 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch to LOCK (0).
6. Remove the transmission shift change actuator.
7. Reconnect the 6P connectors to the transmission shift change actuator.
8. Turn the ignition switch to ON (II).
9. Change the shift lever from D to N, then from N to D, and check the select actuator rod (A) operation.

   Does the select actuator rod move smoothly?
   YES - Repair the transmission internal failure.■
   NO - Go to Step 10 .
10. Turn the ignition switch to LOCK (0).
11. Disconnect the select actuator motor 6P connector.

---

12. Change the shift lever from D to N, then from N to D, and measure voltage between select actuator motor 6P connector terminals No. 1 and No. 6.

    Does the battery voltage change from positive (or negative) to negative (or positive) depending by the shift lever operation?
    YES - Replace the transmission shift change actuator. ■
    NO - Go to Step 13 .

---

13. Change the shift lever from D to N, then from N to D, and measure voltage between select actuator motor 6P connector terminal No. 1 and body ground.

    Does the voltage change from 0 V (or battery voltage) to battery voltage (or 0 V) depending by the shift lever operation?
    YES - Go to Step 14 .
    NO - Repair an open in the wire between the TCM and the transmission shift change actuator.■

---

14. Change the shift lever from D to N, then from N to D, and measure voltage between select actuator motor 6P connector terminal No. 6 and body ground.

    Does the voltage change from 0 V (or battery voltage) to battery voltage (or 0 V) depending by the shift lever operation?
    YES - Remove the clutch actuator assembly, and check for change actuator subharness A. If the wire harness is OK, substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■
    NO - Repair an open in the wire between the TCM and the transmission shift change actuator.■

DTC Troubleshooting: P0914 (162-5)

DTC P0914:
Shift Actuator Motor Rotating Pulse Sensor Signal Circuit Malfunction

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Start the engine.
4. Change the shift lever in D, then operate the shift lever between + and − positions.
5. Check for DTCs with the HDS.

   Is DTC P0914 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■
6. Turn the ignition switch to LOCK (0).
7. Disconnect the shift actuator motor 6P connector.
8. Turn the ignition switch to ON (II).
9. Check for DTCs with the HDS.

   Is DTC P0914 indicated?
   YES - Go to Step 10 .
   NO - Replace the transmission shift change actuator. (A few DTCs related with open circuit will be stored at this time.)■
10. Turn the ignition switch to LOCK (0).
11. Remove the clutch actuator assembly.
12. Disconnect TCM connector B (40P).
13. Check for continuity between shift actuator motor 6P connector terminal No. 5 and body ground.

    Is there continuity?
    YES - Repair a short to ground in the wire of the change actuator subharness A.■
    NO - Go to Step 14 .
14. Turn the ignition switch to ON (II).

---

15. Measure voltage between shift actuator motor 6P connector terminal No. 5 and body ground.

    Is there battery voltage?
    YES - Repair a short to power in the wire of the change actuator subharness A.■
    NO - Go to Step 16 .
16. Turn the ignition switch to LOCK (0).

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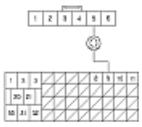
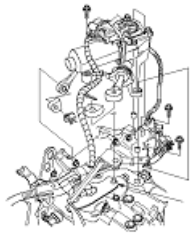
17. Check for continuity between shift actuator motor 6P connector terminal No. 5 and TCM connector terminal B9.



    Is there continuity?
    YES - Substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■
    NO - Repair an open in the wire of the change actuator subharness A.■

DTC Troubleshooting: P0919 (162-6)

DTC P0919:
Transmission Shift Change Actuator Neutral Position Learning Time Out



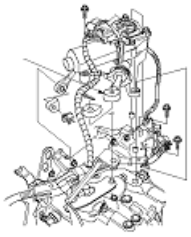
1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Do the i-SHIFT System Learning (Static Mode).
4. Check for DTCs with the HDS.

   Is DTC P0919 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch to LOCK (0).
6. Remove the transmission shift change actuator.
7. Check if the shift arm (A) moves smoothly.

   Does the shift arm move smoothly?
   YES - Replace the transmission shift change actuator. ■
   NO - Repair the transmission internal failure.■

DTC Troubleshooting: P0920 (162-7)

DTC P0920:
Shift Actuator Motor System Malfunction



1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Do the i-SHIFT System Learning (Static Mode).
4. Check for DTCs with the HDS.

   Is DTC P0920 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch to LOCK (0).
6. Remove the transmission shift change actuator.
7. Reconnect the 6P connectors to the transmission shift change actuator.
8. Turn the ignition switch to ON (II).
9. Change the shift lever from D to N, then from N to D, and check the shift actuator rod (A) operation.

   Does the shift actuator rod move smoothly?
   YES - Repair the transmission internal failure.■
   NO - Go to Step 10 .
10. Turn the ignition switch to LOCK (0).
11. Disconnect the shift actuator motor 6P connector.

---

12. Change the shift lever from D to N, then from N to D, and measure voltage between shift actuator motor 6P connector terminals No. 1 and No. 6.

    Does the battery voltage change from positive (or negative) to negative (or positive) depending by the shift lever operation?
    YES - Replace the transmission shift change actuator. ■
    NO - Go to Step 13 .

---

13. Change the shift lever from D to N, then from N to D, and measure voltage between shift actuator motor 6P connector terminal No. 1 and body ground.

    Does the voltage change from 0 V (or battery voltage) to battery voltage (or 0 V) depending by the shift lever operation?
    YES - Go to Step 14 .
    NO - Repair an open in the wire between the TCM and the transmission shift change actuator.■

---

14. Change the shift lever from D to N, then from N to D, and measure voltage between shift actuator motor 6P connector terminal No. 6 and body ground.

    Does the voltage change from 0 V (or battery voltage) to battery voltage (or 0 V) depending by the shift lever operation?
    YES - Update the TCM if it does not have the latest software, or substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■
    NO - Repair an open in the wire between the TCM and the transmission shift change actuator.■

DTC Troubleshooting: P0942 (163-4)

DTC P0942:
Clutch Hydraulic System Malfunction

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Change the shift lever in D.
4. Check for DTCs with the HDS.

   Is DTC P0942 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch to LOCK (0).
6. Make sure the clutch fluid is full in the reservoir, then check the clutch hose and line joint for leaks.

   Is it OK?
   YES - Go to Step 7 .
   NO - Replace the hose or tighten the joint if necessary.■
7. Turn the ignition switch to ON (II).
8. Change the shift lever in N.
9. Do the CLUTCH ACTUATOR FULL STROKE OPERATION in the FUNCTIONAL TEST MENU with the HDS.
10. Check the CLUTCH POSITION ACTUAL in the DATA LIST with the HDS.

    Is there more than 15 mm (0.6 in.)?
    YES - Check for these conditions, and repair if necessary:■

    - Clutch disc and pressure plate
    - Diaphragm spring
    - Release bearing

    NO - Check for these conditions, and repair if necessary:■

    - Slave cylinder
    - Release fork

DTC Troubleshooting: P16C0 (99-1)

DTC P16C0:
TCM Programming Error
NOTE:

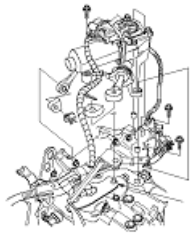
- DTC P16C0 is stored when the i-SHIFT system update is not completed.
- Do not turn the ignition switch to LOCK (0) while updating the i-SHIFT system. If you turn the ignition switch to LOCK (0) before completion, the i-SHIFT system can be damaged.

1. Do the i-SHIFT system update procedure.
2. Check for DTCs with the HDS.

   Is DTC P16C0 indicated?
   YES - Replace the TCM. ■
   NO - Update is complete.■

DTC Troubleshooting: P19E4 (162-8)

DTC P19E4:
Gear Shift Actuator Temperature Out of Range
NOTE: DTC P19E4 is stored when the gear change motor is protection mode. This can be caused due to frequent UP/DOWN operation. In this case, it is not a malfunction.



1. Check whether the driver changed gears excessively while driving.

   Did the driver change gears excessively while driving?
   YES - Not failure, just a rise of the transmission shift change actuator temperature due to excessive gear changes.■
   NO - Go to Step 2 .

2. Turn the ignition switch to ON (II).
3. Clear the DTCs with the HDS.
4. In order to cool the system, wait for at least 1 hour.
5. Test-drive the vehicle for at least 10 minutes.
6. Check for DTCs with the HDS.

   Is DTC P19E4 indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time.■

7. Turn the ignition switch to LOCK (0).
8. Remove the transmission shift change actuator.
9. Check if the shift arm (A) moves smoothly.

   Does the shift arm move smoothly?
   YES - Replace the transmission shift change actuator. ■
   NO - Repair the transmission internal failure.■

DTC Troubleshooting: P19E5 (163-2)

DTC P19E5:
Clutch Actuator Stroke Sensor Signal Out of Range

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

Is DTC P19E5 indicated?

YES - Update the TCM if it does not have the latest software, or substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■

NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: P19E6 (164-1)

DTC P19E6:
Clutch Temperature Too High (Over 300 °C (572 °F))
NOTE:

- DTC P19E6 is stored when the clutch temperature is higher than 300 °C (572 °F).
- If the DTC P19E6 is stored, the system stops the creep control.
- The value of the clutch temperature is reset when the DTC is cleared with the HDS.
- The clutch temperature is high when the UP/DOWN operation is done frequently at a short time.

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Test-drive the vehicle for at least 10 minutes.
4. Check for DTCs with the HDS.

   Is DTC P19E6 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch to LOCK (0).
6. Do the CLUTCH FLUID AIR BLEEDING in the ADJUSTMENT MENU with the HDS.
7. Check for DTCs with the HDS.

   Is DTC P19E6 indicated?
   YES - Update the TCM if it does not have the latest software, or substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■
   NO - The system is OK at this time (Failure by air in the fluid).■

DTC Troubleshooting: P19E7 (160-27)

DTC P19E7:
Clutch Contact Position 3 Learning Not Completed
NOTE: If the Clutch Contact Position 3 Learning is incomplete after replacing the clutch disc, repeat the Clutch Contact Position 3 Learning several times. If the Clutch Contact Position 3 Learning is still incomplete, check the clutch disc installation.

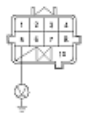
1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm (min^{-1}) without load until the radiator fan comes on, then let it idle.
4. Turn the headlight switch to ON.
5. Do the i-SHIFT System Learning (Dynamic Mode).
6. Check for DTCs with the HDS.

   Is DTC P19E7 indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time.■
7. Turn the ignition switch to LOCK (0).
8. Do the CLUTCH FLUID AIR BLEEDING in the ADJUSTMENT MENU with the HDS.
9. Do the i-SHIFT System Learning (Dynamic Mode).
10. Check for DTCs with the HDS.

    Is DTC P19E7 indicated?
    YES - Go to Step 8 and repeat the steps.
    NO - Clutch Contact Position 3 Learning is complete.■

DTC Troubleshooting: P19E8 (130-1)

DTC P19E8:
Vehicle Speed Signal Malfunction (from ECM by Signal Line)



1. Turn the ignition switch to LOCK (0).
2. Raise the vehicle, and make sure it is securely supported.
3. Start the engine, and change the shift lever in D.
4. Compare the speedometer indication and the VEHICLE SPEED in the DATA LIST with the HDS.

   Does the HDS indication match with the speedometer?
   YES - Intermittent failure, the system is OK at this time.■
   NO - Go to Step 5 .
5. Check the VEHICLE SPEED in the DATA LIST with the HDS.

   Is 0 km/h (0 mph) indicated?
   YES - Repair a short to ground in the wire between the ECM (A33) and the TCM (A3).■
   NO - Go to Step 6 .
6. Turn the ignition switch to LOCK (0).
7. Disconnect the clutch actuator subharness 10P connector from the engine compartment wire harness.
8. Turn the ignition switch to ON (II).
9. Measure voltage between clutch actuator subharness 10P connector terminal No. 5 and body ground.

   Is there battery voltage?
   YES - Repair a short to power in the wire between the ECM (A33) and the clutch actuator subharness.■
   NO - Go to Step 10 .
10. Turn the ignition switch to LOCK (0).
11. Jump the SCS line with the HDS.
12. Disconnect ECM connector A (49P).

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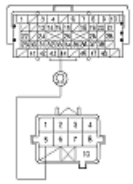
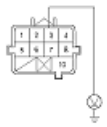
13. Check for continuity between ECM connector terminal A33 and clutch actuator subharness 10P connector terminal No. 5.



    Is there continuity?
    YES - Remove the clutch actuator assembly, and check for clutch actuator subharness. If the wire harness is OK, substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■
    NO - Repair an open in the wire between the ECM (A33) and the clutch actuator subharness.■

DTC Troubleshooting: P19E9 (131-1)

DTC P19E9:
Brake Pedal Position Signal Malfunction (from ECM by Signal Line)



1. Turn the ignition switch to ON (II).
2. Press and release the brake pedal continuously for at least 2 minutes.
3. With the brake pedal released, check the BRAKE PEDAL POSITION SWITCH AND SIGNAL in the DATA LIST with the HDS.

   Does it indicate ON?
   YES - Repair a short to ground in the wire between the ECM (A28) and the TCM (A35).■
   NO - Go to Step 4 .
4. Turn the ignition switch to LOCK (0).
5. Disconnect the clutch actuator subharness 10P connector from the engine compartment wire harness.
6. Turn the ignition switch to ON (II).
7. Measure voltage between clutch actuator subharness 10P connector terminal No. 3 and body ground.

   Is there battery voltage?
   YES - Repair a short to power in the wire between the ECM (A28) and the TCM (A35).■
   NO - Go to Step 8 .
8. Turn the ignition switch to LOCK (0).
9. Jump the SCS line with the HDS.
10. Disconnect ECM connector A (49P).

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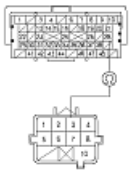
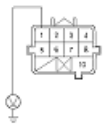
11. Check for continuity between ECM connector terminal A28 and clutch actuator subharness 10P connector terminal No. 3.



    Is there continuity?
    YES - Remove the clutch actuator assembly, and check for clutch actuator subharness. If the wire harness is OK, substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■
    NO - Repair an open in the wire between the ECM (A28) and the clutch actuator subharness.■

DTC Troubleshooting: P19EA (132-1)

DTC P19EA:
Starter Signal Malfunction (from ECM by Signal Line)



1. Turn the ignition switch to ON (II).
2. With the shift lever in N and the brake pedal pressed, check the STARTER ENABLE SIGNAL in the DATA LIST with the HDS.

   Does it indicate ON?
   YES - Repair a short to ground in the wire between the ECM (A43) and the TCM (A10).■
   NO - Go to Step 3 .
3. Turn the ignition switch to LOCK (0).
4. Disconnect the clutch actuator subharness 10P connector from the engine compartment wire harness.
5. Turn the ignition switch to ON (II).
6. Measure voltage between clutch actuator subharness 10P connector terminal No. 1 and body ground.

   Is there battery voltage?
   YES - Repair a short to power in the wire between the ECM (A43) and the TCM (A10).■
   NO - Go to Step 7 .
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM connector A (49P).

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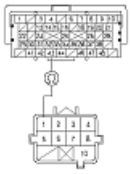
10. Check for continuity between ECM connector terminal A43 and clutch actuator subharness 10P connector terminal No. 1.



    Is there continuity?
    YES - Remove the clutch actuator assembly, and check for clutch actuator subharness. If the wire harness is OK, substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■
    NO - Repair an open in the wire between the ECM (A43) and the clutch actuator subharness.■

DTC Troubleshooting: P19EB (133-1)

DTC P19EB:
TCM initialization with Tester Error
NOTE: If DTC P19EB is indicated, replace the TCM.

DTC Troubleshooting: P19EC (150-21)

DTC P19EC:
Shift Actuator Motor Rotating Pulse/Rotating Direction Sensor Supply Signal Circuit Low Voltage

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

   Is DTC P19EC indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■
6. Turn the ignition switch to LOCK (0).
7. Disconnect the shift actuator motor 6P connector.
8. Turn the ignition switch to ON (II).
9. Clear the DTCs with the HDS.
10. Turn the ignition switch to LOCK (0).
11. Turn the ignition switch to ON (II).
12. Check for DTCs with the HDS.

    Is DTC P19EC indicated?
    YES - Repair a short to ground in the wire between the TCM (B20) and the shift actuator motor.■
    NO - Replace the transmission shift change actuator. (A few DTCs related with open circuit will be stored at this time.)■

DTC Troubleshooting: P19ED (150-22)

DTC P19ED:
Shift Actuator Motor Rotating Pulse/Rotating Direction Sensor Supply Signal Circuit High Voltage

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

   Is DTC P19ED indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■
6. Turn the ignition switch to LOCK (0).
7. Disconnect the shift actuator motor 6P connector.
8. Connect the shift actuator motor 6P connector terminal No. 3 and body ground with a jumper wire.
9. Turn the ignition switch to ON (II).
10. Clear the DTCs with the HDS.
11. Turn the ignition switch to LOCK (0).
12. Turn the ignition switch to ON (II).
13. Check for DTCs with the HDS.

    Is DTC P19ED indicated?
    YES - Repair an open in the wire between the TCM (B20) and the shift actuator motor.■
    NO - Replace the transmission shift change actuator. (A few DTCs related with open circuit will be stored at this time.)■

DTC Troubleshooting: P19EE (150-23)

DTC P19EE:
Shift Actuator Motor Rotating Pulse/Rotating Direction Sensor Supply Signal Circuit High Voltage

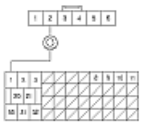
1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

   Is DTC P19EE indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■
6. Turn the ignition switch to LOCK (0).
7. Disconnect the shift actuator motor 6P connector.
8. Turn the ignition switch to ON (II).
9. Measure voltage between the shift actuator motor 6P connector terminal No. 3 and body ground.

   Is there battery voltage?
   YES - Repair a short to power in the wire between the TCM (B20) and the shift actuator motor.■
   NO - Replace the transmission shift change actuator. ■

DTC Troubleshooting: P19EF (151-22)

DTC P19EF:
Shift Actuator Motor Position Sensor Ground Line Open



1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

   Is DTC P19EF indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■
6. Turn the ignition switch to LOCK (0).
7. Disconnect the shift actuator motor 6P connector.
8. Remove the clutch actuator assembly.
9. Disconnect TCM connector B (40P).
10. Check for continuity between TCM connector terminal B1 and shift actuator motor 6P connector terminal No. 2.

    Is there continuity?
    YES - Replace the transmission shift change actuator. ■
    NO - Repair an open in the wire of the change actuator subharness A.■

DTC Troubleshooting: P19F0 (152-21)

DTC P19F0:
Shift Actuator Motor Rotating Direction Sensor Signal Circuit Low Voltage

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

   Is DTC P19F0 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■
6. Turn the ignition switch to LOCK (0).
7. Disconnect the shift actuator motor 6P connector.
8. Turn the ignition switch to ON (II).
9. Clear the DTCs with the HDS.
10. Turn the ignition switch to LOCK (0).
11. Turn the ignition switch to ON (II).
12. Check for DTCs with the HDS.

    Is DTC P19F0 indicated?
    YES - Repair a short to ground in the wire between the TCM (B8) and the shift actuator motor.■
    NO - Replace the transmission shift change actuator. (A few DTCs related with open circuit will be stored at this time.)■

DTC Troubleshooting: P19F2 (152-23)

DTC P19F2:
Shift Actuator Motor Rotating Direction Sensor Signal Circuit High Voltage

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

   Is DTC P19F2 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■
6. Turn the ignition switch to LOCK (0).
7. Disconnect the shift actuator motor 6P connector.
8. Connect shift actuator motor 6P connector terminal No. 4 and body ground with a jumper wire.
9. Turn the ignition switch to ON (II).
10. Clear the DTCs with the HDS.
11. Turn the ignition switch to LOCK (0).
12. Turn the ignition switch to ON (II).
13. Check for DTCs with the HDS.

    Is DTC P19F2 indicated?
    YES - Repair an open in the wire between the TCM (B8) and the shift actuator motor.■
    NO - Go to Step 14 .
14. Turn the ignition switch to LOCK (0).
15. Remove the clutch actuator assembly.
16. Disconnect the TCM connector B (40P).
17. Turn the ignition switch to ON (II).

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18. Measure voltage between shift actuator motor 6P connector terminal No. 4 and body ground.

    Is there battery voltage?
    YES - Repair a short to power in the wire of the change actuator subharness A.■
    NO - Replace the transmission shift change actuator. ■

DTC Troubleshooting: P19F3 (153-21)

DTC P19F3:
Select Actuator Motor Rotating Pulse/Rotating Direction Sensor Supply Signal Circuit Low Voltage

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

   Is DTC P19F3 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■
6. Turn the ignition switch to LOCK (0).
7. Disconnect the select actuator motor 6P connector.
8. Turn the ignition switch to ON (II).
9. Clear the DTCs with the HDS.
10. Turn the ignition switch to LOCK (0).
11. Turn the ignition switch to ON (II).
12. Check for DTCs with the HDS.

    Is DTC P19F3 indicated?
    YES - Repair a short to ground in the wire between the TCM (B2) and the select actuator motor.■
    NO - Replace the transmission shift change actuator. (A few DTCs related with open circuit will be stored at this time.)■

DTC Troubleshooting: P19F4 (153-22)

DTC P19F4:
Select Actuator Motor Rotating Pulse/Rotating Direction Sensor Supply Signal Circuit High Voltage

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

   Is DTC P19F4 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■
6. Turn the ignition switch to LOCK (0).
7. Disconnect the select actuator motor 6P connector.
8. Connect select actuator motor 6P connector terminal No. 3 and body ground with a jumper wire.
9. Turn the ignition switch to ON (II).
10. Clear the DTCs with the HDS.
11. Turn the ignition switch to LOCK (0).
12. Turn the ignition switch to ON (II).
13. Check for DTCs with the HDS.

    Is DTC P19F4 indicated?
    YES - Repair an open in the wire between the TCM (B3) and the select actuator motor.■
    NO - Replace the transmission shift change actuator. (A few DTCs related with open circuit will be stored at this time.)■

DTC Troubleshooting: P19F5 (153-23)

DTC P19F5:
Select Actuator Motor Rotating Pulse Sensor Signal Circuit High Voltage

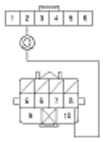
1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

   Is DTC P19F5 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■
6. Turn the ignition switch to LOCK (0).
7. Disconnect the select actuator motor 6P connector.
8. Turn the ignition switch to ON (II).
9. Measure voltage between select actuator motor 6P connector terminal No. 3 and body ground.

   Is there battery voltage?
   YES - Repair a short to power in the wire of the change actuator subharness B.■
   NO - Remove the clutch actuator assembly, and check for change actuator subharness A. If the wire harness is OK, replace the transmission shift change actuator. ■

DTC Troubleshooting: P19F6 (154-22)

DTC P19F6:
Select Actuator Motor Position Sensor Ground Line Open



1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

   Is DTC P19F6 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■
6. Turn the ignition switch to LOCK (0).
7. Disconnect the select actuator motor 6P connector.
8. Disconnect the change actuator subharness B 10P connector.
9. Check for continuity between change actuator subharness B 10P connector terminal No. 8 and select actuator motor 6P connector terminal No. 2.

   Is there continuity?
   YES - Remove the clutch actuator assembly, and check for change actuator subharness A. If the wire harness is OK, replace the transmission shift change actuator. ■
   NO - Repair an open in the wire of the change actuator subharness B.■

DTC Troubleshooting: P19F7 (155-21)

DTC P19F7:
Select Actuator Motor Rotating Direction Sensor Signal Circuit Low Voltage

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

   Is DTC P19F7 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■
6. Turn the ignition switch to LOCK (0).
7. Disconnect the select actuator motor 6P connector.
8. Turn the ignition switch to ON (II).
9. Clear the DTCs with the HDS.
10. Turn the ignition switch to LOCK (0).
11. Turn the ignition switch to ON (II).
12. Check for DTCs with the HDS.

    Is DTC P19F7 indicated?
    YES - Repair a short to ground in the wire between the TCM (B10) and the select actuator motor.■
    NO - Replace the transmission shift change actuator. (A few DTCs related with open circuit will be stored at this time.)■

DTC Troubleshooting: P19F9 (155-23)

DTC P19F9:
Select Actuator Motor Rotating Direction Sensor Signal Circuit High Voltage

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

   Is DTC P19F9 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■
6. Turn the ignition switch to LOCK (0).
7. Disconnect the select actuator motor 6P connector.
8. Connect select actuator motor 6P connector terminal No. 4 and body ground with a jumper wire.
9. Turn the ignition switch to ON (II).
10. Clear the DTCs with the HDS.
11. Turn the ignition switch to LOCK (0).
12. Turn the ignition switch to ON (II).
13. Check for DTCs with the HDS.

    Is DTC P19F9 indicated?
    YES - Repair an open in the wire between the TCM (B10) and the select actuator motor.■
    NO - Go to Step 14 .
14. Turn the ignition switch to LOCK (0).
15. Disconnect the change actuator subharness B 10P connector.
16. Turn the ignition switch to ON (II).

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17. Measure voltage between select actuator motor 6P connector terminal No. 4 and body ground.

    Is there battery voltage?
    YES - Repair a short to power in the wire of the change actuator subharness B.■
    NO - Remove the clutch actuator assembly, and check for change actuator subharness A. If the wire harness is OK, replace the transmission shift change actuator. ■

DTC Troubleshooting: P19FA (160-21)

DTC P19FA:
Clutch Contact Position Adaptation Condition Error

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Start the engine, and wait for at least 1 second.
4. Check for DTCs with the HDS.

   Is DTC P19FA indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Check the ENGINE TORQUE DISTURBANCE SIGNAL in the DATA LIST with the HDS.

   Does it indicate ACTIVE more than 10 minutes?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■
6. Check for Fuel and Emissions systems DTCs with the HDS.

   Are any Temporary DTCs or DTCs indicated?
   YES - Go to the indicated DTC's troubleshooting.
   NO - Electrical load change is continuing. Do the i-SHIFT System Learning (Static Mode) and the i-SHIFT System Learning (Dynamic Mode). ■

DTC Troubleshooting: P19FB (160-22)

DTC P19FB:
Clutch Contact Position 1 and 2 Learning Not Completed
NOTE: If the Clutch Contact Position 1, 2 Learning is incomplete after replacing the clutch disc, repeat the Clutch Contact Position 1, 2 Learning several times. If the Clutch Contact Position 1, 2 Learning is still incomplete, check the clutch disc installation.

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Do the i-SHIFT System Learning (Static Mode).
4. Check for DTCs with the HDS.

   Is DTC P19FB indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch to LOCK (0).
6. Do the CLUTCH FLUID AIR BLEEDING in the ADJUSTMENT MENU with the HDS.
7. Do the i-SHIFT System Learning (Static Mode).
8. Check for DTCs with the HDS.

   Is DTC P19FB indicated?
   YES - Go to Step 7 and repeat the steps.
   NO - Clutch Contact Position 1, 2 Learning is complete.■

DTC Troubleshooting: P19FC (160-23)

DTC P19FC:
Shift Change Actuator Position Learning Not Completed
NOTE:

- DTC P19FC is stored when the Shift Change Actuator Position Learning is incomplete.
- Make sure the battery is fully charged.

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Do the i-SHIFT System Learning (Static Mode).
4. Check for DTCs with the HDS.

Is DTC P19FC indicated?

YES - Go to Step 3 , and repeat the steps. If DTC P19FC is stored again after doing the i-SHIFT System Learning (Static Mode), check the repair error, or there is a problem in a replacement part.

NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: P19FD (160-24)

DTC P19FD:
Shift Change Actuator Position Learning Value Out of Range

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Do the i-SHIFT System Learning (Static Mode).
4. Check for DTCs with the HDS.

   Is DTC P19FD indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Clear the DTCs with the HDS.
6. Test-drive the vehicle for at least 10 minutes.
7. Check for DTCs with the HDS.

   Is DTC P19FD indicated?
   YES - Do the i-SHIFT System Learning (Static Mode), and recheck. If DTC P19FD is stored again, replace the transmission shift change actuator. ■
   NO - The system is OK at this time.■

DTC Troubleshooting: P19FE (160-25)

DTC P19FE:
Clutch Contact Position Adaptation Learning Value Out of Range

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Do the i-SHIFT System Learning (Static Mode).
4. Check for DTCs with the HDS.

   Is DTC P19FE indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch to LOCK (0).
6. Do the CLUTCH FLUID AIR BLEEDING in the ADJUSTMENT MENU with the HDS.
7. Do the i-SHIFT System Learning (Static Mode).
8. Turn the ignition switch to LOCK (0).
9. Check for DTCs with the HDS.

   Is DTC P19FE indicated?
   YES - Go to Step 10 .
   NO - The system is OK at this time.■
10. Turn the ignition switch to LOCK (0).
11. Remove the clutch pipe assembly from the clutch actuator.
12. Do the CLUTCH FLUID FILLING in the ADJUSTMENT MENU with the HDS.
13. Turn the ignition switch to ON (II).
14. Check for DTCs with the HDS.

    Is DTC P19FE indicated?
    YES - Replace the TCM. ■
    NO - Check for these conditions, and repair if necessary:■

    - Slave cylinder
    - Release system

DTC Troubleshooting: P19FF (160-26)

DTC P19FF:
Clutch Friction Coefficient Learning Value Out of Range

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Test-drive the vehicle and change the shift lever from 1st to 6th gear.
4. Check for DTCs with the HDS.

   Is DTC P19FF indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch to LOCK (0).
6. Do the CLUTCH FLUID AIR BLEEDING in the ADJUSTMENT MENU with the HDS.
7. Do the i-SHIFT System Learning (Static Mode).
8. Turn the ignition switch to LOCK (0).
9. Check for DTCs with the HDS.

   Is DTC P19FF indicated?
   YES - Go to Step 10 .
   NO - The system is OK at this time.■
10. Turn the ignition switch to LOCK (0).
11. Remove the clutch pipe assembly from the clutch actuator.
12. Do the CLUTCH FLUID FILLING in the ADJUSTMENT MENU with the HDS.
13. Turn the ignition switch to ON (II).
14. Check for DTCs with the HDS.

    Is DTC P19FF indicated?
    YES - Replace the TCM. ■
    NO - Check for these conditions, and repair if necessary:■

    - Slave cylinder
    - Release system

DTC Troubleshooting: P2785 (163-1)

DTC P2785:
Clutch Actuator Temperature Too High
NOTE: DTC P2785 is stored when the clutch motor is protection mode. This can be caused due to frequent UP/DOWN operation. In this case, it is not a malfunction.

1. Check whether the driver changed gears excessively while driving.

   Did the driver change gears excessively while driving?
   YES - Not failure, just a rise of the clutch actuator temperature due to excessive gear changes.■
   NO - Go to Step 2 .

2. Check the CLUTCH ACTUATOR TEMPERATURE and the TRANSMISSION SHIFT CHANGE ACTUATOR TEMPERATURE in the DATA LIST with the HDS.

   Is the clutch actuator temperature about 195 °C (383 °F) or more, or the transmission shift change actuator temperature about 118 °C (244 °F) or more?
   YES - Go to Step 3 .
   NO - Go to Step 6 .

3. Turn the ignition switch to LOCK (0).

4. In order to cool the system, wait for at least 1 hour.

5. Check the CLUTCH ACTUATOR TEMPERATURE and the TRANSMISSION SHIFT CHANGE ACTUATOR TEMPERATURE in the DATA LIST with the HDS.

   Is the clutch actuator temperature about 195 °C (383 °F) or more, or the transmission shift change actuator temperature about 118 °C (244 °F) or more?
   YES - Update the TCM if it does not have the latest software, or substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■
   NO - Go to Step 6 .

6. Test-drive the vehicle with changing gears frequently for at least 15 minutes.

7. Check the CLUTCH ACTUATOR TEMPERATURE and the TRANSMISSION SHIFT CHANGE ACTUATOR TEMPERATURE in the DATA LIST with the HDS.

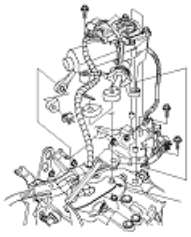
   Is the clutch actuator temperature about 195 °C (383 °F) or more, or the transmission shift change actuator temperature about 118 °C (244 °F) or more?
   YES - Go to Step 8 .
   NO - Intermittent failure, the system is OK at this time.■

8. Check the release fork moves smoothly.

   Does the release fork move smoothly?
   YES - Replace the TCM. ■
   NO - Replace the release bearing. ■

DTC Troubleshooting: P2786 (162-1)

DTC P2786:
Transmission Shift Change Actuator Temperature Too High



1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. In order to cool the system, wait for at least 1 hour.
4. Test-drive the vehicle for at least 10 minutes.
5. Check for DTCs with the HDS.

   Is DTC P2786 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■
6. Turn the ignition switch to LOCK (0).
7. Remove the transmission shift change actuator.
8. Check if the shift arm (A) moves smoothly.

   Does the shift arm move smoothly?
   YES - Replace the transmission shift change actuator.■
   NO - Repair the transmission internal failure.■

DTC Troubleshooting: P2787 (164-2)

DTC P2787:
Clutch Temperature Too High (Over 400 °C (752 °F))
NOTE: DTC P2787 is stored when the clutch is protection mode. This can be caused due to frequent UP/DOWN operation. In this case, it is not a malfunction.

1. Check whether the driver changed gears excessively while driving.

   Did the driver change gears excessively while driving?
   YES - Not failure, just a rise of the clutch temperature due to excessive gear changes.■
   NO - Go to Step 2 .

2. Test-drive the vehicle for at least 15 minutes with the Auto mode, then repeat a start and a stop several times.

   Does the clutch slip?
   YES - Replace the clutch. ■
   NO - Go to Step 3 .

3. Turn the ignition switch to LOCK (0).

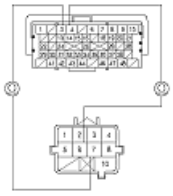
4. In order to cool the system, wait for at least 1 hour.

5. Check the CLUTCH TEMPERATURE in the DATA LIST with the HDS.

   Is the clutch temperature about 400 °C (752 °F) or more?
   YES - Update the TCM if it does not have the latest software, or substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■
   NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: U0100 (107-11)

DTC U0100:
F-CAN Malfunction (TCM Lost Communication with ECM)

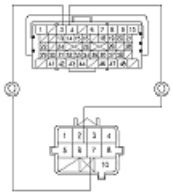


1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

   Is DTC U0100 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■
6. Check for DTCs with the HDS.

   Are DTC U0103, U0155, and U1261 indicated?
   YES - Go to Step 7 .
   NO - Go to Step 13 .
7. Turn the ignition switch to LOCK (0).
8. Wait for at least 30 seconds.
9. Jump the SCS line with the HDS.
10. Disconnect ECM connector A (49P).
11. Disconnect the clutch actuator subharness 10P connector from the engine compartment wire harness.
12. Check for continuity between ECM connector terminal A3 (A4) * and clutch actuator subharness 10P connector terminal No. 7 (No. 6) * .
    *: CANL

    Is there continuity?
    YES - Remove the clutch actuator assembly, and check for change actuator subharness. If the wire harness is OK, substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■
    NO - Repair an open in the wire between the clutch actuator subharness 10P connector and the ECM (A3 (A4) *).■
    *: CANL
13. Turn the ignition switch to LOCK (0).
14. Wait for at least 30 seconds.
15. Jump the SCS line with the HDS.
16. Disconnect ECM connector A (49P).
17. Disconnect the clutch actuator subharness 10P connector from the engine compartment wire harness.

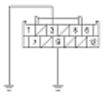


18. Check for continuity between ECM connector terminal A3 (A4) * and clutch actuator subharness 10P connector terminal No. 7 (No. 6) * .
    *: CANL

    Is there continuity?
    YES - Update the ECM if it does not have latest software. If the ECM was updated, substitute a known-good ECM, and recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■
    NO - Repair an open in the wire between the clutch actuator subharness 10P connector and the ECM (A3 (A4) *).■
    *: CANL

DTC Troubleshooting: U0103 (107-9)

DTC U0103:
F-CAN Malfunction (TCM Lost Communication with Gear Shift Control Module)



1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

   Is DTC U0103 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■
6. Check for DTCs with the HDS.

   Are DTC U0100, U0155, and U1261 indicated?
   YES - Go to Step 7 .
   NO - Go to Step 13 .
7. Turn the ignition switch to LOCK (0).
8. Wait for at least 30 seconds.
9. Disconnect the gear shift control module 12P connector.
10. Disconnect the clutch actuator subharness 10P connector from the engine compartment wire harness.
11. Connect gear shift control module 12P connector terminal No. 3 (No. 9) * and body ground with jumper wires.
    *: CANL

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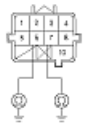
12. Check for continuity between clutch actuator subharness 10P connector terminal No. 7 (No. 6) * and body ground.
    *: CANL



    Is there continuity?
    YES - Remove the clutch actuator assembly, and check for change actuator subharness. If the wire harness is OK, substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■
    NO - Repair an open in the wire between the clutch actuator subharness 10P connector and the gear shift control module.■
13. Turn the ignition switch to LOCK (0).
14. Wait for at least 30 seconds.
15. Disconnect the gear shift control module 12P connector.
16. Disconnect the clutch actuator subharness 10P connector from the engine compartment wire harness.

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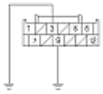
17. Connect gear shift control module 12P connector terminal No. 3 (No. 9) * and body ground with jumper wires.
    *: CANL



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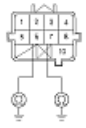
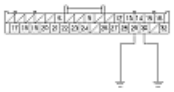
18. Check for continuity between clutch actuator subharness 10P connector terminal No. 7 (No. 6) * and body ground.
    *: CANL



    Is there continuity?
    YES - Substitute a known-good gear shift control module, then recheck. If the symptom/indication goes away with a known-good gear shift control module, replace the original gear shift control module. ■
    NO - Repair an open in the wire between the clutch actuator subharness 10P connector and the gear shift control module.■

DTC Troubleshooting: U0155 (107-3)

DTC U0155:
F-CAN Malfunction (TCM Lost Communication with Gauge Control Module)



1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

   Is DTC U0155 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■
6. Check for DTCs with the HDS.

   Are DTC U0100, U0103, and U1261 indicated?
   YES - Go to Step 7 .
   NO - Go to Step 13 .
7. Turn the ignition switch to LOCK (0).
8. Wait for at least 30 seconds.
9. Disconnect the gauge control module 32P connector.
10. Disconnect the clutch actuator subharness 10P connector from the engine compartment wire harness.
11. Connect gauge control module 32P connector terminal No. 30 (No. 29) * and body ground with jumper wires.
    *: CANL

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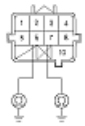
12. Check for continuity between clutch actuator subharness 10P connector terminal No. 7 (No. 6) * and body ground.
    *: CANL



    Is there continuity?
    YES - Remove the clutch actuator assembly, and check for change actuator subharness. If the wire harness is OK, substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■
    NO - Repair an open in the wire between the clutch actuator subharness 10P connector and the gauge control module.■
13. Turn the ignition switch to LOCK (0).
14. Wait for at least 30 seconds.
15. Disconnect the gauge control module 32P connector.
16. Disconnect the clutch actuator subharness 10P connector from the engine compartment wire harness.

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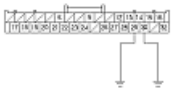
17. Connect gauge control module 32P connector terminal No. 30 (No. 29) * and body ground with jumper wires.
    *: CANL



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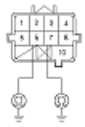
18. Check for continuity between clutch actuator subharness 10P connector terminal No. 7 (No. 6) * and body ground.
    *: CANL



    Is there continuity?
    YES - Substitute a known-good shift lever, then recheck. If the symptom/indication goes away with a known-good shift lever, replace the original shift lever. ■
    NO - Repair an open in the wire between the clutch actuator subharness 10P connector and the gauge control module.■

DTC Troubleshooting: U0401 (134-2)

DTC U0401:
F-CAN Malfunction (TCM Received Invalid Data from ECM)

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Start the engine.
4. Change the engine speed from idle to 4,000 rpm (min $^{-1}$) twice.
5. Check for DTCs with the HDS.

Is DTC U0401 indicated?
YES - Check for Fuel and Emissions systems DTCs with the HDS.■
NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: U0404 (134-7)

DTC U0404:
F-CAN Malfunction (TCM Received Invalid Data from Gear Shift Control Module)

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Change the shift lever in all positions.
4. Check for DTCs with the HDS.

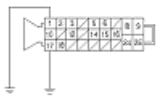
Is DTC U0404 indicated?

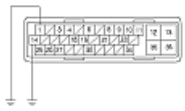
YES - Substitute a known-good gear shift control module, then recheck. If the symptom/indication goes away with a known-good gear shift control module, replace the original gear shift control module. ■

NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: U1261 (107-21)

DTC U1261:
F-CAN Malfunction (TCM Lost Communication with ABS/VSA Modulator-Control Unit)
NOTE: If DTC U1261 is stored at the same time as DTC U1405, troubleshoot DTC U1261 first, then recheck for DTC U1405.

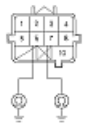




1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

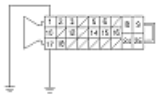
   Is DTC U1261 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■
6. Check for DTCs with the HDS.

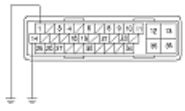
   Are DTC U0100, U0103, and U0155 indicated?
   YES - Go to Step 7 .
   NO - Go to Step 13 .
7. Turn the ignition switch to LOCK (0).
8. Wait for at least 30 seconds.
9. Disconnect the ABS modulator-control unit 25P connector (or the VSA modulator-control unit 36P connector).
10. Disconnect the clutch actuator subharness 10P connector from the engine compartment wire harness.
11. With ABS: Connect ABS modulator-control unit 25P connector terminal No. 1 (No. 17) * and body ground with jumper wires.
    With VSA: Connect VSA modulator-control unit 36P connector terminal No. 14 (No. 1) * and body ground with jumper wires.
    *: CANL



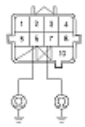
12. Check for continuity between clutch actuator subharness 10P connector terminal No. 7 (No. 6) * and body ground.
    *: CANL

    Is there continuity?
    YES - Remove the clutch actuator assembly, and check for change actuator subharness. If the wire harness is OK, substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■
    NO - Repair an open in the wire between the clutch actuator subharness 10P connector and the ABS (or VSA) modulator-control unit.■
13. Turn the ignition switch to LOCK (0).
14. Wait for at least 30 seconds.
15. Disconnect the ABS modulator-control unit 25P connector (or the VSA modulator-control unit 36P connector).
16. Disconnect the clutch actuator subharness 10P connector from the engine compartment wire harness.





17. With ABS: Connect ABS modulator-control unit 25P connector terminal No. 1 (No. 17) * and body ground with jumper wires.
    With VSA: Connect VSA modulator-control unit 36P connector terminal No. 14 (No. 1) * and body ground with jumper wires.
    *: CANL



18. Check for continuity between clutch actuator subharness 10P connector terminal No. 7 (No. 6) * and body ground.
    *: CANL

    Is there continuity?
    YES - Substitute a known-good VSA modulator-control unit, then recheck. If the symptom/indication goes away with a known-good VSA modulator-control unit, replace the original VSA modulator-control unit. ■
    NO - Repair an open in the wire between the clutch actuator subharness 10P connector and the VSA modulator-control unit.■

DTC Troubleshooting: U1400 (135-2)

DTC U1400:
F-CAN Malfunction (TCM Received Out of Range Data from ECM)

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

   Is DTC U1400 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time.■
6. Check for Fuel and Emissions systems DTCs with the HDS.

   Are any DTCs indicated?
   YES - Go to the Fuel and Emissions systems indicated DTCs troubleshooting.
   NO - Go to Step 7 .
7. Check these parameters in the DATA LIST with the HDS:
   - ENGINE SPEED
   - ENGINE COOLANT TEMPERATURE
   - INTAKE AIR TEMPERATURE

   Is the value 10,001 rpm (min^{-1}), 151 °C (304 °F), and 151 °C (304 °F) or more?
   YES - Remove the clutch actuator assembly, and substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■
   NO - Update the ECM if it does not have the latest software. If the ECM was updated, substitute a known-good ECM, then recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

DTC Troubleshooting: U1401 (161-21)

DTC U1401:
F-CAN Malfunction (TCM Received Invalid Shift Down Command While Cruise Control from ECM)

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Test-drive the vehicle with cruise control.
4. Check for DTCs with the HDS.

Is DTC U1401 indicated?
YES - Check for Fuel and Emissions systems.■
NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: U1402 (161-22)

DTC U1402:
F-CAN Malfunction (TCM Received Invalid Shift Down Command While Cruise Control from ECM)

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Test-drive the vehicle with cruise control.
4. Check for DTCs with the HDS.

Is DTC U1402 indicated?
YES - Check for Fuel and Emissions systems DTCs with the HDS.■
NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: U1403 (134-21)

DTC U1403:
F-CAN Malfunction (TCM Received Invalid Data from ABS/VSA Modulator-Control Unit)

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Test-drive the vehicle for at least 10 km/h (6.2 mph).
4. Check for DTCs with the HDS.

Is DTC U1403 indicated?
YES - Check for ABS (VSA) system DTCs with the HDS.■
NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: U1404 (135-21)

DTC U1404:
F-CAN Malfunction (TCM Received Out of Range Data from ABS/VSA Modulator-Control Unit)

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Test-drive the vehicle for several minutes.
4. Check for DTCs with the HDS.

   Is DTC U1404 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Check for ABS (VSA) system DTCs with the HDS.

   Are any ABS (VSA) system DTCs indicated?
   YES - Go to the VSA system indicated DTC's troubleshooting. ■
   NO - Go to Step 6 .
6. Test-drive the vehicle for at least 10 km/h (6.2 mph).
7. Check each WHEEL SENSOR in the DATA LIST with the HDS.

   Does any of wheel speeds indicate 2,594 rpm?
   YES - Substitute a known-good VSA modulator-control unit, then recheck. If the symptom/indication goes away with a known-good VSA modulator-control unit, replace the original VSA modulator-control unit. ■
   NO - Remove the clutch actuator assembly, and substitute a known-good TCM, then recheck. If the symptom/indication goes away with a known-good TCM, replace the original TCM. ■

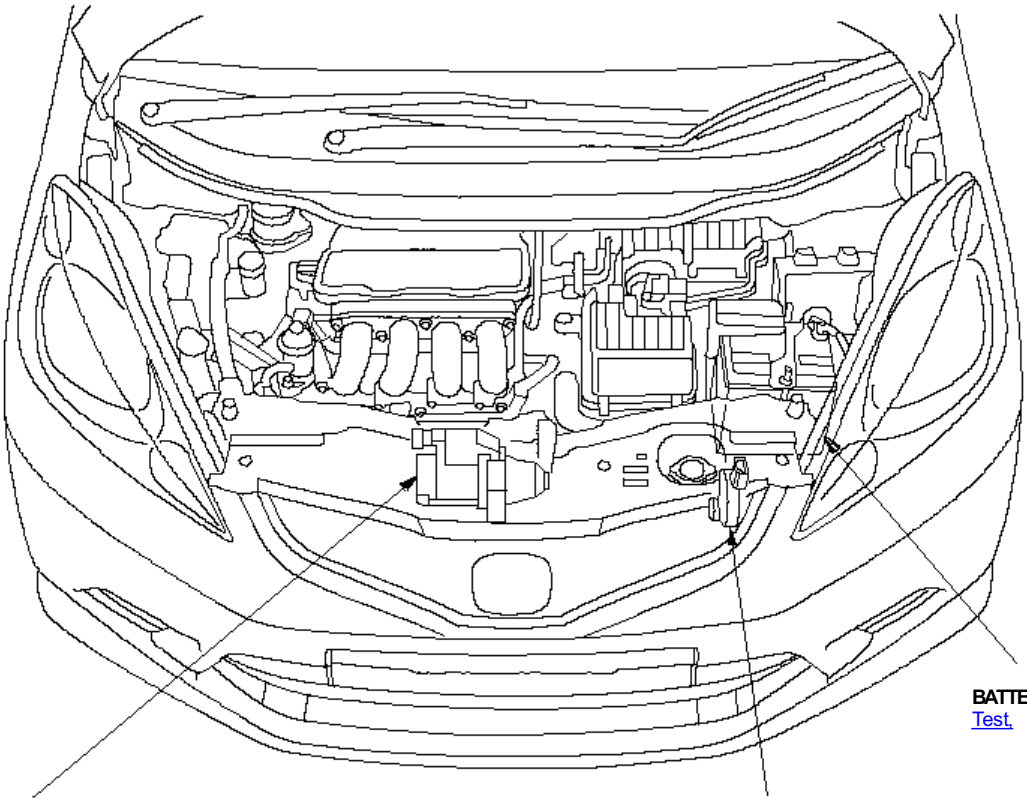
DTC Troubleshooting: U1405 (134-22)

DTC U1405:
F-CAN Malfunction (TCM Received Invalid Data from ABS/VSA Modulator-Control Unit)
NOTE: If DTC U1261 is stored at the same time as DTC U1405, troubleshoot DTC U1261 first, then recheck for DTC U1405.

1. Turn the ignition switch to ON (II).
2. Clear the DTCs with the HDS.
3. Test-drive the vehicle for at least 10 km/h (6.2 mph).
4. Check for DTCs with the HDS.

Is DTC U1405 indicated?
YES - Check for ABS (VSA) system DTCs with the HDS.■
NO - Intermittent failure, the system is OK at this time.■

Starting System Component Location Index

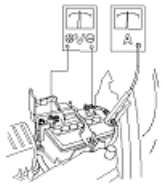


BATTERY
Test.

STARTER
Starter System Circuit Troubleshooting.
Performance Test.
Removal/Installation.
Overhaul.

TRANSMISSION RANGE SWITCH (A/T model)
Test.
Replacement.

Starter System Circuit Troubleshooting



NOTE:

- Air temperature must be within 15−38 °C (59−100 °F) during this procedure.
- After this inspection, you must reset the engine control module (ECM)/powertrain control module (PCM). Otherwise, the ECM/PCM will continue to stop the fuel injectors from functioning.
- The battery must be in good condition and fully charged.

1. Hook up the this equipment:
   - Ammeter, 0−400 A
   - Voltmeter, 0−20 V (accurate within 0.1 V)
2. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC).
3. Turn the ignition switch to ON (II).
4. Make sure the HDS communicates with the vehicle and the ECM/PCM. If it doesn't communicate, troubleshoot the DLC circuit.
5. Select PGM-FI, INSPECTION, then ALL INJECTORS STOP on the HDS.
6. Set the parking brake, then with the shift lever in P or N (A/T model) or neutral (M/T model), turn the ignition switch to START (III).

   Does the starter crank the engine normally?

   YES - The starting system is OK. Go to Step 13 .

   NO - Go to Step 7 .
7. Turn the ignition switch to LOCK (0).
8. Check the battery condition. Check the electrical connections at the battery, the negative battery cable to the body, the engine ground cables, and the starter for looseness and corrosion. Then try cranking the engine again.

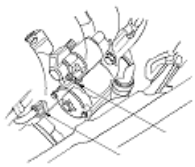
   Does the starter crank the engine normally?

   YES - Repairing the loose connection corrected the problem. The starting system is OK. Go to Step 13 .

   NO - Based on the following symptoms, take the appropriate action:

   - If the starter will not crank the engine at all, go to Step 9 .
   - If the starter cranks the engine erratically or too slowly, go to Step 11 .
   - If the starter will not disengage from the flywheel ring gear (M/T model) or torque converter ring gear (A/T model) when you release the key, replace the starter, or remove and disassemble it, and check for the following:■
     - Starter solenoid and switch malfunction
     - Dirty drive gear or damaged overrunning clutch

9. Make sure the transmission is in N or P (A/T model) or neutral (M/T model) then, disconnect the 1P connector (A) from the starter S terminal. Connect a jumper wire from the battery positive terminal to the S terminal.



Does the starter crank the engine?
YES - Go to Step 10 .
NO - Remove the starter , and repair or replace it as necessary.■

10. Check the following items in the order listed until you find the open circuit:
    - The YEL wire and connectors between the driver's under-dash fuse/relay box and the ignition switch.
    - The BLK/WHT wire and connectors between the driver's under-dash fuse/relay box.
    - The ignition switch.
    - The transmission range switch (A/T model) and connector.
    - The starter cut relay (A/T model).

Does these items OK?
YES - Go to Step 12 .
NO - Repair or replace it, then go to Step 13 .

11. While cranking the engine, check the cranking voltage and the current draw.

Is the cranking voltage greater than or equal to 9 V and is the current draw less than or equal to 150 A?
YES - Go to Step 12 .
NO - Replace the starter, or remove and disassemble it, and check for these problems:■

- Drag in the starter armature
- Shorted armature winding
- Excessive drag in the engine
- Open circuit in the starter armature commutator segments
- Excessively worn starter brushes
- Open circuit in the starter brushes
- Dirty or damaged helical splines or drive gear
- Faulty drive gear clutch

12. Remove the starter, and inspect its drive gear and the flywheel ring gear (M/T model) or torque converter ring gear (A/T model) for damage. Replace any damaged parts.

13. Select ECM/PCM reset to cancel ALL INJECTORS STOP on the HDS.

M/T System Description

Reverse Lockout System

Hard to shift into 1st gear

Probable cause(s)

1. Worn or incorrect MTF.
2. Clutch defective.
3. 1st synchro ring defective.
4. 1st/2nd synchro sleeve and hub defective.
5. 1st gear defective.
6. Change lever assembly defective.

Diagnostic procedure

- Check and/or replace the MTF.
- Check the clutch.
- Check the 1st synchro ring.
- Check the 1st/2nd synchro sleeve and hub.
- Check 1st gear.
- Check the change lever assembly.

Hard to shift into 2nd gear

Probable cause(s)

1. Worn or incorrect MTF.
2. 2nd synchro ring defective.
3. 1st/2nd synchro sleeve and hub defective.
4. 2nd gear defective.
5. Change lever assembly defective.

Diagnostic procedure

- Check and/or replace the MTF.
- Check the 2nd synchro ring.
- Check the 1st/2nd synchro sleeve and hub.
- Check 2nd gear.
- Check the change lever assembly.

Hard to shift into 3rd gear

Probable cause(s)

1. Worn or incorrect MTF.
2. 3rd synchro ring defective.
3. 3rd/4th synchro sleeve and hub defective.
4. 3rd gear defective.
5. Change lever assembly defective.

Diagnostic procedure

- Check and/or replace the MTF.
- Check the 3rd synchro ring.
- Check the 3rd/4th synchro sleeve and hub.
- Check 3rd gear.
- Check the change lever assembly.

Hard to shift into 4th gear

Probable cause(s)

1. Worn or incorrect MTF.
2. 4th synchro ring defective.
3. 3rd/4th synchro sleeve and hub defective.
4. 4th gear defective.
5. Change lever assembly defective.

Diagnostic procedure

- Check and/or replace the MTF.
- Check the 4th synchro ring.
- Check the 3rd/4th synchro sleeve and hub.
- Check 4th gear.
- Check the change lever assembly.

Hard to shift into 5th gear

Probable cause(s)

1. Worn or incorrect MTF.
2. 5th synchro ring defective.
3. 5th synchro sleeve defective.
4. 5th gear defective.
5. Change lever assembly defective.

Diagnostic procedure

- Check and/or replace the MTF.
- Check the 5th synchro ring.
- Check the 5th synchro sleeve and hub.
- Check 5th gear.
- Check the change lever assembly.

Hard to shift into reverse

Probable cause(s)

1. Worn or incorrect MTF.
2. Clutch defective.
3. Reverse shift fork defective.
4. Reverse idler gear defective.
5. Reverse gear defective.
6. Change lever assembly defective.

Diagnostic procedure

- Check and/or replace the MTF.
- Check the clutch.
- Check the reverse shift fork.
- Check the reverse idler gear.
- Check reverse gear.
- Check the change lever assembly.

Noise from the transmission

Probable cause(s)

1. Worn or incorrect MTF.
2. Low MTF level.
3. Worn or damaged transmission gears.
4. Worn or damaged transmission bearings.

Diagnostic procedure

- Check and/or replace the MTF.
- Check the MTF level.
- Check the transmission gears.
- Check the transmission bearings.

Shift lever does not operate smoothly

Probable cause(s)

1. Worn or incorrect MTF.
2. Shift cable defective.
3. Joint in shift cable and transmission or body.

Diagnostic procedure

- Check and/or replace the MTF.
- Check the shift cable.
- Check joint in the shift cable.

Transmission jumps out of gear

Probable cause(s)

1. Worn or incorrect MTF.
2. Detent ball springs defective.
3. Worn gear dogs.

Diagnostic procedure

- Check and/or replace the MTF.
- Check the detent ball springs.
- Check the gear dogs.

M/T Symptom Troubleshooting Index

Symptom	Probable cause(s)	Diagnostic procedure
Hard to shift into 1st gear	1. Worn or incorrect MTF. 2. Clutch defective. 3. 1st synchro ring defective. 4. 1st/2nd synchro sleeve and hub defective. 5. 1st gear defective. 6. Change lever assembly defective.	• Check and/or replace the MTF. • Check the clutch. • Check the 1st synchro ring. • Check the 1st/2nd synchro sleeve and hub. • Check 1st gear. • Check the change lever assembly.
Hard to shift into 2nd gear	1. Worn or incorrect MTF. 2. 2nd synchro ring defective. 3. 1st/2nd synchro sleeve and hub defective. 4. 2nd gear defective. 5. Change lever assembly defective.	• Check and/or replace the MTF. • Check the 2nd synchro ring. • Check the 1st/2nd synchro sleeve and hub. • Check 2nd gear. • Check the change lever assembly.
Hard to shift into 3rd gear	1. Worn or incorrect MTF. 2. 3rd synchro ring defective. 3. 3rd/4th synchro sleeve and hub defective. 4. 3rd gear defective. 5. Change lever assembly defective.	• Check and/or replace the MTF. • Check the 3rd synchro ring. • Check the 3rd/4th synchro sleeve and hub. • Check 3rd gear. • Check the change lever assembly.
Hard to shift into 4th gear	1. Worn or incorrect MTF. 2. 4th synchro ring defective. 3. 3rd/4th synchro sleeve and hub defective. 4. 4th gear defective. 5. Change lever assembly defective.	• Check and/or replace the MTF. • Check the 4th synchro ring. • Check the 3rd/4th synchro sleeve and hub. • Check 4th gear. • Check the change lever assembly.
Hard to shift into 5th gear	1. Worn or incorrect MTF. 2. 5th synchro ring defective. 3. 5th synchro sleeve defective. 4. 5th gear defective. 5. Change lever assembly defective.	• Check and/or replace the MTF. • Check the 5th synchro ring. • Check the 5th synchro sleeve and hub. • Check 5th gear. • Check the change lever assembly.
Hard to shift into reverse	1. Worn or incorrect MTF. 2. Clutch defective. 3. Reverse shift fork defective. 4. Reverse idler gear defective. 5. Reverse gear defective. 6. Change lever assembly defective.	• Check and/or replace the MTF. • Check the clutch. • Check the reverse shift fork. • Check the reverse idler gear. • Check reverse gear. • Check the change lever assembly.
Noise from the transmission	1. Worn or incorrect MTF. 2. Low MTF level. 3. Worn or damaged transmission gears. 4. Worn or damaged transmission bearings.	• Check and/or replace the MTF. • Check the MTF level. • Check the transmission gears. • Check the transmission bearings.
Shift lever does not operate smoothly	1. Worn or incorrect MTF. 2. Shift cable defective. 3. Joint in shift cable and transmission or body.	• Check and/or replace the MTF. • Check the shift cable. • Check joint in the shift cable.
Transmission jumps out of gear	1. Worn or incorrect MTF. 2. Detent ball springs defective. 3. Worn gear dogs.	• Check and/or replace the MTF. • Check the detent ball springs. • Check the gear dogs.

Clutch Replacement

Special Tools Required

Clutch alignment tool set
07PAF-0020000

Ring gear holder
07LAB-PV00100

Sliding hammer weight
07741-0010201

Driver handle, 15 x 135 L
07749-0010000

Bearing remover shaft 15
07936-KC10100

Bearing remover head 15
07936-KC10200

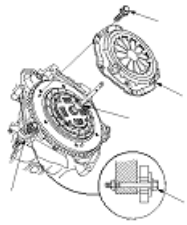
Bearing driver attachment, 28 x 30 mm
07946-1870100

Engine Side

Pressure Plate Inspection and Removal

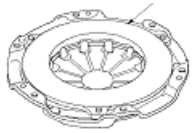
1. Remove the transmission.
2. Check the diaphragm spring fingers for height using the dial indicator (A). If the height is more than the service limit, replace the pressure plate.
   Standard (New): **0.6 mm (0.02 in.) max.**
   Service Limit: **1.0 mm (0.04 in.)**

3. Install the ring gear holder (A) and the clutch alignment tool set (B).
4. To prevent warping, unscrew the pressure plate mounting bolts (C) in a crisscross pattern in several steps, then remove the pressure plate (D).



5. Inspect the fingers of the diaphragm spring (A) for wear at the release bearing contact area.

6. Inspect the pressure plate (A) surface for wear, cracks, and burning.



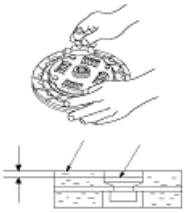
7. Inspect for warpage using a straight edge (A) and feeler gauge (B). Measure across the pressure plate (C). If the warpage is more than the service limit, replace the pressure plate.
   Standard (New): **0.03 mm (0.001 in.) max.**
   Service Limit: **0.15 mm (0.006 in.)**

Clutch Disc Inspection and Removal

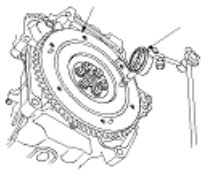
8. Remove the clutch disc (A) and the clutch alignment tool set (B).
9. Inspect the lining of the clutch disc for signs of slippage or oil. If the clutch disc looks burnt or is oil soaked, replace the clutch disc. If the clutch disc is oil soaked, find and repair the source of the oil leak.

10. Measure the clutch disc thickness. If the measurement is less than the service limit, replace the clutch disc.
    Standard (New): **7.25–7.95 mm (0.285–0.313 in.) max.**
    Service Limit: **5.0 mm (0.20 in.)**

11. Measure the rivet depth from the clutch disc lining surface (A) to the rivets (B) on both sides. If the measurement is less than the service limit, replace the clutch disc.
    Standard (New): **1.00–1.50 mm (0.039–0.059 in.) max.**
    Service Limit: **0.2 mm (0.008 in.)**



Flywheel Inspection

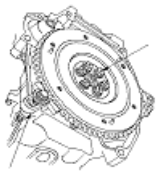


12. Remove the ring gear holder.
13. Inspect the ring gear teeth for wear and damage.
14. Inspect the clutch disc mating surface on the flywheel for wear, cracks and burning.
15. Measure the flywheel (A) runout using a dial indicator (B). Through at least two full turns with pushing against the flywheel each time you turn it to take up the crankshaft thrust washer clearance. If the measurement is not within the standard, replace the flywheel, and recheck the runout. Go to Step 16 .
    Standard (New): **0.05 mm (0.002 in.) max.**
    Service Limit: **0.15 mm (0.006 in.)**

Flywheel Replacement

16. Install the ring gear holder.
17. Loosen the flywheel mounting bolts in a crisscross pattern in several steps. Remove the bolts, then remove the flywheel and the ring gear holder.
18. Install the flywheel on the crankshaft, and install the mounting bolts finger-tight.

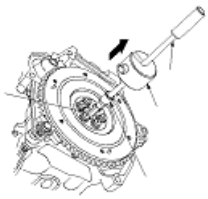
19. Install the ring gear holder (A), then torque the flywheel mounting bolts (B) in a crisscross pattern in several steps.



Pilot Bearing Inspection

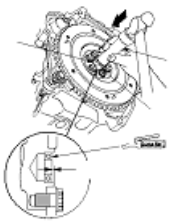
20. Inspect the crankshaft pilot bearing for wear and damage.
21. Inspect the inside surface of the crankshaft pilot bearing with your finger. If the crankshaft pilot bearing is not smooth, replace it; go to Step 22 .

Pilot Bearing Replacement



22. Remove the crankshaft pilot bearing (A) using the bearing remover shaft (B), bearing remover head (C), and the sliding hammer weight (D).

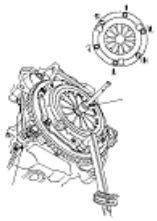
23. Install the new pilot bearing (A) into the crankshaft using the 15 x 135L driver handle (B) and 28 x 30 mm bearing driver attachment (C). Apply a light coat of molybdenum grease to the bearing surface.



Clutch Disc and Pressure Plate Installation

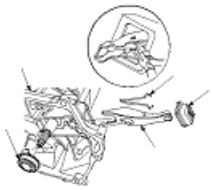
24. Temporarily install the clutch disc onto the splines of the transmission mainshaft. Make sure the clutch disc slides freely on the mainshaft.
25. Apply a light coat of molybdenum to the crankshaft pilot bearing (A).
26. Apply molybdenum grease to the splines (B) of the clutch disc (C), then install the clutch disc using the clutch alignment tool set (D).

27. Install the pressure plate (A) and the mounting bolts (B) finger-tight.



28. Torque the mounting bolts in a crisscross pattern. Tighten the bolts in several steps to prevent warping the diaphragm spring.
    PRESSURE PLATE MOUNTING BOLT TORQUE:
    25 N·m (2.6 kgf·m, 19 lbf·ft)
29. Remove the ring gear holder (A), and the clutch alignment tool set (B).
30. Make sure the diaphragm spring fingers are all the same height.
31. Do the release bearing inspection, and replace if it necessary.
32. Install the transmission.

Transmission Side
Release Bearing Removal

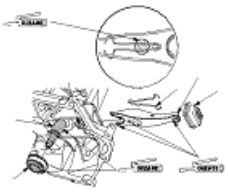


1. Remove the transmission.
2. Remove the release fork boot (A) from the clutch housing (B).
3. Remove the release fork (C) from the clutch housing by squeezing the release fork set spring (D) with pliers. Remove the release bearing (E).

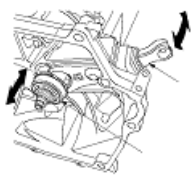
Release Bearing Inspection

4. Check the play of the release bearing by hand. If there is excessive play or noise, replace the release bearing.
   NOTE: The release bearing is packed with grease. Do not wash it in solvent.

Release Bearing Installation



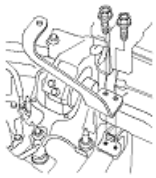
5. Apply Molybdenum Grease to the release fork (A), the release fork bolt (B), the release bearing (C), and the release bearing guide (D) in the shaded areas, then set the release fork set spring (E).
   NOTE: Replace the release fork bolt if necessary.
6. With the release fork slid between the release bearing pawls, install the release bearing on the mainshaft while inserting the release fork through the hole in the clutch housing.
7. Align the detent of the release fork with the release fork bolt, then press the release fork over the release fork bolt squarely.
8. Install the release fork boot (F). Make sure the boot seals around the release fork and clutch housing.



9. Move the release fork (A) right and left to make sure that it fits properly against the release bearing (B), and that the release bearing slides smoothly. Wipe off any excess grease.
10. Install the transmission.

M/T Assembly Removal

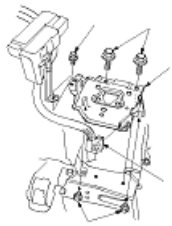
Special Tools Required



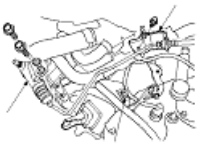
Engine support hanger
AAR-T-1256-J00
NOTE: Use fender covers to avoid damaging painted surfaces.

1. Secure the hood in the wide open position (support rod in the lower hole).
2. Remove the windshield wiper arms.
3. Remove the cowl covers and hood hinge cover.
4. Remove the wiper motor.
5. Remove under-cowl panel.
6. Do the battery removal procedure.
7. Remove the air cleaner housing.
8. Remove the air cleaner stay.

9. Remove the battery base bolts (A), loosen the two bolts (B), remove the battery harness clamp (C) and the bracket bolt (D) then remove the battery base (E).

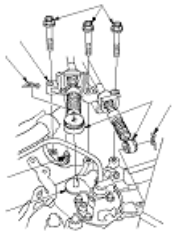


10. Remove the clutch hose bracket (A) and the slave cylinder (B). Remove the clutch line from the clip (C), then carefully move the slave cylinder out of the way to avoid bending the clutch line.
    NOTE:
    - Do not disconnect the clutch line joints.
    - Do not press the clutch pedal after the slave cylinder has been removed.

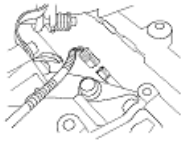


11. Disconnect the back-up light switch connector (A), then remove the harness clip (B).

12. Remove the lock pins (A), shift cable bracket bolts (B), and harness clip (C), then disconnect the shift cables (D), from the change lever assembly (E). Carefully remove both cables and the shift cable bracket (F) together to avoid bending the cables.



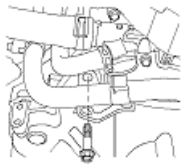
13. Disconnect the vehicle speed sensor (VSS) connector.



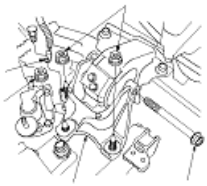
14. Remove the purge control SOL.V. hose (A). Install the hanger plate (B) to the bolt hole (C) at the air cleaner housing mounting bracket with the 8 x 1.25 mm bolt.

15. Install the engine support hanger (A) with the hook (B) to the vehicle. Tighten the wing nut (C) by hand, and lift and support the engine.

16. Remove the one upper transmission mounting bolt.



17. Remove the ground cable (A), transmission mount nuts (B), and transmission mount bolt (C), from the transmission bracket (D).
18. Raise the vehicle on a lift, and make sure it is securely supported.
19. Remove the splash shield.
20. Drain the transmission fluid. Reinstall the drain plug using a new sealing washer.
21. Remove the right and left driveshafts.



22. Remove the heat cover.

23. Remove the clutch case cover.
24. Securely support the transmission with a transmission jack.

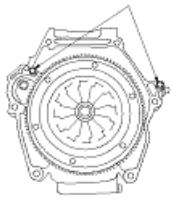
25. Remove the torque rod.

26. Remove the torque rod bracket.

27. Remove the lower transmission mounting bolts.
28. Pull the transmission away from the engine until the transmission mainshaft clears the clutch pressure plate.
29. Slowly lower the transmission. Check once again that all hoses and electrical wiring are disconnected and free from the transmission then lower it completely. Remove the two dowel pins.

M/T Assembly Installation

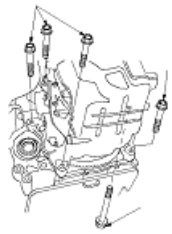
Special Tools Required



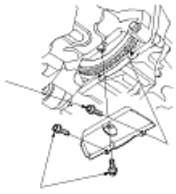
Engine support hanger
AAR-T-1256-J00
NOTE: Use fender covers to avoid damaging painted surfaces.

1. Make sure two dowel pins (A) are installed in prescribed hole on the engine block as shown.
2. Check the release bearing, and reinstall the release bearing and the release fork with applying appropriate grease.
3. Place the transmission on the transmission jack, and raise it to the engine unit level.

4. Install the lower transmission mounting bolts.



5. Install the clutch case cover.



6. Install the torque rod bracket with new bolt (A) and bolts (B).

7. Loosely install the torque rod new bolt (A), new nut (B) and new bolt (C), then remove the transmission jack.

8. Install the heat cover.
9. Install the right and left driveshafts.
10. Lower the vehicle on the lift.

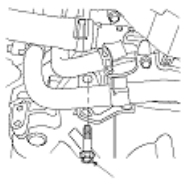
11. Tighten the new transmission mount bolts (A), three new engine mount nuts (B), and ground cable (C) to the specified torque value.

12. Loosen the wing nut (A). Remove the hook (B) and engine support hanger (C) from the vehicle.

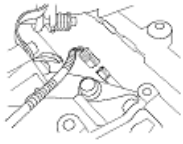
13. Remove the hanger plate (A) to the air cleaner stay (B) with the 8 x 1.25 mm bolt (C). Install the purge control SOL.V. hose (D).

14. Tighten the torque rod with the bolts and nut to the specified torque value.

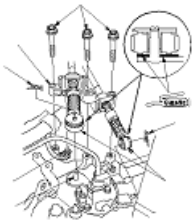
15. Install the one upper transmission mounting bolts.



16. Connect the vehicle speed sensor (VSS) connector.

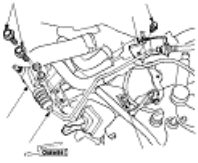


17. Apply a light coat of silicone grease to the cable ends (A), and connect the cable end to the change lever assembly (B), then install the shift cable bracket (C), harness clip (D) and the lock pins (E). Do not bend or damage the shift cables.
NOTE: When you apply the silicone grease, make sure not to adhere to the terminal part of connectors and surrounding switches. Also do not touch the switches and the terminal part of connector by hands or glove that adheres the silicone grease.

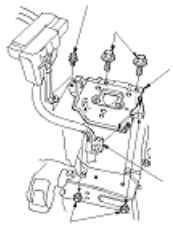


18. Connect the back-up light switch connector (A), then install the harness clip (B).

19. Apply a light coat of molybdenum grease to the end of the slave cylinder rod (A). Install the slave cylinder (B) and clutch line bracket (C). Install the clutch line in the clip (D). Take care not to bend the clutch line.



20. Install the battery base (A) and harness clip (B).



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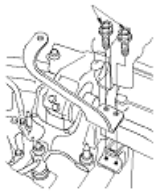
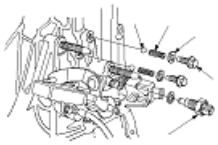
21. Install the air cleaner stay.
22. Install the air cleaner housing.
23. Do the battery installation procedure.
24. Refill the transmission fluid to the proper level.
25. Install the splash shield.
26. Install the under-cowl panel.
27. Install the wiper motor.
28. Install the hood hinge cover and cowl cover.
29. Install the windshield wiper arms.
30. Check the wheel alignment and adjust it if necessary.
31. Test-driver the vehicle.



M/T Assembly Disassembly

Exploded View - Clutch Housing

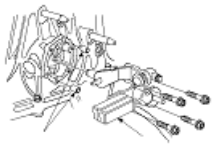
Exploded View - Transmission Housing



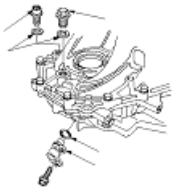
NOTE: Place the clutch housing on two pieces of wood thick enough to keep the mainshaft from hitting the workbench.

1. Remove the release bearing and the release fork.
2. Remove the set screws (A), the 12 mm washers (B), the springs (C), the steel balls (D) and the back-up light switch (E).

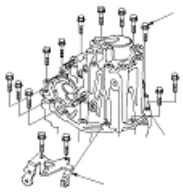
3. Remove the change lever assembly (A) and 8 x 10 mm dowel pins (B).



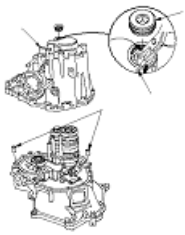
4. Remove the drain plug (A), filler plug (B), the sealing washers (C), and the vehicle speed sensor (VSS) (D), the O-rings (E).



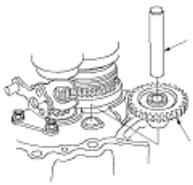
5. Remove the 8 mm flange bolts (A) and transmission hanger (B) in a crisscross pattern in several steps.



6. Remove the 32 mm sealing screw (A).
7. Expand the 52 mm snap ring (B) on the countershaft ball bearing, and remove it from the groove using a pair of snap ring pliers.
8. Remove the transmission housing (C) and 14 x 20 mm dowel pins (D).

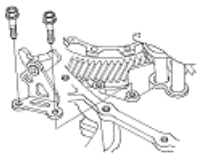


9. Remove the reverse idler gear (A) and the reverse gear shaft (B).

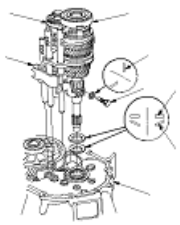


10. Remove the reverse shift fork.

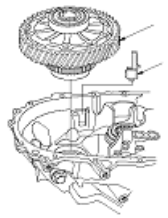
11. Remove the reverse lock cam.



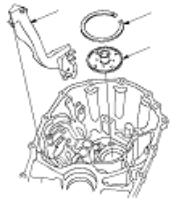
12. Tape the mainshaft splines, then remove the mainshaft assembly (A) and the countershaft assembly (B) with the shift forks (C) from the clutch housing (D).
13. Remove the 8 mm special bolt (E) and the 8 mm spring washer (F).
14. Remove the 36 mm spring washer (G) and the 26 mm washer (H).



15. Remove the differential assembly (A), and the magnet (B).



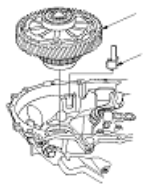
16. Remove the oil gutter plate (A), the oil guide plate M (B), and the 72 mm shim (C).



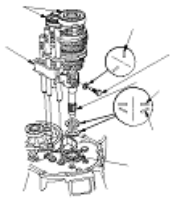
M/T Assembly Reassembly

NOTE: Prior to reassembly, clean all the parts in solvent, dry them, and apply MTF to any contact surfaces.

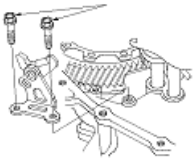
1. Install the magnet (A) and differential assembly (B).



2. Install the 8 mm spring washer (A) and the 8 mm special bolt (B).
3. Install the 36 mm spring washer (C) and 26 mm washer (D) over the ball bearing (E). Note the installation direction of the spring washer.
4. Tape the mainshaft splines (F) with vinyl tape to protect the seal. Install the mainshaft and countershaft (G) into the shift forks (H), and install them as an assembly.

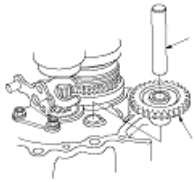


5. Install the reverse lock cam.

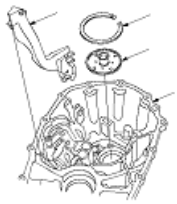


6. Install the reverse shift fork.

7. Install the reverse idler gear (A) and reverse gear shaft (B).

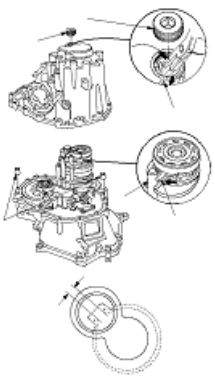


8. Select the proper size 72 mm shim (A) according to the measurements made during the Mainshaft Thrust Clearance Adjustment. Install the oil gutter plate (B), oil guide plate M (C) and 72 mm shim into the transmission housing (D).



9. Clean any dirt or oil from the transmission housing and clutch housing mating surface. Apply liquid gasket (P/N 08C70-K0234M, 08C70-K0334M, or 08C70-X0331S) to the sealing surface as shown.
   NOTE: Do not install components if too much time has passed after applying the liquid gasket. Instead, remove the old residue and reapply the liquid gasket.

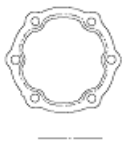
10. Install the 14 x 20 mm dowel pins (A).
11. Make the finger (B) of tapered cone ring touch the 5th shift fork (C) as shown.
12. Lower the transmission housing the rest of the way as you expand the 52 mm snap ring (D). Release the snap ring so it seats in the groove of the countershaft bearing.
13. Check that the 52 mm snap ring is securely seated in the groove of the countershaft bearing.
    Dimension (1) as installed: 4.6−8.3 mm (0.18−0.33 in.)
14. Apply liquid gasket (P/N 08C70-K0234M, 08C70-K0334M, or 08C70-X0331S) to the threads of the 32 mm sealing screw (E), and install it on the transmission housing.



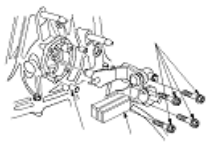
15. Install the transmission hanger (A) and the 8 mm flange bolts finger-tight.

16. Tighten the 8 mm flange bolts in a crisscross pattern in several steps.

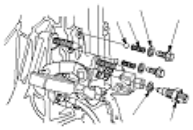
17. Clean any dirt or oil from the change lever assembly sealing surface. Apply liquid gasket (P/N 08C70-K0234M, 08C70-K0334M, or 08C70-X0331S) to the sealing surface.
NOTE: Do not install components if too much time has passed after applying the liquid gasket. Instead, remove the old residue and reapply the liquid gasket.



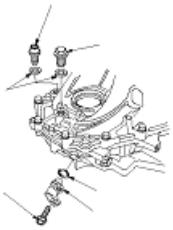
18. Install the 8 x 10 mm dowel pins (A) and change lever assembly (B).



19. Install the set screws (A), new 12 mm washers (B), springs (C), and steel balls (D).
20. Install the new washer (E) and back-up light switch (F).



21. Install the new washers (A), drain plug (B), filler plug (C), new O-ring (D), and vehicle speed sensor (VSS) (E).



Back-up Light Switch Test

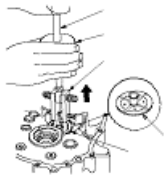
1. Disconnect the back-up light switch 2P connector (A).

2. Check for continuity between the back-up light switch 2P connector terminals No. 1 and No. 2. There should be continuity when the shift lever is in reverse. If the result is faulty, go to Step 3 .

3. Remove the back-up light switch (A). Check for continuity between the back-up light switch 2P connector terminals No. 1 and No. 2. There should be continuity when the switch end (B) is pressed, and no continuity when the switch end is released. If the result is faulty, replace the back-up light switch. If the switch is OK, check the reverse shift piece in the transmission.
4. Install the removed or the new back-up light switch and new washer.
5. Connect the back-up light switch 2P connector.

M/T Clutch Housing Countershaft Bearing Replacement

Special Tools Required



Adjustable bearing remover head, 20−40 mm
07JAC-PH80100

Bearing remover shaft
07JAC-PH80200

Sliding hammer weight
07741-0010201

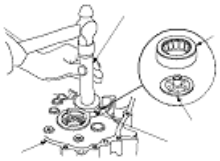
Driver handle, 15 x 135L
07749-0010000

Bearing driver attachment, 52 x 55 mm
07746-0010400

1. Remove the needle bearing (A) using the 20−40 mm adjustable bearing remover head (B), sliding hammer weight (C) and bearing remover shaft (D), then remove oil guide plate C (E).

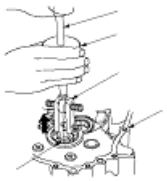
---

2. Position the oil guide plate C (A) and new needle bearing (B) in the bore of the clutch housing (C).
3. Press in the needle bearing using the 15 x 135L driver handle (D), 52 x 55 mm bearing driver attachment (E).



M/T Clutch Housing Mainshaft Bearing and Oil Seal Replacement

Special Tools Required



Adjustable bearing remover head, 20−40 mm
07JAC-PH80100

Bearing remover shaft
07JAC-PH80200

Sliding hammer weight
07741-0010201

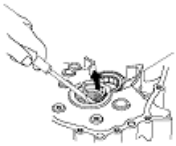
Driver handle, 15 x 135L
07749-0010000

Bearing driver attachment, 37 x 40 mm
07746-0010200

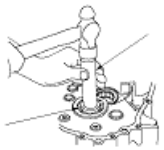
Bearing driver attachment, 52 x 55 mm
07746-0010400

1. Remove the differencial assembly.
2. Remove the ball bearing (A) from the clutch housing (B) using the 20−40 mm adjustable bearing remover head (C), sliding hammer weight (D) and bearing remover shaft (E).

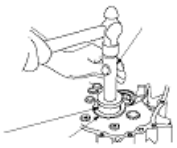
3. Remove the oil seal (A) from the clutch side.
   Be careful when removing the oil seal so the clutch housing is not damaged.



4. Drive the new oil seal in from the transmission side using the 15 x 135L driver handle (A) and 37 x 40 mm bearing driver attachment (B).

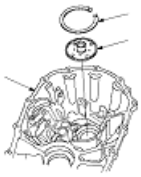


5. Drive the new ball bearing (A) in from the transmission side using the 15 x 135L driver handle (B) and 52 x 55 mm bearing driver attachment (C).



M/T Clutch Housing Mainshaft Thrust Clearance Adjustment

Special Tools Required

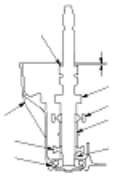


Base adapter
07GAJ-PG20130

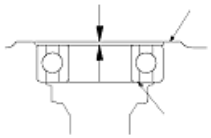
Base collar
07GAJ-PG20120

Catch adapter
07GAJ-PG20110

1. Remove the 72 mm shim (A) and oil guide plate M (B) from the transmission housing (C).

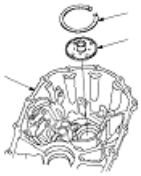


2. Install the 3rd/4th synchro hub (A), the distance collar (B), the 5th synchro hub (C), distance collar (D), and ball bearing (E) on the mainshaft (F), then install the assembled mainshaft in the transmission housing (G).
3. Install the washer (H) on the mainshaft.
4. Measure distance (1) between the end of the transmission housing and washer with a straight edge and vernier caliper. Measure at three locations and average the reading.



5. Measure distance (2) between the end of the clutch housing (A) and bearing inner race (B) with a straight edge and depth gauge. Measure at three locations and average the readings.

Shim Selection Formula



6. Select the proper 72 mm shim from the chart. Follow the example below, and use the measurements you made in steps 4 and 5:

(Basic Formula)

(1) + (2) − (0.75 + 0.11) = shim thickness (maximum)
(1) + (2) − (0.75 + 0.18) = shim thickness (minimum)

- Add distance (1) (step 4) to distance (2) (step 5).
- 0.75 mm (0.029 in): Spring washer, a dimension in the installation.
- 0.11 mm (0.004 in): Minimum thrust clearance.
- 0.18 mm (0.007 in): Maximum thrust clearance.

(For example)

2.41 + 0.22 − (0.75 + 0.11) = 1.77 mm (0.070 in.)
2.41 + 0.22 − (0.75 + 0.18) = 1.70 mm (0.067 in.)

7. Take the middle value of the minimum value and the maximum value, and select shim of 1.74 mm (0.069 in).

72 mm Shim

Type	Part Number	Thickness
A	23931-P21-000	0.60 mm (0.0236 in.)
B	23932-P21-000	0.63 mm (0.0248 in.)
C	23933-P21-000	0.66 mm (0.0260 in.)
D	23934-P21-000	0.69 mm (0.0271 in.)
E	23935-P21-000	0.72 mm (0.0283 in.)
F	23936-P21-000	0.75 mm (0.0295 in.)
G	23937-P21-000	0.78 mm (0.0307 in.)
H	23938-P21-000	0.81 mm (0.0319 in.)
I	23939-P21-000	0.84 mm (0.0331 in.)
J	23940-P21-000	0.87 mm (0.0343 in.)
K	23941-P21-000	0.90 mm (0.0354 in.)
L	23942-P21-000	0.93 mm (0.0366 in.)
M	23943-P21-000	0.96 mm (0.0378 in.)
N	23944-P21-000	0.99 mm (0.0390 in.)
O	23945-P21-000	1.02 mm (0.0402 in.)
P	23946-P21-000	1.05 mm (0.0413 in.)
Q	23947-P21-000	1.08 mm (0.0425 in.)
R	23948-P21-000	1.11 mm (0.0437 in.)

Type	Part Number	Thickness
S	23949-P21-000	1.14 mm (0.0449 in.)
T	23950-P21-000	1.17 mm (0.0461 in.)
U	23951-P21-000	1.20 mm (0.0472 in.)
V	23952-P21-000	1.23 mm (0.0484 in.)
W	23953-P21-000	1.26 mm (0.0496 in.)
X	23954-P21-000	1.29 mm (0.0508 in.)
Y	23955-P21-000	1.32 mm (0.0520 in.)
Z	23956-P21-000	1.35 mm (0.0531 in.)
AA	23957-P21-000	1.38 mm (0.0543 in.)
AB	23958-P21-000	1.41 mm (0.0555 in.)
AC	23959-P21-000	1.44 mm (0.0567 in.)
AD	23960-P21-000	1.47 mm (0.0579 in.)
AE	23961-P21-000	1.50 mm (0.0591 in.)
AF	23962-P21-000	1.53 mm (0.0602 in.)
AG	23963-P21-000	1.56 mm (0.0614 in.)
AH	23964-P21-000	1.59 mm (0.0626 in.)
AI	23965-P21-000	1.62 mm (0.0638 in.)
AJ	23966-P21-000	1.65 mm (0.0650 in.)
AK	23967-P21-000	1.68 mm (0.0661 in.)
AL	23968-P21-000	1.71 mm (0.0673 in.)
AM	23969-P21-000	1.74 mm (0.0685 in.)
AN	23970-P21-000	1.77 mm (0.0697 in.)
AO	23971-P21-000	1.80 mm (0.0709 in.)

8. Install the 72 mm shim (A) selected and oil guide plate M (B) in the transmission housing (C).

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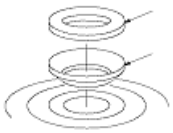
9. Throughly clean the spring washer (A) and washer (B) before installing them on the clutch housing side ball bearing (C). Note the installation direction of the spring washer.



10. Install the mainshaft in the clutch housing.
11. Place the transmission housing over the mainshaft and onto the clutch housing.
12. Tighten the clutch and transmission housings with several 8 mm bolts.
    NOTE: It is not necessary to use sealing agent between the housings.
13. Tap the mainshaft with a plastic hammer.

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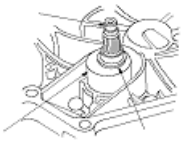
14. Slide the base collar (B), and base adapter (C) over the mainshaft (A).



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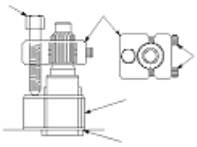
15. Attach the catch adapter (A), base collar (B), and base adapter (C) to the mainshaft as follows:
    - Back-out the mainshaft holder bolt (D) and loosen the two hex bolts (E).
    - Fit the holder over the mainshaft so its lip is towards the transmission.
    - Align the mainshaft holder's lip around the groove at the inside of the mainshaft splines, then tighten the hex bolts.



16. Seat the mainshaft fully by tapping its end with a plastic hammer.
17. Thread the mainshaft holder bolt in until it just contacts the wide surface of the mainshaft base.

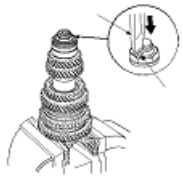
---

18. Zero a dial gauge (A) on the end of the mainshaft.
19. Turn the mainshaft holder bolt (B) clockwise; stop turning when the dial gauge (A) has reached its maximum movement. The reading on the dial gauge is the amount of mainshaft end play.
    Do not turn the mainshaft holder bolt more than 60 degrees after the needle of the dial gauge stops moving, this may damage the transmission.

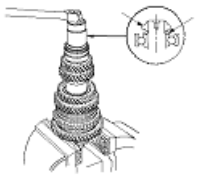
20. If the reading is within the standard, the clearance is correct. If the reading is not within the standard, recheck the shim thickness.
    Standard: **0.11−0.18 mm (0.004−0.007 in.)**

M/T Countershaft Disassembly

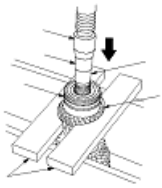
NOTE: Refer to the Exploded View in the countershaft reassembly as need removing components except pressing into the countershaft.



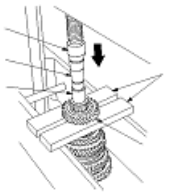
1. Securely clamp the countershaft assembly in a bench vise with wood blocks.
2. Use a chisel (A) to raise the locknut tab (B) from the groove in the countershaft.



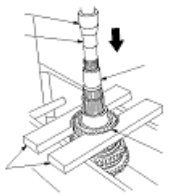
3. Remove the locknut (left-hand threads) (A) and the spring washer (B).



4. Support 5th gear (A) on steel blocks (B), then use a press (C) and an attachment (D) to press the countershaft (E) out of the ball bearing * (F).
   *L15A7 engine: Needle bearing



5. Support 4th gear (A) on steel blocks (B), then use a press (C) and an attachment (D) to press the countershaft (E) out of the 4th gear.

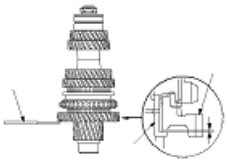


6. Support 3rd gear (A) on steel blocks (B), then use a press (C) and an attachment (D) to press the countershaft (E) out of the 3rd gear.

M/T Countershaft Assembly Clearance Inspection

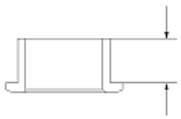
1. Measure the clearance between the 1st gear (A) and the countershaft (B) with a feeler gauge (C). If the clearance is more than the service limit, go to Step 2.
   - If the clearance is more than the service limit, go to Step 2.
   - If the clearance is within the service limit, go to Step 4.

   Standard: **0.03−0.12 mm (0.001−0.005 in.)**
   Service Limit: **0.24 mm (0.009 in.)**



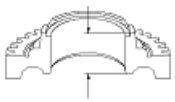
2. Measure the length of the 1st gear distance collar as shown.
   - If the thickness is not within than the standard, replace the distance collar.
   - If the thickness is within the standard, go to Step 3.

   Standard: **26.53−26.58 mm (1.044−1.046 in.)**



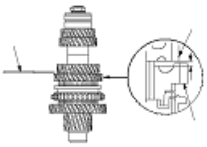
3. Measure the thickness of the 1st gear.
   - If the thickness of 1st gear is less than the service limit, replace 1st gear with a new one.
   - If the thickness of 1st gear is within the service limit, replace the 1st/2nd synchro hub with a new one.

   Standard: **27.42−27.47 mm (1.080−1.081 in.)**
   Service Limit: **27.39 mm (1.078 in.)**



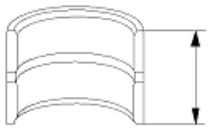
4. Measure the clearance between the 2nd gear (A) and 3rd gear (B) with a feeler gauge (C). If the clearance is more than the service limit, go to Step 4.

   Standard: **0.04−0.12 mm (0.002−0.005 in.)**
   Service Limit: **0.24 mm (0.009 in.)**



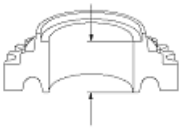
5. Measure the thickness of the distance collar.
   - If the thickness is less than the service limit, replace the distance collar with a new one.
   - If the thickness is within the service limit, go to Step 5.

   Standard: **27.53−27.56 mm (1.084−1.085 in.)**
   Service Limit: **27.51 mm (1.083 in.)**



6. Measure the thickness of the 2nd gear.
   - If the thickness of 2nd gear is less than the service limit, replace 2nd gear with new one.
   - If the thickness of 1st gear is within the service limit, replace the 1st/2nd synchro hub with a new one.

   Standard: **27.41−27.46 mm (1.079−1.081 in.)**
   Service Limit: **27.36 mm (1.077 in.)**

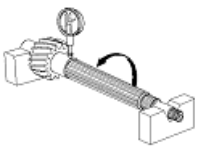


M/T Countershaft Inspection

1. Inspect the gear surface and bearing surface for wear and damage, then measure the mainshaft at points A, B, and C. If any part of the mainshaft is less than the service limit, replace it with a new one.

Standard:
A (Ball bearing contact area):
24.980−24.993 mm (0.9835−0.9840 in.)
B (Distance collar contact area):
36.487−36.500 mm (1.4365−1.4370 in.)
C (Needle bearing contact area):
34.000−34.015 mm (1.3386−1.3392 in.)
Service Limit:
A: 24.93 mm (0.981 in.)
B: 36.44 mm (1.4346 in.)
C: 33.95 mm (1.337 in.)

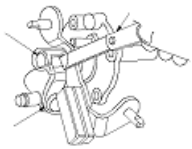
2. Inspect the runout by supporting both ends of the countershaft. Rotate the countershaft two complete revolutions when measuring the runout. If the runout exceeds the service limit, replace the countershaft with a new one.



Standard: 0.02 mm (0.001 in.) max.
Service Limit: 0.05 mm (0.002 in.)

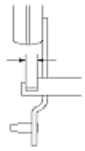
M/T Change Lever Clearance Inspection

1. Measure the clearance between change lever (A) and the select lever (B) with a feeler gauge (C). If the clearance is more than the service limit, go to Step 2 .
   Standard: **0.05−0.35 mm (0.002−0.014 in.)**
   Service Limit: **0.55 mm (0.022 in.)**



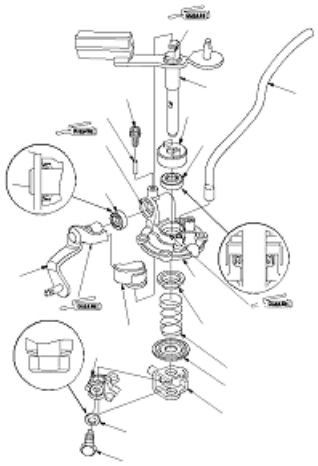
2. Measure the groove width of the change lever.
   - If distance is not within the standard, replace the change lever with a new one.
   - If distance is within the standard, replace the select lever with a new one.

   Standard: **13.00−13.15 mm (0.512−0.518 in.)**



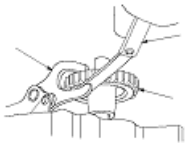
M/T Change Lever Assembly Disassembly/Reassembly

NOTE: Prior to reassembling, clean all the parts in solvent, dry them, and apply grease to contact surfaces as shown.



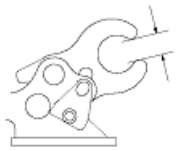
M/T Reverse Shift Fork Clearance Inspection

1. Measure the clearance between reverse idler gear (A) and the reverse shift fork (B) with a feeler gauge (C). If the clearance is more than the service limit, go to Step 2 .
   Standard: **1.30−1.90 mm (0.051−0.075 in.)**
   Service Limit: **2.5 mm (0.098 in.)**



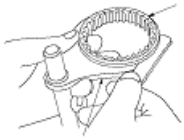
2. Measure the width of the reverse shift fork.
   - If distance is not within the standard, replace the reverse shift fork with a new one.
   - If distance is within the standard, replace the reverse idler gear with a new one.

   Standard: **13.5−13.8 mm (0.53−0.54 in.)**

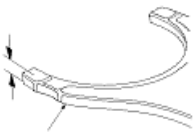


M/T Shift Forks Clearance Inspection

NOTE: The synchro sleeve and synchro hub should be replaced as a set.

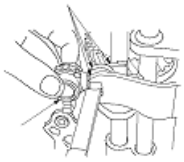


1. Measure the clearance between each shift fork (A) and its matching synchro sleeve (B). If the clearance exceeds the service limit, go to Step 2 .
   Standard: **0.35−0.65 mm (0.014−0.026 in.)**
   Service Limit: **1.0 mm (0.04 in.)**



2. Measure the thickness of the shift fork (A) fingers.
   - If the thickness of the shift fork finger is not within the standard, replace the shift fork with a new one.
   - If the thickness of the shift fork finger is within the standard, replace the synchro sleeve with a new one.

   Standard:
   1st/2nd, 3rd/4th shift forks: **7.4−7.6 mm (0.29−0.30 in.)**
   5th shift fork: **6.7−6.9 mm (0.26−0.27 in.)**



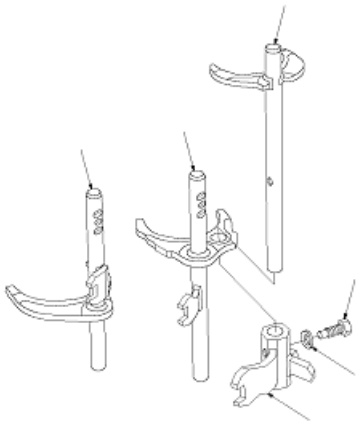
3. Measure the clearance between the shift forks (A) and the shift arm (B). If the clearance exceeds the service limit, go to Step 4 .
   Standard: **0.2−0.5 mm (0.008−0.020 in.)**
   Service Limit: **0.62 mm (0.024 in.)**

4. Measure the width of the shift arm (A).
   - If the width of the shift arm is not within the standard, replace the shift arm with a new one.
   - If the width of the shift arm is within the standard, replace the shift fork or shift piece with a new one.

   Standard: **12.9−13.0 mm (0.508−0.512 in.)**

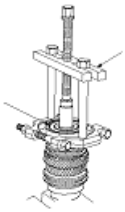
M/T Shift Forks Disassembly/Reassembly

NOTE: Prior to reassembling, clean all the parts in solvent, dry them, and apply MTF to all contact surfaces.



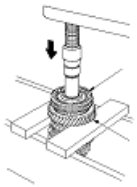
M/T Mainshaft Disassembly

Special Tools Required

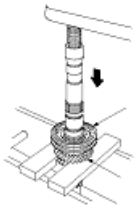


Bearing separator set
07631-0010000
NOTE: Refer to the Exploded View in the mainshaft Reassembly as need removing components except pressing into the mainshaft.

1. Remove the angular ball bearing (A) using bearing separator set (B).
2. Remove the tapered cone ring, distance collar, synchro ring and 5th synchro sleeve.



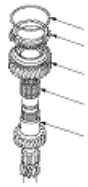
3. Support 5th gear (A) on steel blocks, and press the mainshaft out of the 5th synchro hub (B).
   NOTE: Do not use a jaw-type puller; it can damage the gear teeth.



4. Support the 3rd gear (A) on steel blocks, and press the mainshaft out of the 3rd/4th synchro hub (B).
   NOTE: Do not use a jaw-type puller; it can damage the gear teeth.

M/T Mainshaft Reassembly

Exploded View



Special Tools Required

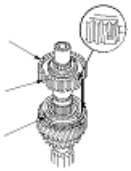
Inner driver handle, 40 mm
07746-0030100

Inner bearing driver attachment, 30 mm
07746-0030300

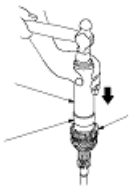
NOTE: Refer to the Exploded View, as needed during this procedure.

1. Clean all the parts in solvent, dry them, and apply lubricant all contact surfaces except the 3rd/4th and 5th synchro hubs.
2. Install the needle bearing (A) and 3rd gear (B) onto the mainshaft (C).
3. Install the synchro ring (D) with the synchro spring (E) onto the 3rd gear.

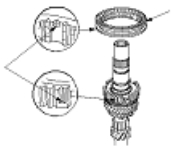
4. Install the 3rd/4th synchro hub (A) by aligning the synchro ring fingers (B) with the grooves (C) in the 3rd/4th synchro hub.
   NOTE: Make sure the installing direction of the 3rd/4th synchro hub.



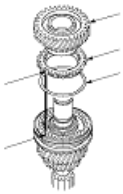
5. Press in the 3rd/4th synchro hub (A) using the 40 mm inner driver handle (B) and 30 mm inner bearing driver attachment (C).



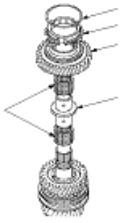
6. Install the 3rd/4th synchro sleeve (A) by aligning the stops (B) of the 3rd/4th synchro sleeve and 3rd/4th synchro hub. After installing, check the operation of the 3rd/4th synchro hub set.



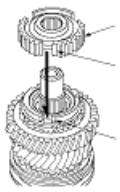
7. Install the synchro ring (A) with the synchro spring (B) by aligning the synchro ring fingers (C) with the grooves (D) in the 3rd/4th synchro hub.
8. Install 4th gear (E) onto the synchro ring.



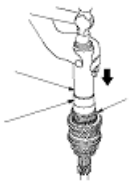
9. Install the 4th/5th gear distance collar (A) with the needle bearings (B) and 5th gear (C).
10. Install the synchro ring (D) with the synchro spring (E) onto the 5th gear.



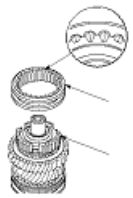
11. Install the 5th synchro hub (A) by aligning the synchro ring fingers (B) with the grooves (C) in the 5th synchro hub.



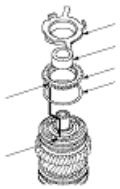
12. Press in the 5th synchro hub (A) using the 40 mm inner driver handle (B) and 30 mm inner bearing driver attachment (C).



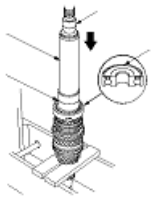
13. Install the 5th synchro sleeve (A) by aligning the slots of the 5th synchro sleeve and the 5th synchro hub (B). After installing, check the operation of the 5th synchro hub set.
NOTE: The slots layout is inequable. Set correctly them.



14. Install the synchro ring (A) with the synchro spring (B) by aligning the synchro ring fingers (C) with the grooves (D) in the 5th synchro hub.
15. Install the distance collar (E) and tapered cone ring (F).

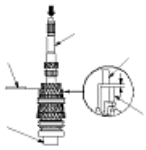


16. Press in the new angular ball bearing (A) using the 40 mm inner driver handle (B) 30 mm inner bearing driver attachment (C) and press (D).



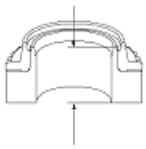
M/T Mainshaft Assembly Clearance Inspection

NOTE: If replacement is required, always replace the synchro sleeve and hub as a set.



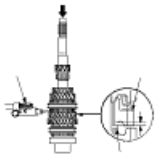
1. Support the bearing inner race with a socket (A), and push down on the mainshaft (B).
2. Measure the clearance between 2nd (C) and 3rd (D) gears with a feeler gauge (E).
   - If the clearance is more than the service limit, go to Step 3 .
   - If the clearance is within the service limit, go to Step 4 .

   Standard: **0.06–0.21 mm (0.002–0.008 in.)**
   Service Limit: **0.33 mm (0.013 in.)**



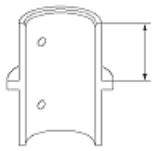
3. Measure the thickness of 3rd gear.
   - If the thickness of 3rd gear is less than the service limit, replace 3rd gear with a new one.
   - If the thickness of 3rd gear is within the service limit, replace the 3rd/4th synchro hub with a new one.

   Standard: **27.92–27.97 mm (1.099–1.101 in.)**
   Service Limit: **27.85 mm (1.096 in.)**



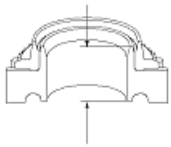
4. Measure the clearance between 4th gear (A) and the distance collar (B) with a dial indicator (C). If the clearance is more than the service limit, go to Step 5 .

   Standard: **0.06–0.19 mm (0.002–0.007 in.)**
   Service Limit: **0.31 mm (0.012 in.)**



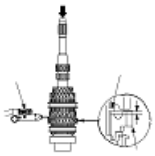
5. Measure distance (1) on the spacer collar.
   - If distance (1) is not within the standard, replace the distance collar with a new one.
   - If distance (1) is within the standard, go to Step 6 .

   Standard: **24.03–24.06 mm (0.946–0.947 in.)**



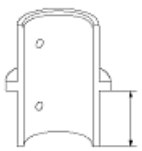
6. Measure the thickness of 4th gear.
   - If the thickness of 4th gear is less than the service limit, replace 4th gear with a new one.
   - If the thickness of 4th gear is within the service limit, replace the 3rd/4th synchro hub with a new one.

   Standard: **27.02–27.07 mm (1.064–1.066 in.)**
   Service Limit: **26.65 mm (1.049 in.)**



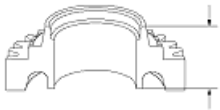
7. Measure the clearance between the distance collar (A) and 5th gear (B) with a dial indicator (C). If the clearance is more than the service limit, go to Step 8 .

   Standard: **0.06–0.19 mm (0.002–0.007 in.)**
   Service Limit: **0.31 mm (0.012 in.)**



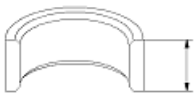
8. Measure distance (2) on the distance collar.
   - If distance (2) is not within the standard, replace the distance collar with a new one.
   - If distance (2) is within the standard, go to Step 9 .

   Standard: **24.03–24.06 mm (0.946–0.947 in.)**



9. Measure the thickness of 5th gear.
   - If the thickness of 5th gear is less than the service limit, replace 5th gear with a new one.
   - If the thickness of 5th gear is within the service limit, replace the 5th synchro hub with a new one.

   Standard: **28.92–28.97 mm (1.139–1.141 in.)**
   Service Limit: **28.85 mm (1.136 in.)**



10. Measure the thickness of the distance collar.
    If the thickness of distance collar is not within standard, replace the distance collar with a new one.

    Standard: **12.00–12.05 mm (0.472–0.474 in.)**

M/T Mainshaft Inspection

1. Inspect the gear surface and bearing surface for wear and damage, then measure the mainshaft at points A, B, C, D and E. If any part of the mainshaft is less than the service limit (except E), replace it with a new one.

Standard:

A (Ball bearing contact area):

25.987−26.000 mm (1.0231−1.0236 in.)

B (Distance collar contact area):

28.992−29.005 mm (1.1414−1.1419 in.)

C (Needle bearing contact area):

34.984−35.000 mm (1.3773−1.3780 in.)

D (Ball bearing contact area):

25.977−25.990 mm (1.0227−1.0232 in.)

E (Pilot bearing contact area):

14.870−14.890 mm (0.5854−0.5862 in.)

Service Limit:

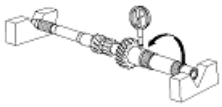
A: 25.93 mm (1.020 in.)

B: 28.93 mm (1.139 in.)

C: 34.93 mm (1.375 in.)

D: 25.92 mm (1.020 in.)

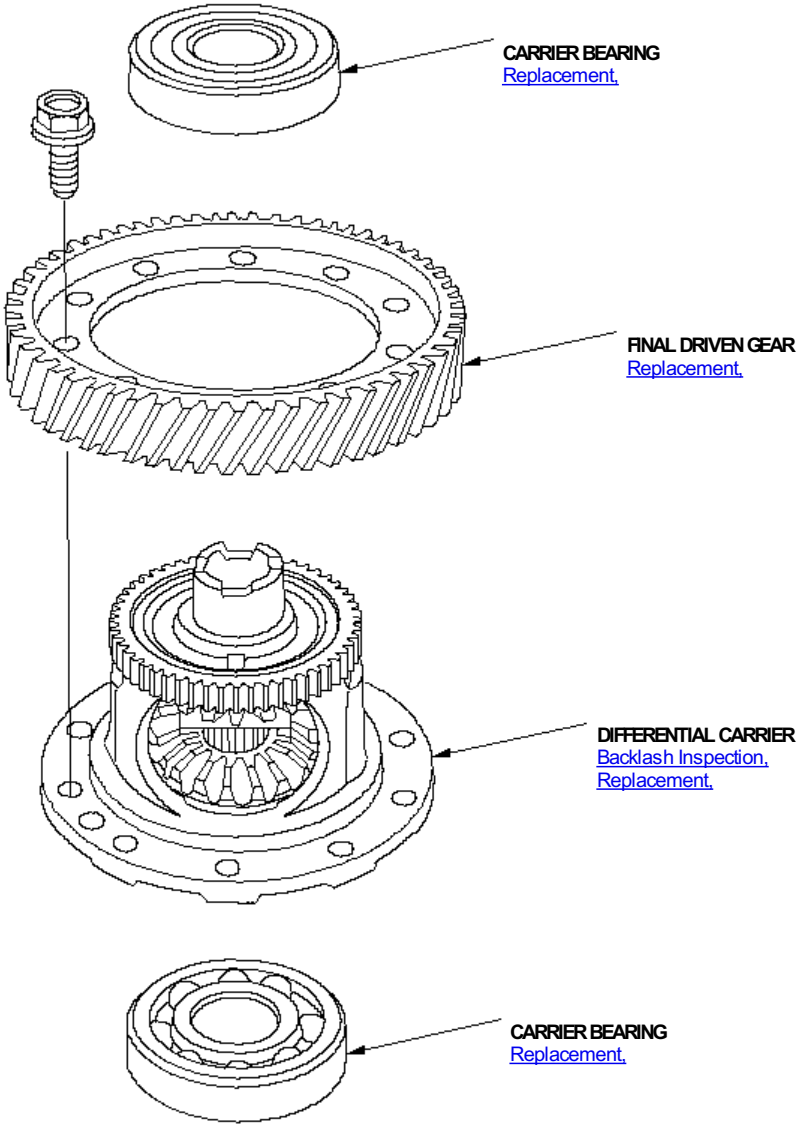
2. Inspect the runout by supporting both ends of the mainshaft. Rotate the mainshaft two complete revolutions when measuring the runout. If the runout is more than the service limit, replace the mainshaft with a new one.



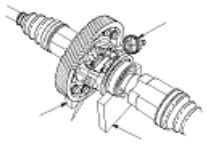
Standard: 0.02 mm (0.001 in.) max.

Service Limit: 0.05 mm (0.002 in.)

M/T Differential Component Location Index



M/T Differential Backlash Inspection



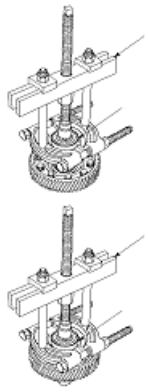
1. Place the differential assembly on V-blocks (A), and install both axles.
2. Measure the backlash of both pinion gears (B) with a dial indicator (C). If the backlash is not within the standard, replace the differential carrier.
   Standard (New): **0.05−0.15 mm (0.002−0.006 in.)**

M/T Differential Carrier Bearings Replacement

Special Tools Required

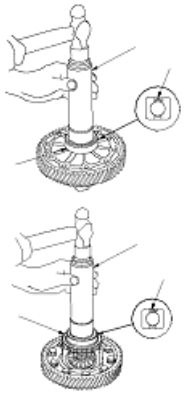
Commercially available
bearing puller

Inner driver handle, 40 mm
07746-0030100



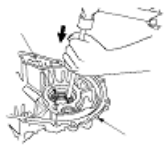
1. Check the carrier bearings for wear and rough rotation. If they rotate smoothly and their rollers show no signs of wear, the bearings are OK.
2. Remove the carrier bearings (A) with commercially available bearing puller (B).

3. Install the new bearing (A) with the 40 mm inner driver handle and a press. Press each bearing on until it bottoms. There should be no clearance between the bearings and the carrier.
   NOTE: Turn the seal (B) part of the bearing to the outside of differential, and install it.



M/T Differential Oil Seal Replacement

Special Tools Required

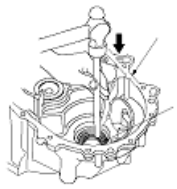


Driver handle, 15 x 135L
07749-0010000

Oil seal driver attachment, 62 x 72 mm
07JAD-PN00100

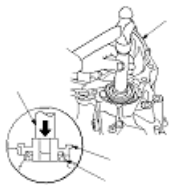
1. Remove the differential assembly.
   NOTE: Be careful not to damage the transmission housing while removing the oil seals.
2. Remove the oil seal (A) from the transmission housing (B).

3. Remove the oil seal (A) from the clutch housing (B).



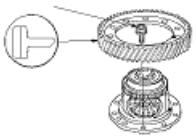
4. Install the new oil seal (A) in the transmission housing (B) with the 15 x 135L driver handle (C) and the 64 x 72 mm oil seal driver attachment (D).

5. Install the new oil seal (A) in the clutch housing (B) with the 15 x 135L driver handle (C) and the 64 x 72 mm oil seal driver attachment (D).



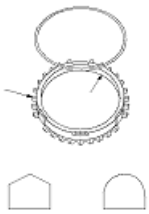
M/T Differential Final Driven Gear/Carrier Replacement

1. Remove the bolts in a crisscross pattern in several steps, then remove the final driven gear from the differential carrier.
2. Install the final driven gear with the chamfer on the inside diameter facing the carrier. Tighten the bolts in a crisscross pattern in several steps.

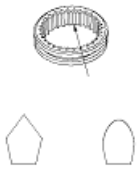


M/T Synchro Ring and Gear Inspection

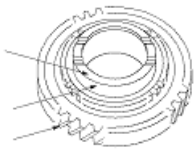
1. Inspect the inside of each synchro ring (A) for wear. Inspect the teeth (B) of each synchro ring for wear (rounded off).



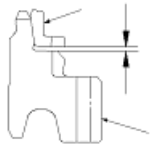
2. Inspect the teeth (A) on each synchro sleeve and matching teeth on each gear for wear (rounded off).



3. Inspect the thrust surface (A) on each gear hub for wear.
4. Inspect the cone surface (B) on each gear hub for wear and roughness.
5. Inspect the teeth on all gears (C) for uneven wear, scoring, and cracks.
6. Coat the cone surface of each gear with transmission fluid, and place its synchro ring on it. Rotate the synchro ring, making sure that it does not slip.

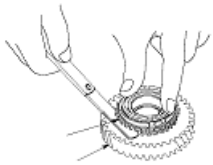


7. Measure the clearance between each gear (A) and its synchro ring (B) all the way round. Hold the synchro ring against the gear evenly while measuring the clearance. If the clearance is less than the service limit, replace the synchro ring and gear.



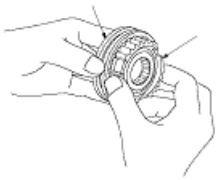
Synchro Ring-to-Gear Clearance

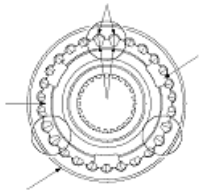
Standard:	**0.85−1.10 mm (0.033−0.043 in.)**
Service Limit:	**0.4 mm (0.02 in.)**



M/T Synchro Sleeve and Hub Inspection and Reassembly

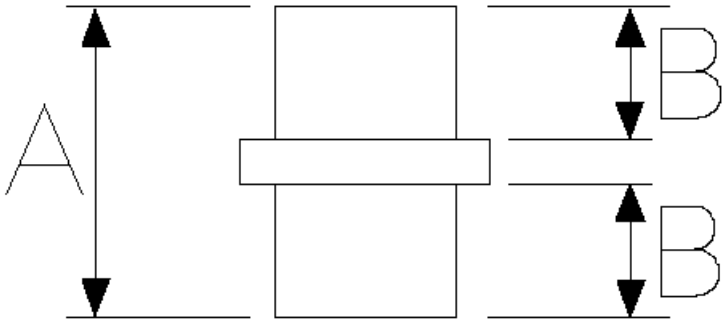
1. Inspect gear teeth on all synchro hubs and synchro sleeves for rounded off corners, which indicate wear.
2. Install each synchro hub (A) in its mating synchro sleeve (B), and check for freedom of movement. Be sure to match the three sets of longer teeth (C) (120 degrees apart) on the synchro sleeve with the three sets of deeper grooves (D) in the synchro hub. Do not install the synchro sleeve with its longer teeth in the synchro hub slots (E) because it will damage the spring ring.
   NOTE: If replacement is required, always replace the synchro sleeve and synchro hub as a set.





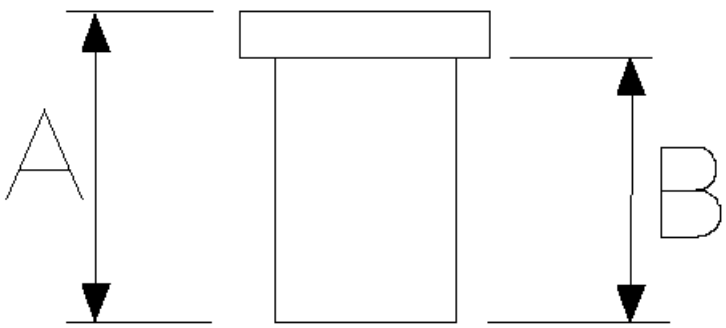
Manual Transmission and M/T Differential (Except i-SHIFT)

Item	Measurement	Qualification	Standard or New	Service Limit
Manual transmission fluid	Capacity Use genuine Honda MTF	Fluid change	1.5 L (1.6 US qt, 1.3 Imp qt)	
		Overhaul	1.6 L (1.7 US qt, 1.4 Imp qt)	
Mainshaft	End play		0.11–0.18 mm (0.004–0.007 in.)	Adjust
	Diameter of ball bearing contact area (transmission housing side)		25.987–26.000 mm (1.0231–1.0236 in.)	25.93 mm (1.020 in.)
	Diameter of distance collar contact area		28.992–29.005 mm (1.1414–1.1419 in.)	28.93 mm (1.139 in.)
	Diameter of needle bearing contact area		34.984–35.000 mm (1.3773–1.3780 in.)	34.93 mm (1.375 in.)
	Diameter of ball bearing contact area (clutch housing side)		25.977–25.990 mm (1.0227–1.0232 in.)	25.92 mm (1.020 in.)
	Diameter of pilot bearing contact area		14.870–14.890 mm (0.5854–0.5862 in.)	———
	Runout		0.02 mm (0.001 in.) max.	0.05 mm (0.002 in.)
Mainshaft 3rd and 4th gear	I.D.		39.009–39.025 mm (1.5358–1.5364 in.)	39.07 mm (1.538 in.)
	Clearance	2nd-3rd	0.06–0.21 mm (0.002–0.008 in.)	0.33 mm (0.013 in.)
	Endplay	4th	0.06–0.19 mm (0.002–0.007 in.)	0.31 mm (0.012 in.)
	Thickness	3rd	27.92–27.97 mm (1.099–1.101 in.)	27.85 mm (1.096 in.)
		4th	27.02–27.07 mm (1.064–1.066 in.)	26.65 mm (1.049 in.)
Mainshaft 5th gear	I.D.		39.009–39.025 mm (1.5358–1.5364 in.)	39.07 mm (1.538 in.)
	End play		0.06–0.19 mm (0.002–0.007 in.)	0.31 mm (0.012 in.)
	Thickness		28.92–28.97 mm (1.139–1.141 in.)	28.85 mm (1.136 in.)
Mainshaft 4th/5th gear distance collar	I.D.		29.014–29.024 mm (1.1423–1.1427 in.)	29.06 mm (1.144 in.)
	O.D.		34.989–35.000 mm (1.3775–1.3780 in.)	34.93 mm (1.375 in.)
	Length	A	51.97–52.03 mm (2.046–2.048 in.)	———
			.946–0.947 in.)	———
MBS distance collar			1.024–1.030 in.)	———
			.472–0.474 in.)	———



Manual Transn

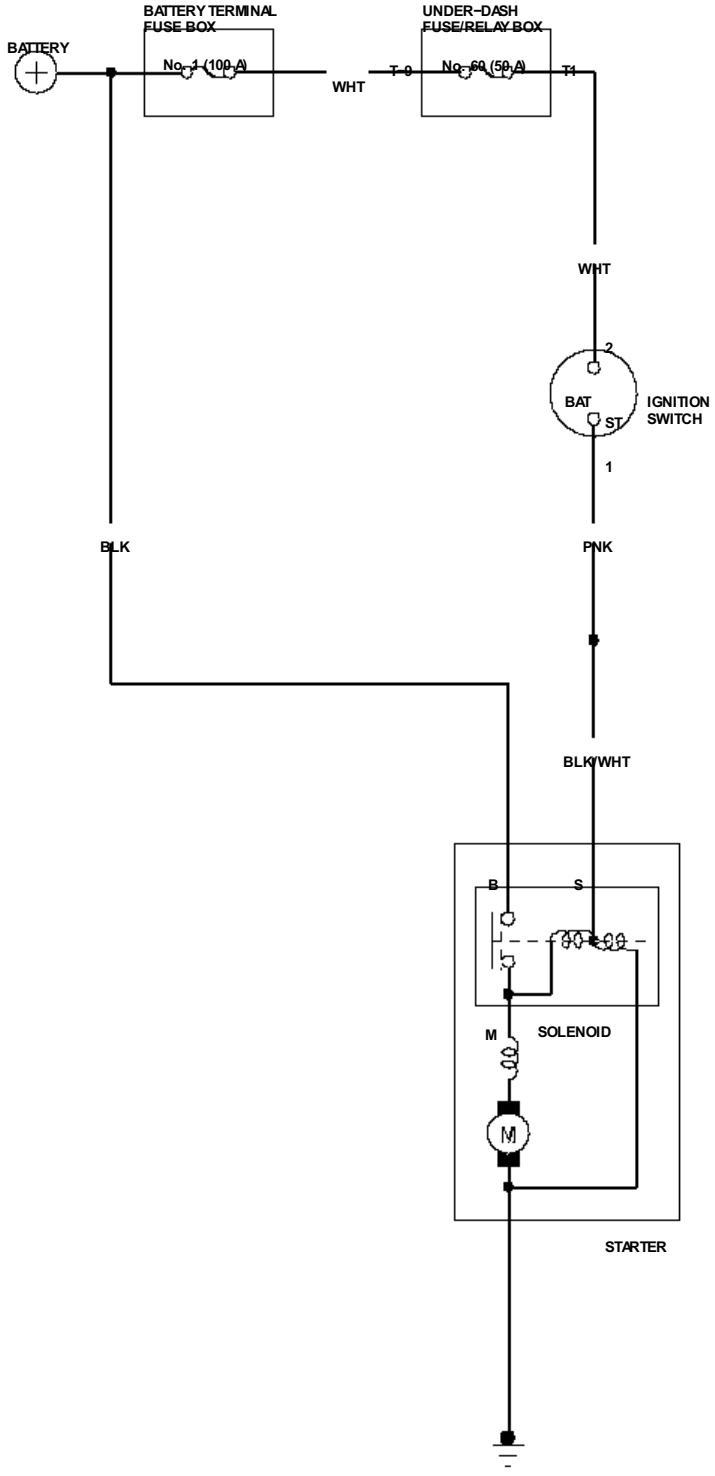
Item			ard or New	Service Limit
Countershaft			(1.3386–1.3392 in.)	33.95 mm (1.337 in.)
			(0.9835–0.9840 in.)	24.93 mm (0.981 in.)
			(1.4365–1.4370 in.)	36.44 mm (1.4346 in.)
			max.	0.05 mm (0.002 in.)
Countershaft 1st gear			(1.9098–1.9104 in.)	48.580 mm (1.9126 in.)
			1–0.005 in.)	0.24 mm (0.009 in.)
			080–1.081 in.)	27.39 mm (1.078 in.)
Countershaft 2nd gear	I.D.		45.009–45.025 mm (1.7720–1.7726 in.)	45.07 mm (1.774 in.)
	End play		0.04–0.12 mm (0.002–0.005 in.)	0.24 mm (0.009 in.)
	Thickness		27.41–27.46 mm (1.079–1.081 in.)	27.36 mm (1.077 in.)
Countershaft 1st gear distance collar	I.D.		36.50–36.51 mm (1.4370–1.4373 in.)	36.52 mm (1.4378 in.)
	O.D.		44.489–45.000 mm (1.7515–1.7717 in.)	44.44 mm (1.7500 in.)
	Length	A	30.50–30.54 mm (1.2007–1.2023 in.)	———
			044–1.046 in.)	———
Countershaft 2nd gear distance collar			(1.3386–1.3390 in.)	34.04 mm (1.340 in.)
			(1.5744–1.5748 in.)	39.93 mm (1.572 in.)
			084–1.085 in.)	27.51 mm (1.083 in.)
Reverse idler gear			(0.5912–0.5922 in.)	15.08 mm (0.594 in.)
			0012–0.0030 in.)	0.14 mm (0.006 in.)
Synchro ring			3–0.043 in.)	0.4 mm (0.02 in.)
Shift fork			.30 in.)	———
			.27 in.)	———
			4–0.026 in.)	1.0 mm (0.04 in.)
Reverse shift fork			–0.54 in.)	———
			1–0.075 in.)	2.5 mm (0.098 in.)
Shift arm			(0.5501–0.5512 in.)	———
			8–0.512 in.)	———
			0.020 in.)	0.62 mm (0.024 in.)
Select lever	Finger width		12.80–12.95 mm (0.504–0.510 in.)	———
Change lever	Shaft-to-select lever clearance		0.05–0.35 mm (0.002–0.014 in.)	0.55 mm (0.022 in.)
	Groove width		13.00–13.15 mm (0.512–0.518 in.)	———



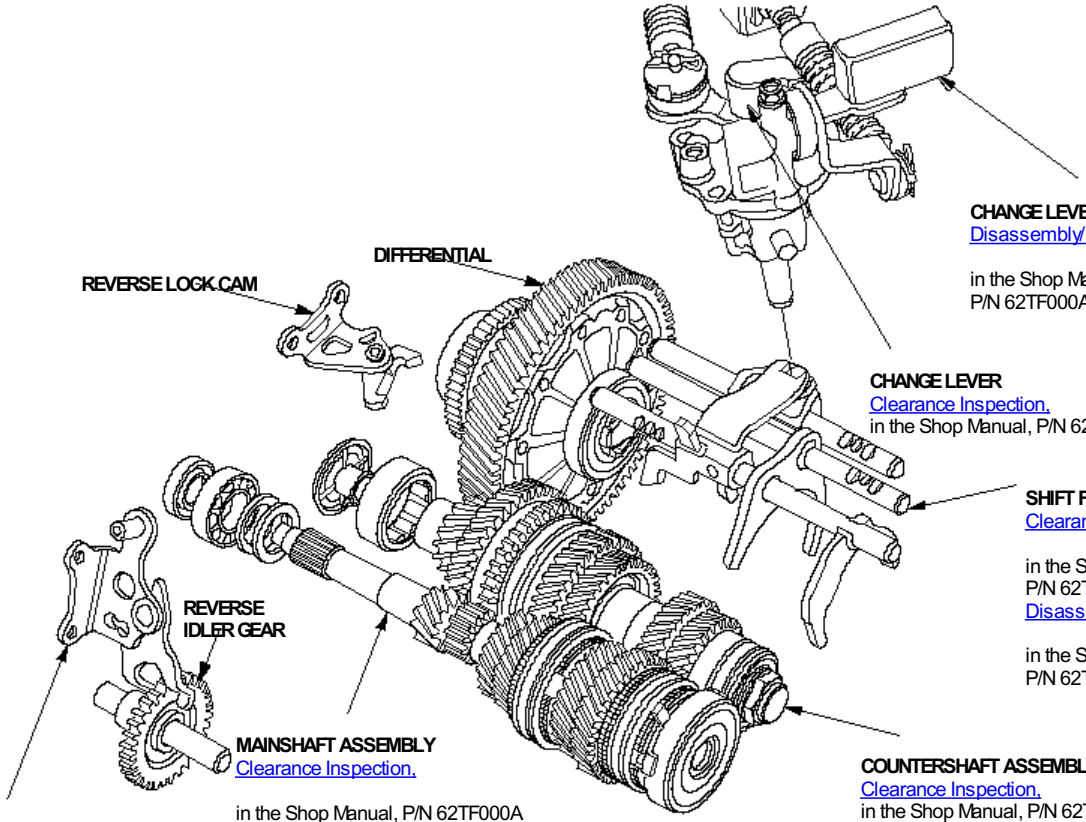
Item	Measurement	Qualification	Standard or New	Service Limit
	Shaft-to-shift arm clearance		0.013−0.070 mm (0.0005−0.0028 in.)	0.1 mm (0.004 in.)
M/T differential pinion gear	Backlash		0.05−0.15 mm (0.002−0.006 in.)	———
M/T differential 72 mm shim (L12B1, L13Z1)	72 mm shim-to-bearing outer race clearance in transmission housing		0.01−0.1 mm (0.0004−0.004 in.)	Adjust
M/T differential 80 mm shim (L15A7)	80 mm shim-to-bearing outer race clearance in transmission housing		0.01−0.1 mm (0.0004−0.004 in.)	Adjust

Starting System Circuit Diagram

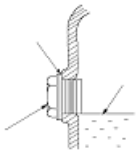
M/T model



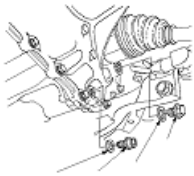
M/T Component Location Index



MTF Inspection and Replacement



1. Park the vehicle on level ground, and turn the engine OFF.
2. Raise the vehicle on a lift and make sure it is securely supported.
3. Remove the splash shield.
4. Remove the filler plug (A) and sealing washer (B), check the condition of the MTF and make sure it is at the proper level (C).



5. If the MTF is dirty, remove the drain plug (A) and drain the MTF.
6. Reinstall the drain plug with a new sealing washer (B), and refill the transmission with MTF to the proper level. Always use Genuine Honda Manual Transmission Fluid (MTF).

   Fluid Capacity

   1.5 L (1.6 US qt, 1.3 Imp qt) at fluid change
   1.6 L (1.7 US qt, 1.4 Imp qt) at overhaul

7. Install the filler plug (C) with a new sealing washer (D).
8. Install the splash shield.
9. Lower the vehicle on the lift.
10. Without service reminder system, this procedure is complete.

With service reminder system

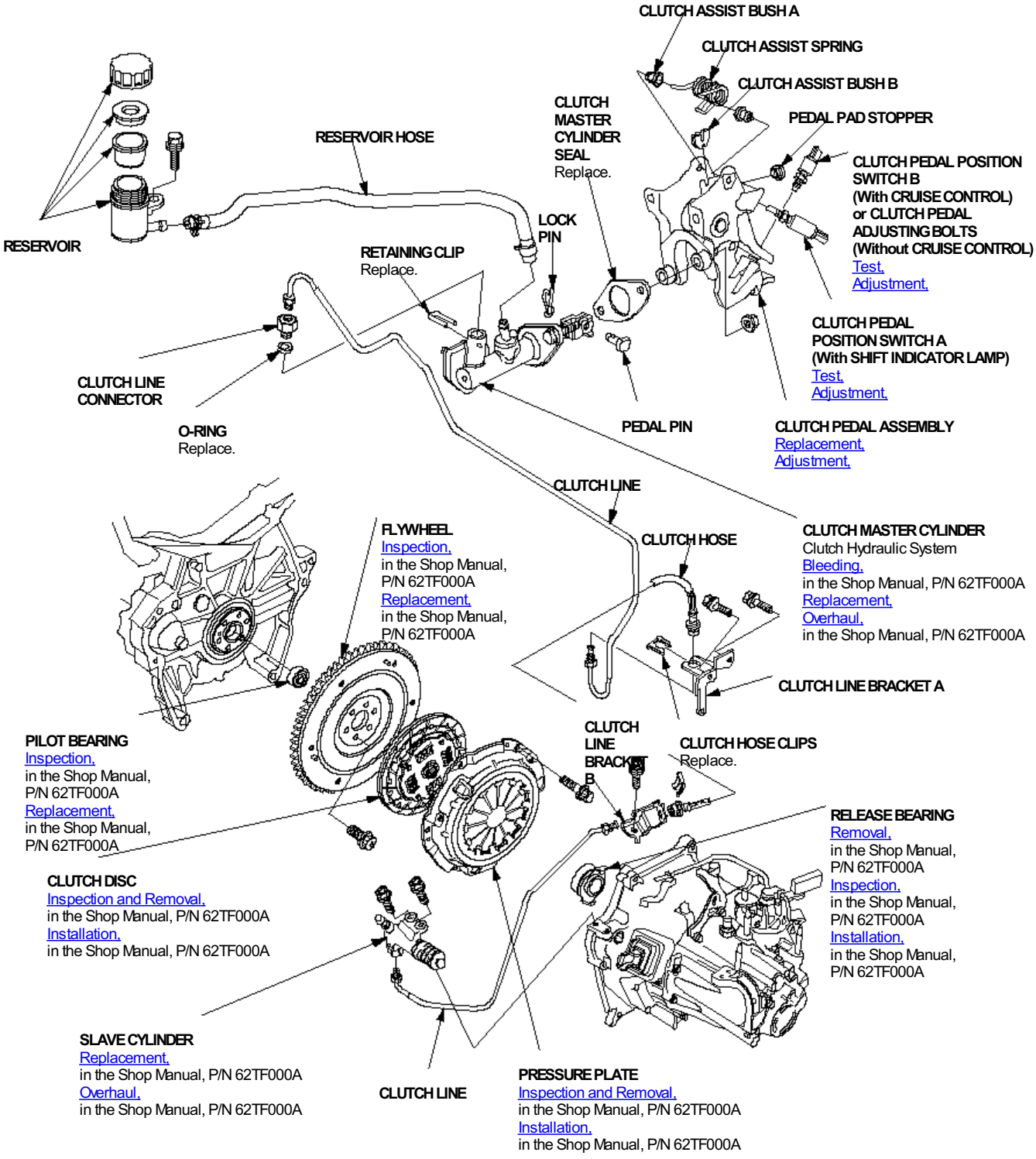
11. If the service reminder system required to replace the MTF, reset the service reminder system, and this procedure is complete. If the service reminder system did not require to replace the MTF, go to Step 12 and reset the MTF life with the HDS.
12. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC).
13. Turn the ignition switch to ON (II).
14. Make sure the HDS communicates with the vehicle and the ECM. If it doesn't communicate, troubleshoot the DLC circuit.
15. Select BODY ELECTRICAL with the HDS.
16. Select ADJUSTMENT in the GAUGES MENU with the HDS.
17. Select SERVICE REMINDER in the EU MAINTENANCE MINDER with the HDS.
18. Reset SERVICE REMINDER ITEM 3 (shows MTF) with the HDS.

Manual transmission fluid

Item	Measurement	Qualification	Standard or New	Service Limit
Manual transmission fluid	Capacity Use genuine Honda MTF	Fluid change	1.5 L (1.6 US qt, 1.3 Imp qt)	
		Overhaul	1.6 L (1.7 US qt, 1.4 Imp qt)	

Clutch Component Location Index

NOTE: RHD model is shown, LHD model is similar.

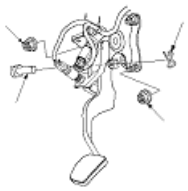


Clutch disc

Item	Measurement	Qualification	Standard or New	Service Limit
Clutch disc	Rivet head depth		1.00−1.50 mm (0.039−0.059 in.)	0.2 mm (0.008 in.)
	Thickness		7.25−7.95 mm (0.285−0.313 in.)	5.0 mm (0.20 in.)

Clutch Master Cylinder Replacement

NOTE:



- Use fender covers to avoid damaging painted surfaces.
- Do not spill brake fluid on the vehicle; it may damage the paint or plastic. If brake fluid does contact the paint or plastic, wash it off immediately with water.
- Without cruise control: Clutch pedal adjusting bolt is substituted as clutch pedal position switch B.
- Put on gloves to protect your hands.

1. Secure the hood in the wide open position (support rod in the lower hole).
2. Remove the windshield wiper arms.
3. Remove the cowl cover and hood hinge cover.
4. Remove the wiper motor.
5. Remove the under-cowl panel.
6. LHD model: Remove the air cleaner housing.
7. Remove the brake fluid from the clutch master cylinder reservoir with a syringe.
8. Remove the driver's dashboard under cover.
9. Pry out the lock pin (A), and pull the pedal pin (B) out of the yoke. Remove the master cylinder mounting nuts (C).

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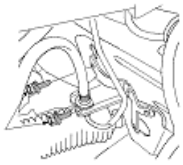
10. LHD model: Remove the clutch pipe bracket bolts (A).
11. LHD model: Remove the reservoir hose from two clips.



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12. Disconnect the reservoir hose (A), then remove the clutch line (B) from the clutch master cylinder (C). Plug or wrap the end of the reservoir hose and clutch line with a shop towel to prevent brake fluid from coming out.
    NOTE:
    - Loosen the flare nut (D) while holding the clutch line connector (E) with a wrench.
    - Inspect the hose. If the hose has damage, leaks interference, or twisting, replace it.
13. Remove the clutch master cylinder seal (F) from the clutch master cylinder.

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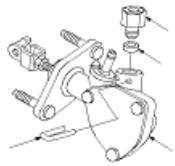
14. Remove the retaining clip (A), then remove the clutch line connector (B) and the O-ring (C) from the master cylinder (D).



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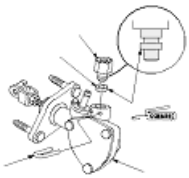
15. Install the clutch line connector (A) with a new O-ring (B), then set in a new retaining clip (C) to the master cylinder (D).
    NOTE: Apply the rubber grease on the O-ring and joint part (E) of the clutch line connector.



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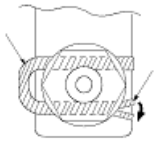
16. To prevent the retaining clip (A) from coming off, pry apart the tip (B) of the clip with a screwdriver.



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17. Install the new clutch master cylinder seal (A) to the clutch master cylinder (B).
18. Connect the clutch line (C), and reservoir hose (D).
    NOTE: Tighten the flare nut (E) while holding the clutch line connector (F) with a wrench.
19. LHD model: Install the two reservoir hose clips.

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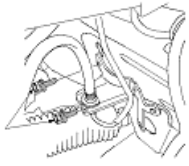
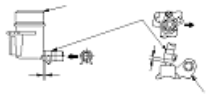
20. LHD model: Install the clutch pipe bracket bolts (A).

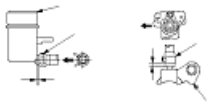


21. Make sure the hose clamps (A) are positioned on the master cylinder (B) and reservoir (C) as shown.
22. LHD model: Install the air cleaner housing.

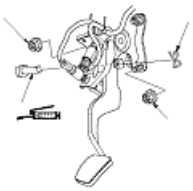
LHD model



RHD model



23. Install the master cylinder mounting nuts (A).
24. Apply multipurpose grease to the pedal pin (B), and slide it into the yoke, then install a lock pin (C).
25. Adjust the clutch pedal, clutch pedal position switch A, and clutch pedal position switch B.
26. Bleed the clutch hydraulic system.
27. Install the driver dashboard under cover.
28. Install the under-cowl panel.
29. Install the wiper motor.
30. Install the cowl cover and hood hinge cover.
31. Install the windshield wiper arms.
32. Check the clutch operation, and check for leaks.
33. Test-drive the vehicle.



Clutch Pedal Assembly Replacement

NOTE:

- Without cruise control: The adjusting bolt is substituted as clutch pedal position switch B.
- The illustrations show RHD model.

1. Remove the driver's dashboard under cover .
2. Disconnect the clutch pedal position switch A and the clutch pedal position switch B connectors (C).
3. Pry out the lock pin (D), and pull the pedal pin (E) out of the yoke.
4. Remove the master cylinder mounting nuts (F) and the clutch pedal mounting nuts (G).
5. Remove the clutch pedal assembly (H).
6. Remove clutch pedal position switch A and clutch pedal position switch B.

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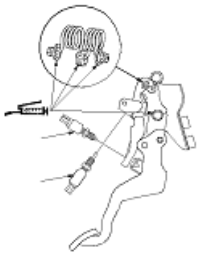
7. Loosely install clutch pedal position switch A and clutch pedal position switch B.



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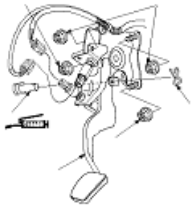
8. Install the clutch pedal assembly (A).
9. Install the clutch pedal mounting nuts (B) and master cylinder mounting nuts (C).
10. Apply multipurpose grease to the pedal pin (D), and slide it into the yoke, then install a lock pin (E).
11. Adjust the clutch pedal, clutch pedal position switch A, and clutch pedal position switch B.
    NOTE: Connect the switch connectors after adjusting them.
12. Check the clutch operation.
13. Install the driver's dashboard under cover .



Clutch Pedal, Clutch Pedal Position Switch A, and Clutch Pedal Position Switch B Adjustment

NOTE:

- With cruise control: For cruise control, check clutch pedal position switch B.
- With shift indicator lamp: For shift indicator, check clutch pedal position switch A.
- Without cruise control: The adjusting bolt is substituted as clutch pedal position switch B. The clutch pedal height adjustment is same procedure as with clutch pedal position switch B.
- Remove the driver's floor mat before adjusting the clutch pedal.
- If there is no clearance between the master cylinder piston and push rod, the release bearing will be held against the diaphragm spring, which can result in clutch slippage or other clutch problems.

1. Disconnect the clutch pedal position switch A and the clutch pedal position switch B connectors.
2. Loosen the clutch pedal position switch B locknut (A), and back off the clutch pedal position switch B until it no longer touches the clutch pedal (C).
3. Loosen the clutch pushrod locknut (D), and turn the pushrod (E) in or out to get the specified height (F), and the stroke (G) at the clutch pedal.
   F Clutch Pedal Height:
   LHD model: 150 mm (5.91 in.)
   RHD model: 145 mm (5.71 in.)

   G Clutch Pedal Stroke:
   120−130 mm (4.72−5.12 in.)

4. Tighten the clutch pushrod locknut (A).
5. With the clutch pedal released, turn in clutch pedal position switch B until it contacts the clutch pedal.
6. Turn in clutch pedal position switch B an additional 3/4 to 1 turn.
7. While holding clutch pedal position switch B, tighten the locknut (C).

8. Loosen the clutch pedal position switch A locknut (B).
9. Adjust the position of clutch pedal position switch A. Press the clutch pedal fully to the floor, then release the clutch pedal (C) and hold it at the height, so that the switch should be ON/OFF at clutch pedal position switch A ON/OFF height.
   C Clutch Pedal Position Switch A ON/OFF Height:
   LHD model: 36.8−42.0 mm (1.45−1.65 in.)
   RHD model: 36.2−41.9 mm (1.43−1.65 in.)
10. While holding clutch pedal position switch A, tighten the locknut.
11. Check the clutch operation.
12. Connect the clutch pedal position switch A and the clutch pedal position switch B connectors, then check the cruise control and the shift indicator lamp operation.

Clutch pedal

Item	Measurement	Qualification	Standard or New	Service Limit
Clutch pedal	Height from the floor	RHD	145 mm (5.71 in.)	———
		LHD	150 mm (5.91 in.)	———
	Stroke		120−130 mm (4.72−5.12 in.)	———

Pressure plate

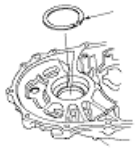
Item	Measurement	Qualification	Standard or New	Service Limit
Pressure plate	Warpage		0.03 mm (0.001 in.) max.	0.15 mm (0.006 in.)
	Height difference of diaphragm spring fingers measured with dial indicator		0.6 mm (0.02 in.) max.	1.0 mm (0.04 in.)

Flywheel

Item	Measurement	Qualification	Standard or New	Service Limit
Flywheel	Runout on clutch mating surface		0.05 mm (0.002 in.) max.	0.15 mm (0.006 in.)

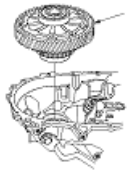
M/T Clutch Housing Differential Thrust Clearance Adjustment

Special Tools Required



Inner driver handle, 40 mm
07746-0030100

1. Remove the left driveshaft side oil seal.
2. Install the 72 mm shim (A) that's the same size as the one you removed.



3. Install the differential assembly (A) into the clutch housing.
4. Install the transmission housing onto the clutch housing, then tighten the 8 mm flange bolts in a crisscross pattern in several steps.
   8 x 1.25 mm
   27 N·m (2.8 kgf·m, 20 lbf·ft)

5. Use the 40 mm inner driver handle to bottom the differential assembly in the clutch housing.

6. Measure clearance between 72 mm shim and bearing outer race in transmission housing.
   Standard: 0.01−0.1 mm (0.0004−0.004 in.)
7. If the clearance is more than the standard, select a new 72 mm shim from the following table. If the clearance measured in Step 6 is within the standard, go to Step 10 .

72 mm Shim: L12B1 engine

Type	Part Number	Thickness
A	41441-PL3-A000	1.0 mm (0.0394 in.)
B	41442-PL3-A000	1.1 mm (0.0433 in.)
C	41443-PL3-A000	1.2 mm (0.0472 in.)
D	41444-PL3-A000	1.3 mm (0.0512 in.)
E	41445-PL3-A000	1.4 mm (0.0551 in.)
F	41446-PL3-A000	1.5 mm (0.0591 in.)
G	41447-PL3-A000	1.6 mm (0.0630 in.)
H	41448-PL3-A000	1.7 mm (0.0669 in.)
J	41449-PL3-A000	1.8 mm (0.0709 in.)
K	41450-PL3-A000	1.05 mm (0.0413 in.)
L	41451-PL3-A000	1.15 mm (0.0453 in.)
M	41452-PL3-A000	1.25 mm (0.0492 in.)
N	41453-PL3-A000	1.35 mm (0.0531 in.)
P	41454-PL3-A000	1.45 mm (0.0571 in.)
Q	41455-PL3-A000	1.55 mm (0.0610 in.)
R	41456-PL3-A000	1.65 mm (0.0650 in.)
S	41457-PL3-A000	1.75 mm (0.0689 in.)

8. Remove the bolts and transmission housing.
9. Replace the thrust shim selected in Step 7 , then recheck the clearance.
10. Install the new left driveshaft side oil seal.
11. Reinstall the transmission housing.

Reverse idler gear

Item	Measurement	Qualification	Standard or New	Service Limit
Reverse idler gear	I.D.		15.016−15.043 mm (0.5912−0.5922 in.)	15.08 mm (0.594 in.)
	Gear-to-reverse gear shaft clearance		0.032−0.077 mm (0.0012−0.0030 in.)	0.14 mm (0.006 in.)

M/T Countershaft Reassembly

Exploded View

Countershaft

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft	Diameter of needle bearing contact area (transmission housing side)		34.000−34.015 mm (1.3386−1.3392 in.)	33.95 mm (1.337 in.)
	Diameter of ball bearing contact area (clutch housing side)		24.980−24.993 mm (0.9835−0.9840 in.)	24.93 mm (0.981 in.)
	Diameter of distance collar contact area		36.487−36.500 mm (1.4365−1.4370 in.)	36.44 mm (1.4346 in.)
	Runout		0.02 mm (0.001 in.) max.	0.05 mm (0.002 in.)

Countershaft 1st gear

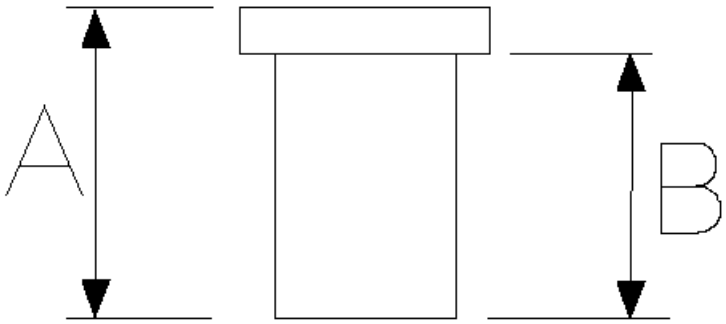
Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft 1st gear	I.D.		48.509−48.525 mm (1.9098−1.9104 in.)	48.580 mm (1.9126 in.)
	End play		0.03−0.12 mm (0.001−0.005 in.)	0.24 mm (0.009 in.)
	Thickness		27.42−27.47 mm (1.080−1.081 in.)	27.39 mm (1.078 in.)

Countershaft 2nd gear

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft 2nd gear	I.D.		45.009−45.025 mm (1.7720−1.7726 in.)	45.07 mm (1.774 in.)
	End play		0.04−0.12 mm (0.002−0.005 in.)	0.24 mm (0.009 in.)
	Thickness		27.41−27.46 mm (1.079−1.081 in.)	27.36 mm (1.077 in.)

Countershaft 1st gear distance collar

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft 1st gear distance collar	I.D.		36.50−36.51 mm (1.4370−1.4373 in.)	36.52 mm (1.4378 in.)
	O.D.		44.489−45.000 mm (1.7515−1.7717 in.)	44.44 mm (1.7500 in.)
	Length	A	30.50−30.54 mm (1.2007−1.2023 in.)	———
			044−1.046 in.)	———



Countershaft 2nd gear distance collar

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft 2nd gear distance collar	I.D.		34.000−34.010 mm (1.3386−1.3390 in.)	34.04 mm (1.340 in.)
	O.D.		39.989−40.000 mm (1.5744−1.5748 in.)	39.93 mm (1.572 in.)
	Length		27.53−27.56 mm (1.084−1.085 in.)	27.51 mm (1.083 in.)

Change lever

Item	Measurement	Qualification	Standard or New	Service Limit
Change lever	Shaft-to-select lever clearance		0.05−0.35 mm (0.002−0.014 in.)	0.55 mm (0.022 in.)
	Groove width		13.00−13.15 mm (0.512−0.518 in.)	———
	Shaft-to-shift arm clearance		0.013−0.070 mm (0.0005−0.0028 in.)	0.1 mm (0.004 in.)

Select lever

Item	Measurement	Qualification	Standard or New	Service Limit
Select lever	Finger width		12.80−12.95 mm (0.504−0.510 in.)	———

Reverse shift fork

Item	Measurement	Qualification	Standard or New	Service Limit
Reverse shift fork	Finger width		13.5−13.8 mm (0.53−0.54 in.)	———
	Fork-to-reverse idler gear clearance		1.30−1.90 mm (0.051−0.075 in.)	2.5 mm (0.098 in.)

Shift fork

Item	Measurement	Qualification	Standard or New	Service Limit
Shift fork	Finger thickness	1st-2nd and 3rd-4th forks	7.4−7.6 mm (0.29−0.30 in.)	———
		5th fork	6.7−6.9 mm (0.26−0.27 in.)	———
	Fork-to-synchro sleeve clearance		0.35−0.65 mm (0.014−0.026 in.)	1.0 mm (0.04 in.)

Shift arm

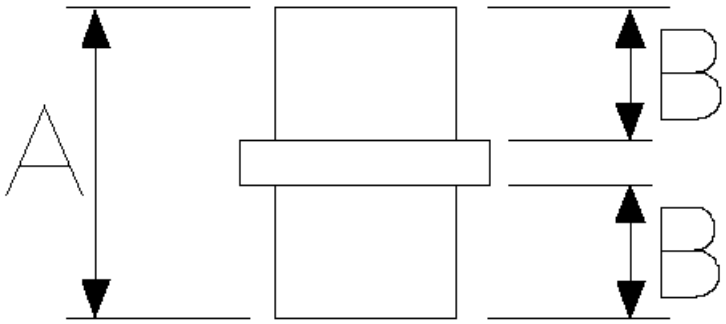
Item	Measurement	Qualification	Standard or New	Service Limit
Shift arm	I.D.		13.973−14.000 mm (0.5501−0.5512 in.)	———
	Finger width		12.9−13.0 mm (0.508−0.512 in.)	———
	Shift arm-to-shift fork clearance		0.2−0.5 mm (0.008−0.020 in.)	0.62 mm (0.024 in.)

Mainshaft

Item	Measurement	Qualification	Standard or New	Service Limit
Mainshaft	End play		0.11−0.18 mm (0.004−0.007 in.)	Adjust
	Diameter of ball bearing contact area (transmission housing side)		25.987−26.000 mm (1.0231−1.0236 in.)	25.93 mm (1.020 in.)
	Diameter of distance collar contact area		28.992−29.005 mm (1.1414−1.1419 in.)	28.93 mm (1.139 in.)
	Diameter of needle bearing contact area		34.984−35.000 mm (1.3773−1.3780 in.)	34.93 mm (1.375 in.)
	Diameter of ball bearing contact area (clutch housing side)		25.977−25.990 mm (1.0227−1.0232 in.)	25.92 mm (1.020 in.)
	Diameter of pilot bearing contact area		14.870−14.890 mm (0.5854−0.5862 in.)	———
	Runout		0.02 mm (0.001 in.) max.	0.05 mm (0.002 in.)

Mainshaft 4th/5th gear distance collar

Item	Measurement	Qualification	Standard or New	Service Limit
Mainshaft 4th/5th gear distance collar	I.D.		29.014−29.024 mm (1.1423−1.1427 in.)	29.06 mm (1.144 in.)
	O.D.		34.989−35.000 mm (1.3775−1.3780 in.)	34.93 mm (1.375 in.)
	Length	A	51.97−52.03 mm (2.046−2.048 in.)	———
			).946−0.947 in.)	———



MBS distance collar

Item	Measurement	Qualification	Standard or New	Service Limit
MBS distance collar	I.D.		26.02−26.17 mm (1.024−1.030 in.)	———
	Length		12.00−12.05 mm (0.472−0.474 in.)	———

Mainshaft 3rd and 4th gear

Item	Measurement	Qualification	Standard or New	Service Limit
Mainshaft 3rd and 4th gear	I.D.		39.009−39.025 mm (1.5358−1.5364 in.)	39.07 mm (1.538 in.)
	Clearance	2nd-3rd	0.06−0.21 mm (0.002−0.008 in.)	0.33 mm (0.013 in.)
	Endplay	4th	0.06−0.19 mm (0.002−0.007 in.)	0.31 mm (0.012 in.)
	Thickness	3rd	27.92−27.97 mm (1.099−1.101 in.)	27.85 mm (1.096 in.)
		4th	27.02−27.07 mm (1.064−1.066 in.)	26.65 mm (1.049 in.)

Mainshaft 5th gear

Item	Measurement	Qualification	Standard or New	Service Limit
Mainshaft 5th gear	I.D.		39.009−39.025 mm (1.5358−1.5364 in.)	39.07 mm (1.538 in.)
	End play		0.06−0.19 mm (0.002−0.007 in.)	0.31 mm (0.012 in.)
	Thickness		28.92−28.97 mm (1.139−1.141 in.)	28.85 mm (1.136 in.)

M/T differential pinion gear

Item	Measurement	Qualification	Standard or New	Service Limit
M/T differential pinion gear	Backlash		0.05−0.15 mm (0.002−0.006 in.)	———

Synchro ring

Item	Measurement	Qualification	Standard or New	Service Limit
Synchro ring	Ring-to-gear clearance	Ring pushed against gear	0.85−1.10 mm (0.033−0.043 in.)	0.4 mm (0.02 in.)

Fuel and Emissions System Description - VTEC System

VTEC System (L12B1 engine)
Operation (L12B1 engine)

M/T differential 72 mm shim

Item	Measurement	Qualification	Standard or New	Service Limit
M/T differential 72 mm shim (L12B1, L13Z1)	72 mm shim-to-bearing outer race clearance in transmission housing		0.01−0.1 mm (0.0004−0.004 in.)	Adjust

Safety Messages

Safety Messages

Your safety, and the safety of others, is very important. To help you make informed decisions, we have provided safety messages, and other safety information throughout this manual. Of course, it is not practical or possible to warn you about all the hazards associated with servicing this vehicle. You must use your own good judgment.
You will find important safety information in a variety of forms including:

- **Safety Labels –** on the vehicle.
- **Safety Messages –** preceded by a safety alert symbol and one of three signal words, DANGER, WARNING, or CAUTION.
  These signal words mean:

  You WILL be KILLED or SERIOUSLY HURT if you don't follow instructions.
  You CAN be KILLED or SERIOUSLY HURT if you don't follow instructions.
  You CAN be HURT if you don't follow instructions.

- **Instructions –** how to service this vehicle correctly and safely.

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Audio System

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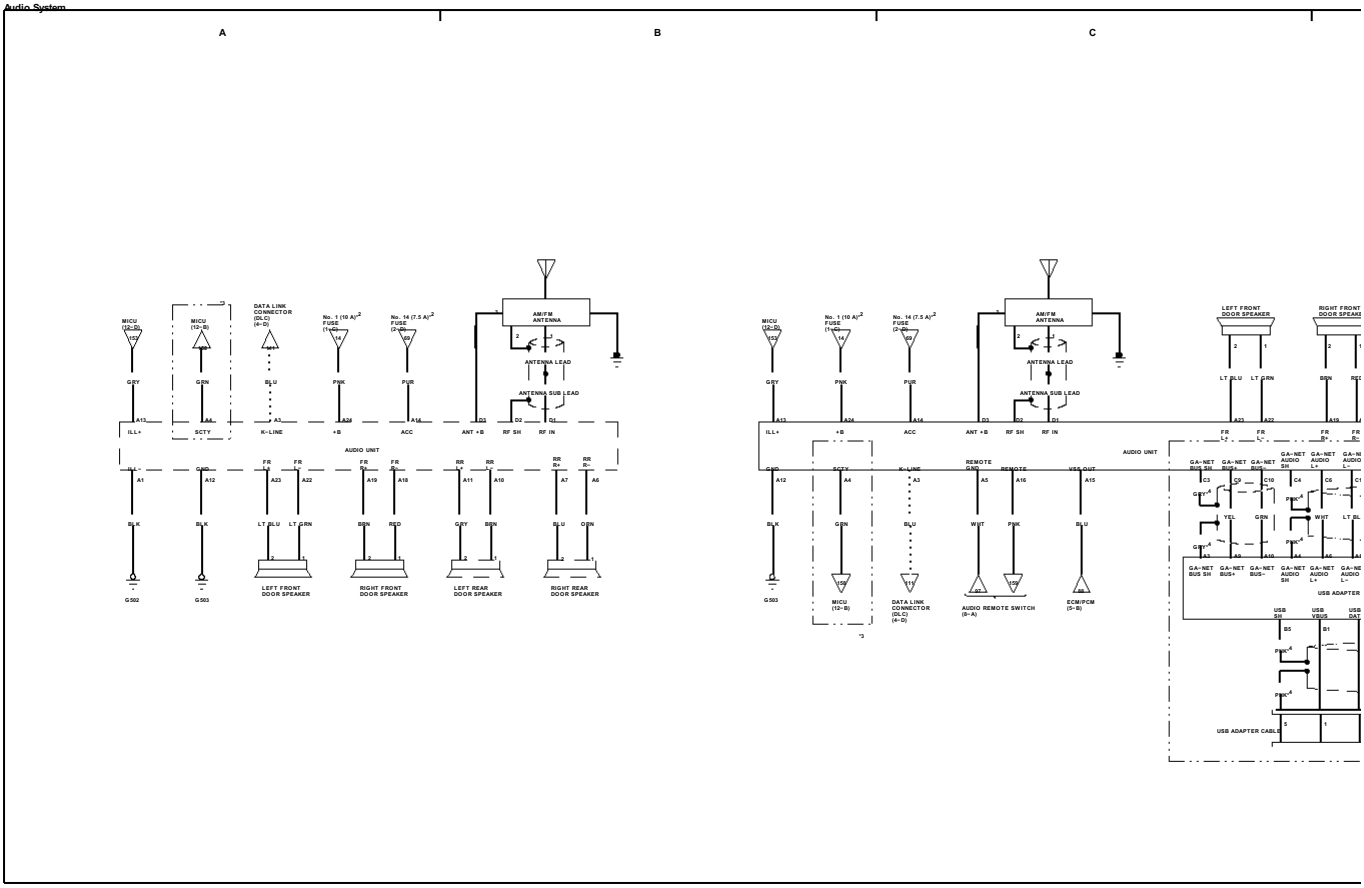


Maintenance Schedule for Normal and Severe Conditions - Australia

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.

Service at the indicated distance or time whichever comes first		km x 1,000	20	40	60	80	100	120	140	160	180	200
		miles x 1,000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0
		months	12	24	36	48	60	72	84	96	108	120
Replace engine oil *	Normal Conditions		Every 10,000 km (6,250 miles) or 1 year									
	Severe Conditions		Every 5,000 km (3,125 miles) or 6 months									
Replace engine oil filter *	Normal Conditions		●	●	●	●	●	●	●	●	●	●
	Severe Conditions		Every 10,000 km (6,250 miles) or 6 months									
Replace air cleaner element			Every 30,000 km (18,750 miles)									
Inspect valve clearance			Every 40,000 km (25,000 miles)									
Replace fuel filter						●				●		
Replace spark plugs			Every 100,000 km (62,500 miles)									
Inspect and adjust drive belt Look for cracks and damage, then check the deflection and tension.				●		●		●		●		●
Inspect idle speed								●				
Replace engine coolant Use genuine Honda All Season Antifreeze/Coolant Type 2.			At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years									
Replace Manual Transmission Fluid Use genuine Honda MTF.	Normal Conditions							●				
	Severe Conditions				●			●			●	
Replace Automatic Transmission Fluid Use genuine Honda ATF-Z1.	Normal Conditions							●				●
	Severe Conditions				●		●		●		●	

*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first	km x 1,000	20	40	60	80	100	120	140	160	180	200
	miles x 1,000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0
	months	12	24	36	48	60	72	84	96	108	120
Check front and rear brakes • Check the brake pad and disc thickness. Check for damage. • Check the calipers for damage, leaks, and tightness.	Every 10,000 km (6,250 miles)										
Replace brake fluid • Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid. • Check the brake fluid level is between upper and lower marks on the reservoir.	Every 3 years										
Check parking brake adjustment Check the parking brake operation.		●	●		●		●		●		●
Replace dust and pollen filter		●	●	●	●	●	●	●	●	●	●
Rotate tyres Check tyre inflation and condition at least once per month.	Every 10,000 km (6,250 miles)										
Visually inspect the following items: • Check for correct installation and position, check for cracks, deterioration, rust, and leaks. • Check tightness of screws, nuts, and joints. If necessary, retighten.											
Tie-rod ends, steering gearbox, and boots • Check rack grease and steering linkage. • Check the boot for damage and leaking grease.	Every 10,000 km (6,250 miles) or 6 months										
Suspension components • Check the bolts for tightness. • Check all dust covers for deterioration and damage.											

Service at the indicated distance or time whichever comes first	km x 1,000	20	40	60	80	100	120	140	160	180	200
	miles x 1,000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0
	months	12	24	36	48	60	72	84	96	108	120
Driveshaft boots • Check the boot and boot band for cracks. • Check rack grease.											
Brake hoses and lines (including ABS lines) Check the master cylinder and ABS modulator-control unit and leakage.		•	•	•	•	•	•	•	•	•	•
All fluid levels and condition of fluids Check levels and check for leaks. If necessary, add. • Engine coolant • MTF • ATF • Brake fluid • Clutch fluid • Windshield washer fluid											
Exhaust system Check the exhaust pipe and muffler for damage, leaks, and tightness.											
Fuel lines, and connections • Check fuel lines for loose connections, cracks, and deterioration. • Retighten loose connections and replace any damaged parts.											

Maintenance Schedule for Normal and Severe Conditions - Except Australia

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.

Service at the indicated distance or time whichever comes first		km x 1,000	20	40	60	80	100	120	140	160	180	200
		miles x 1,000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0
		months	12	24	36	48	60	72	84	96	108	120
Replace engine oil *	Normal Conditions		Every 10,000 km (6,250 miles) or 1 year									
	Severe Conditions		Every 5,000 km (3,125 miles) or 6 months									
Replace engine oil filter *	Normal Conditions		●	●	●	●	●	●	●	●	●	●
	Severe Conditions		Every 10,000 km (6,250 miles) or 6 months									
Replace air cleaner element			Every 30,000 km (18,750 miles)									
Inspect valve clearance			Every 40,000 km (25,000 miles)									
Replace fuel filter						●				●		
Replace spark plugs			Every 100,000 km (62,500 miles)									
Inspect and adjust drive belt Look for cracks and damage, then check the deflection and tension.				●		●		●		●		●
Inspect idle speed								●				
Replace engine coolant Use genuine Honda All Season Antifreeze/Coolant Type 2.			At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years									
Replace Manual Transmission Fluid Use genuine Honda MTF.	Normal Conditions							●				
	Severe Conditions				●			●			●	
Replace Automatic Transmission Fluid Use genuine Honda ATF-Z1.	Normal Conditions							●				●
	Severe Conditions				●		●		●		●	

*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first	km x 1,000	20	40	60	80	100	120	140	160	180	200
	miles x 1,000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0
	months	12	24	36	48	60	72	84	96	108	120
Check front and rear brakes • Check the brake pad and disc thickness. Check for damage. • Check the calipers for damage, leaks, and tightness.	Every 10,000 km (6,250 miles)										
Replace brake fluid • Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid. • Check the brake fluid level is between upper and lower marks on the reservoir.	Every 3 years										
Check parking brake adjustment Check the parking brake operation.		●	●		●		●		●		●
Replace dust and pollen filter		●	●	●	●	●	●	●	●	●	●
Rotate tyres Check tyre inflation and condition at least once per month.	Every 10,000 km (6,250 miles)										
Visually inspect the following items: • Check for correct installation and position, check for cracks, deterioration, rust, and leaks. • Check tightness of screws, nuts, and joints. If necessary, retighten.											
Tie-rod ends, steering gearbox, and boots • Check rack grease and steering linkage. • Check the boot for damage and leaking grease.	Every 10,000 km (6,250 miles) or 6 months										
Suspension components • Check the bolts for tightness. • Check all dust covers for deterioration and damage.											

Service at the indicated distance or time whichever comes first	km x 1,000	20	40	60	80	100	120	140	160	180	200
	miles x 1,000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0
	months	12	24	36	48	60	72	84	96	108	120
Driveshaft boots • Check the boot and boot band for cracks. • Check rack grease.											
Brake hoses and lines (including ABS lines) Check the master cylinder and ABS modulator-control unit and leakage.		•	•	•	•	•	•	•	•	•	•
All fluid levels and condition of fluids Check levels and check for leaks. If necessary, add. • Engine coolant • MTF • ATF • Brake fluid • Clutch fluid • Windshield washer fluid											
Exhaust system Check the exhaust pipe and muffler for damage, leaks, and tightness.											
Fuel lines, and connections • Check fuel lines for loose connections, cracks, and deterioration. • Retighten loose connections and replace any damaged parts.											

Mileage / Year

km mile

20,000km/1year

Mileage / Year

km mile

20,000km/1year

Design Specifications

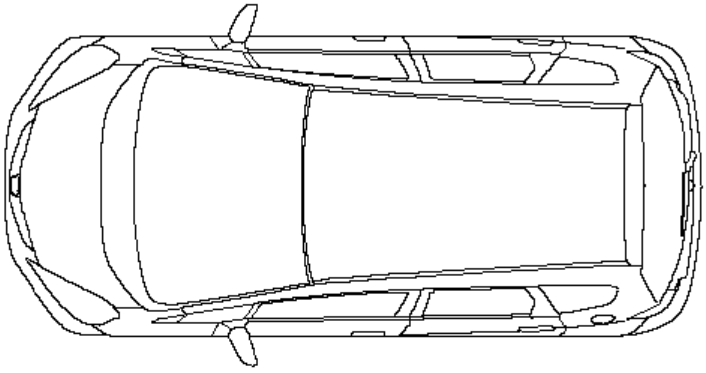
Item	Measurement		Qualification	Specification
DIMENSION	Overall length			3,900−3,920 mm (153.5−154.3 in.)
	Overall width			1,695 mm (66.7 in.)
	Overall height			1,525 mm (60.0 in.)
	Wheelbase			2,500 mm (98.4 in.)
	Track	15 inch wheel model	Front	1,490 mm (58.7 in.)
			Rear	1,475 mm (58.1 in.)
		16 inch wheel model	Front	1,475 mm (58.1 in.)
			Rear	1,460 mm (57.5 in.)
	Ground clearance			150 mm (5.9 in.)
	Seating capacity			Five (5)
	WEIGHT (except KQ)	Curb weight	M/T	1,045 kg (2,304 lbs)
			A/T	1,070 kg (2,359 lbs)
	WEIGHT (KQ)	Curb weight (L13Z1)	M/T	1,025−1,040 kg (2,260−2,293 lbs)
			A/T	1,070−1,093 kg (2,359−2,410 lbs)
		Curb weight (L15A7)	M/T	1,048−1,060 kg (2,310−2,337 lbs)
			A/T	1,075−1,085 kg (2,370−2,392 lbs)
ENGINE	Type			Water-cooled, 4-stroke SOHC i-VTEC engine
	Cylinder arrangement			Inline 4-cylinder, transverse
	Bore and stroke		L13Z1	73 x 80 mm (2.87 x 3.15 in.)
			L15A7	73 x 89.4 mm (2.87 x 3.52 in.)
	Displacement		L13Z1	1,339 cm ^{3} (82 cu in.)
			L15A7	1,496 cm ^{3} (91 cu in.)
	Compression ratio		L13Z1	10.5
			L15A7	10.4
	Valve train			Chain drive, SOHC 2 valves per cylinder
	Lubrication system			Forced, wet sump, with trochoid pump
	Oil pump displacement		at 6,300 engine rpm (min $^{-1}$)	45.3 L (47.9 US qt, 39.9 Imp qt)
	Water pump displacement		at 6,000 engine rpm (min $^{-1}$)	120 L (127 US qt, 106 Imp qt)
STARTER	Type			Gear reduction
	Normal output		Except L13Z1 KP, KQ	0.7 kW
			L13Z1 KP, KQ	0.6 kW, 0.7 kW
	Hour rating			30 seconds
	Rotation direction			Clockwise as viewed from drive end
CLUTCH	Type			Single plate dry, diaphragm spring

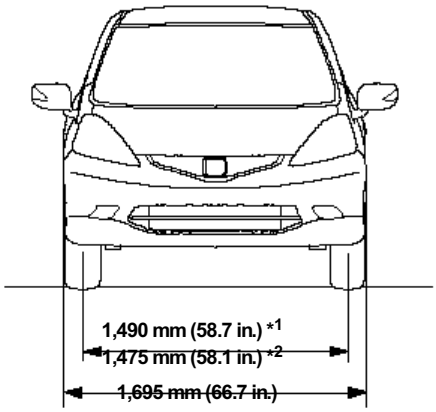
Item	Measurement	Qualification	Specification
MANUAL TRANSMISSION	Type		Synchronized, five-speed forward, one reverse
	Primary reduction		Direct 1:1
	Gear ratio (L13Z1)	1st	3.461
		2nd	1.869
		3rd	1.235
		4th	0.948
		5th	0.809
		Reverse	3.307
		Final	4.294
	Gear ratio (L15A7: except IN)	1st	3.461
		2nd	1.869
		3rd	1.303
		4th	1.054
		5th	0.853
		Reverse	3.307
		Final	4.294
	Gear ratio (L15A7: IN)	1st	3.307
		2nd	1.750
		3rd	1.235
		4th	0.948
		5th	0.809
		Reverse	3.307
		Final	4.625
	Final reduction	Type	Single helical gear
AUTOMATIC TRANSMISSION	Type		Electronically controlled automatic, five-speed forward, one reverse, three-element torque converter with lock-up clutch

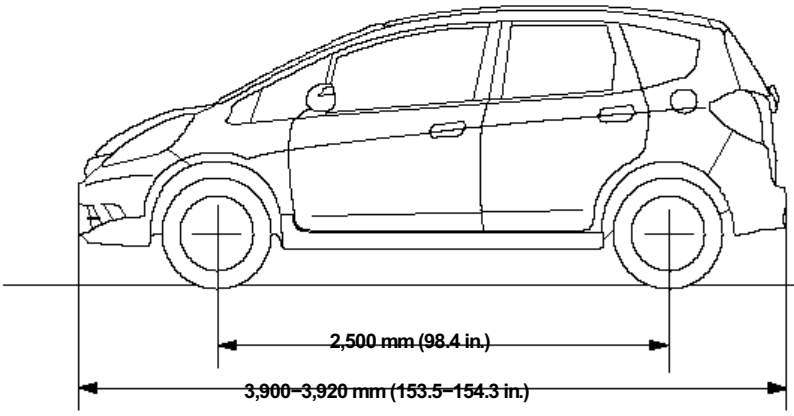
Item	Measurement	Qualification	Specification
	Primary reduction		Direct 1:1
	Gear ratio	1st	2.995
		2nd	1.678
		3rd	1.066
		4th	0.760
		5th	0.551
		Reverse	1.956
		Final	4.562
	Final reduction	Type	Single helical gear
STEERING	Type		Electrical power-assisted rack and pinion
	Overall ratio		16.09
	Turns, lock-to-lock		3.29
	Steering wheel diameter		370 mm (14.6 in.)
SUSPENSION	Type	Front	Independent strut with stabilizer, coil spring
		Rear	Torsion beam, coil spring
	Shock absorber	Front and rear	Telescopic, hydraulic, nitrogen gas-filled
TYRES	Size		See tyre information label attached to the doorjambs
BRAKES	Type of service brake	Front	Power-assisted self-adjusting ventilated disc
		Rear	Power-assisted self-adjusting solid disc
	Type of parking brake		Mechanical actuating, rear wheels
	Pad friction surface area (swept area)	Front	40.8 cm^2 (6.32 sq in.) x 2
		Rear	21.0 cm^2 (3.26 sq in.) x 2

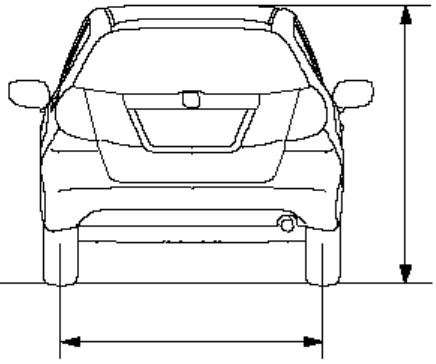
Item	Measurement	Qualification	Specification
AIR CONDITIONING	Compressor	Type	Scroll
		Capacity	77.1 mL (4.7 cu in.)/rev.
		Maximum speed	10,000 rpm (min^{-1})
		Lubricant capacity	80 mL (2 2/3 fl·oz, 2.8 Imp·oz)
		Lubricant type	SP-10
	Condenser	Type	Corrugated fin
	Evaporator	Type	Corrugated fin
	Blower	Type	Radial
		Motor type	170 W/12 V
		Speed control	4 speed
		Maximum capacity	400 m^3 (14,126 cu ft)/h
	Temperature control		Air-mix type
	Compressor clutch	Type	Dry, single plate, Poly V-belt drive
		Electrical power consumption at 20 °C (68 °F)	42 W maximum at 12 V
	Refrigerant	Type	HFC-134a (R-134a)
		Capacity	370–420 g (13.1–14.8 oz)
ELECTRICAL RATINGS	Battery	KZ, KP	12 V–30 Ah/20 HR (12 V–24 Ah/5 HR)
		KQ	12 V–35 Ah/20 HR (12 V–28 Ah/5 HR)
		IN	12 V–30 Ah/20 HR (12 V–27 Ah/5 HR)
	Fuses	Battery terminal fuse box (with trailer light connector)	100 A, 60 A, 30 A
		Battery terminal fuse box (without trailer light connector)	100 A, 60 A, 20 A
		Under-dash fuse/relay box	50 A, 40 A, 30 A, 20 A, 15 A, 10 A, 7.5 A
	Light bulbs	Headlight high/low beam	12 V–60/55 W
		Front turn signal lights	12 V–21 W
		Mirror turn signal lights	LED
		Side turn signal lights	12 V–5 W
		Front position lights	12 V–5 W
		Rear turn signal lights	12 V–21 W
		Brake/taillights	12 V–21/5 W
		High mount brake light	12 V–21 W
		Back-up lights	12 V–21 W
		License plate lights	12 V–5 W
		Ceiling lights	12 V–8 W
		Cargo area light	12 V–5 W
		Front individual map lights	12 V–8 W
		Gauge lights	LED
		Indicator lights	12 V–0.84 W
	Washer reservoir	Capacity	2.5 L (2.6 US qt, 2.2 Imp qt)

Body Specifications









*1: 15 inch wheel model
*2: 16 inch wheel model

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Engine Electrical

Item	Measurement	Qualification	Standard or New	Service Limit
Ignition coil	Rated voltage		12 V	
	Firing order		1−3−4−2	
Spark plug	Type		NGK: IZFR6K13 DENSO: SKJ20DR-M13	
	Gap		1.2−1.3 mm (0.047−0.051 in.)	———
Ignition timing		At idle (check the *white* mark)	M/T (in neutral): 0±2 ° BTDC	
			A/T (in N or P): 0±2 ° BTDC	
Drive belt	Tension		Auto-tensioner	
Alternator	Output	At 13.5 V and normal engine temperature	95 A	
	Coil (rotor) resistance	At 20 °C (68 °F)	2.1−2.3 Ω	
	Slip ring O.D.		22.7 mm (0.89 in.)	21.2 mm (0.83 in.)
	Brush length		23.0 mm (0.91 in.)	18.0 mm (0.71 in.)
	Brush spring tension		4.1−5.3 N (0.42−0.54 kgf, 0.93−1.19 lbs)	
Starter	Output	Except L13Z1 KP, KQ	0.7 kw	
		L13Z1 KP, KQ	0.6 kw, 0.7 kw	
	Commutator mica depth		0.45−0.75 mm (0.018−0.030 in.)	0.20 mm (0.008 in.)
	Commutator runout		0.05 mm (0.002 in.) max.	0.4 mm (0.02 in.)
	Commutator O.D.		27.9−28.0 mm (1.098−1.102 in.)	27.0 mm (1.06 in.)
	Brush length		9.7−10.3 mm (0.38−0.41 in.)	6.0 mm (0.20 in.)

Engine Assembly

Item	Measurement	Qualification	Standard or New	Service Limit
Compression	Pressure check at 250 rpm (min $^{-1}$) with wide open throttle. (See Design Specs for ratio)	Minimum	980 kPa (10.0 kgf/cm ^{2}, 142 psi)	———
		Maximum variation	200 kPa (2.0 kgf/cm ^{2}, 28 psi)	———

Cylinder Head

Item	Measurement	Qualification		Standard or New	Service Limit
Head	Warpage			0.07 mm (0.0028 in.)	0.08 mm (0.003 in.)
	Height			119.9−120.1 mm (4.720−4.728 in.)	———
Camshaft	End play			0.05−0.25 mm (0.002−0.010 in.)	0.5 mm (0.02 in.)
	Camshaft-to-holder oil clearance			0.045−0.084 mm (0.0018−0.0033 in.)	0.100 mm (0.004 in.)
	Total runout			0.03 mm (0.001 in.) max.	0.04 mm (0.002 in.)
	Cam lobe height	L13Z1	Intake, primary	34.290 mm (1.3500 in.)	———
			Intake, secondary	30.529 mm (1.2019 in.)	———
			Exhaust	35.047 mm (1.3798 in.)	———
		L15A7	Intake, primary	35.241 mm (1.3874 in.)	———
			Intake, secondary	36.173 mm (1.4241 in.)	———
			Exhaust	35.471 mm (1.3964 in.)	———
Valve	Clearance (cold)	Intake		0.15−0.19 mm (0.006−0.007 in.)	———
		Exhaust		0.26−0.30 mm (0.010−0.012 in.)	———
	Stem O.D.	Intake		5.48−5.49 mm (0.216−0.216 in.)	5.45 mm (0.215 in.)
		Exhaust		5.45−5.46 mm (0.215−0.215 in.)	5.42 mm (0.213 in.)
	Stem-to-guide clearance	Intake		0.020−0.050 mm (0.0008−0.0020 in.)	0.08 mm (0.003 in.)
		Exhaust		0.050−0.080 mm (0.0020−0.0031 in.)	0.11 mm (0.004 in.)
Valve seat	Width	Intake		0.850−1.150 mm (0.0335−0.0453 in.)	1.60 mm (0.063 in.)
		Exhaust		1.250−1.550 mm (0.0492−0.0610 in.)	2.00 mm (0.079 in.)
	Stem installed height	Intake		46.1−46.5 mm (1.815−1.831 in.)	46.8 mm (1.843 in.)
		Exhaust		46.2−46.6 mm (1.819−1.835 in.)	46.9 mm (1.846 in.)
Valve spring	Free length	L13Z1	Intake	51.17 mm (2.014 in.)	———
			Exhaust	57.26 mm (2.254 in.)	———
		L15A7	Intake	48.55 mm (1.911 in.)	———
			Exhaust	54.52 mm (2.146 in.)	———
Valve guide	I.D.	Intake		5.51−5.53 mm (0.217−0.218 in.)	5.55 mm (0.219 in.)
		Exhaust		5.51−5.53 mm (0.217−0.218 in.)	5.55 mm (0.219 in.)
	Installed height	Intake		15.85−16.35 mm (0.624−0.644 in.)	———
		Exhaust		15.85−16.35 mm (0.624−0.644 in.)	———
Rocker arm	Arm-to-shaft clearance	Intake		0.019−0.058 mm (0.0007−0.0023 in.)	0.08 mm (0.003 in.)

Item	Measurement	Qualification	Standard or New	Service Limit
		Exhaust	0.019–0.058 mm (0.0007–0.0023 in.)	0.08 mm (0.003 in.)

Engine Block

Item	Measurement	Qualification	Standard or New	Service Limit
Block	Warpage of deck		0.07 mm (0.003 in.) max.	0.10 mm (0.004 in.)
	Bore diameter		73.000–73.015 mm (2.8740–2.8746 in.)	73.065 mm (2.8776 in.)
	Bore taper		———	0.05 mm (0.002 in.)
	Reboring limit		———	0.25 mm (0.01 in.)
Piston	Skirt O.D. at 16 mm (0.6 in.) from bottom of skirt	L13Z1	72.972–72.982 mm (2.8729–2.8733 in.)	72.97 mm (2.8728 in.)
		L15A7	72.980–72.990 mm (2.8732–2.8736 in.)	72.97 mm (2.8728 in.)
	Clearance in cylinder	L13Z1	0.018–0.043 mm (0.007–0.0017 in.)	0.05 mm (0.002 in.)
		L15A7	0.010–0.035 mm (0.0004–0.0014 in.)	0.05 mm (0.002 in.)
	Ring groove width	Top	1.050–1.060 mm (0.0413–0.0417 in.)	1.080 mm (0.0425 in.)
		Second	1.020–1.030 mm (0.0401–0.0405 in.)	1.050 mm (0.0413 in)
		Oil	2.005–2.020 mm (0.0789–0.0795 in.)	2.050 mm (0.0807 in.)
Piston ring	Ring-to-groove clearance	Top	0.065–0.090 mm (0.0026–0.0035 in.)	0.15 mm (0.006 in.)
		Second	0.030–0.055 mm (0.0012–0.0022 in.)	0.12 mm (0.005 in.)
	Ring end gap	Top	0.15–0.30 mm (0.006–0.012 in.)	0.60 mm (0.024 in.)
		Second	0.30–0.42 mm (0.012–0.017 in.)	0.65 mm (0.026 in.)
		Oil	0.20–0.70 mm (0.008–0.028 in.)	0.80 mm (0.031 in.)
Piston pin	O.D.		17.996–18.000 mm (0.7085–0.7087 in.)	———
	Pin-to-piston clearance		0.010–0.017 mm (0.0004–0.0007 in.)	———
Connecting rod	Pin-to-rod interferemce		0.019–0.036 mm (0.007–0.0014 in.)	———
	Small-end bore diameter		17.964–17.977 mm (0.707–0.708 in.)	———
	Large-end bore diameter	Nominal	43.0 mm (1.69 in.)	———
	End play installed on crankshaft		0.15–0.35 mm (0.006–0.014 in.)	0.40 mm (0.016 in.)
Crankshaft	Main journal diameter		49.976–50.000 mm (1.9676–1.9685 in.)	———
	Rod journal diameter		39.976–40.000 mm (1.5739–1.5748 in.)	———
	Rod/main journal taper		0.005 mm (0.0002 in.)	0.010 mm (0.0004 in.)
	Rod/main journal out-of-round		0.005 mm (0.0002 in.)	0.010 mm (0.0004 in.)
	End play		0.10–0.35 mm (0.004–0.014 in.)	0.45 mm (0.018 in.)
	Runout		0.03 mm (0.0012 in.) max.	0.04 mm (0.0016 in.)
Crankshaft bearing	Main bearing-to-journal oil clearance		0.018–0.036 mm (0.0007–0.0014 in.)	0.050 mm (0.0020 in.)
	Rod bearing clearance	L15A7	0.020–0.038 mm (0.0008–0.0015 in.)	0.050 mm (0.0020 in.)
		L13Z1	0.026–0.044 mm (0.0010–0.0017 in.)	0.050 mm (0.0020 in.)

Engine Lubrication

Item	Measurement	Qualification	Standard or New	Service Limit
Engine oil	Capacity	Engine overhaul	4.2 L (4.4 US qt, 3.7 Imp qt)	———
		Oil change including oil filter	3.6 L (3.8 US qt, 3.2 Imp qt)	———
		Oil change without oil filter	3.4 L (3.6 US qt, 3.0 Imp qt)	———
Oil pump	Inner rotor-to-outer rotor clearance		0.06–0.16 mm (0.002–0.006 in.)	0.20 mm (0.008 in.)
	Pump housing-to-outer rotor clearance		0.100–0.175 mm (0.0039–0.0069 in.)	0.20 mm (0.008 in.)
	Pump housing-to-rotor axial clearance		0.02–0.06 mm (0.001–0.002 in.)	0.15 mm (0.006 in.)
Relief valve	Relief valve, oil pressure with oil temperature at 80°C (176°F)	At idle	70 kPa (0.7 kgf/cm ^{2}, 10 psi) min.	———
		At 3,000 rpm (min $^{-1}$)	340 kPa (3.5 kgf/cm ^{2}, 50 psi) min.	———

Cooling

Item	Measurement	Qualification				Standard or New
Radiator	Coolant capacity (Includes engine, heater, hoses, and reservoir) Use genuine Honda All Season Antifreeze/Coolant Type 2	L13Z1	M/T	With heater	Engine overhaul	5.02 L (1.326 US gal, 1.104 Imp gal)
					Coolant change	4.53 L (1.197 US gal, 0.997 Imp gal)
				Without heater	Engine overhaul	4.59 L (1.213 US gal, 1.010 Imp gal)
					Coolant change	4.10 L (1.083 US gal, 0.902 Imp gal)
			A/T	With heater	Engine overhaul	4.94 L (1.305 US gal, 1.087 Imp gal)
					Coolant change	4.45 L (1.176 US gal, 0.979 Imp gal)
				Without heater	Engine overhaul	4.51 L (1.192 US gal, 0.992 Imp gal)
					Coolant change	4.02 L (1.062 US gal, 0.884 Imp gal)
		L15A7	M/T	With heater	Engine overhaul	5.03 L (1.329 US gal, 1.107 Imp gal)
					Coolant change	4.54 L (1.199 US gal, 0.999 Imp gal)
				Without heater	Engine overhaul	4.60 L (1.215 US gal, 1.012 Imp gal)

Item	Measurement			Qualification		Standard or New
					Coolant change	4.11 L (1.086 US gal, 0.904 Imp gal)
			A/T	With heater	Engine overhaul	4.95 L (1.308 US gal, 1.089 Imp gal)
					Coolant change	4.46 L (1.178 US gal, 0.981 Imp gal)
				Without heater	Engine overhaul	4.52 L (1.195 US gal, 0.994 Imp gal)
					Coolant change	4.03 L (1.065 US gal, 0.887 Imp gal)
Coolant reservoir	Coolant capacity				0.44 L (0.116 US qt, 0.097 Imp qt)	
Radiator cap	Opening pressure				93−123 kPa (0.95−1.25 kgf/cm ^{2}, 14−18 psi)	
Thermostat	Opening temperature	Begins to open			76−80 °C (169−176 °F)	
		Fully open			90 °C (194 °F)	
	Valve lift at fully open				8.0 mm (0.31 in.) min.	

Fuel and Emissions

Item	Measurement	Qualification	Standard or New
Fuel pressure regulator	Pressure with fuel pressure gauge connected		320−370 kPa (3.3−3.8 kgf/cm ^{2}, 47−54 psi)
Fuel tank	Capacity		42 L (11.0 US gal, 9.2 Imp gal)
Engine idle	Idle speed without load (L13Z1)	M/T (in neutral)	650±50 rpm
		A/T (in N or P)	700±50 rpm
	Idle speed without load (L15A7)	M/T (in neutral), A/T (in N or P)	700±50 rpm
	Idle speed with high electrical load (A/C switch ON, temperature set to max cool, blower fan on High, rear window defogger ON, and headlights on high beam)	M/T (in neutral), A/T (in N or P)	790±50 rpm
	Idle CO		0.1 % max.

Clutch

Item	Measurement	Qualification	Standard or New	Service Limit
Clutch pedal	Height from the floor	RHD	145 mm (5.71 in.)	———
		LHD	150 mm (5.91 in.)	———
	Stroke		120−130 mm (4.72−5.12 in.)	———
Flywheel	Runout on clutch mating surface		0.05 mm (0.002 in.) max.	0.15 mm (0.006 in.)
Clutch disc	Rivet head depth		1.00−1.50 mm (0.039−0.059 in.)	0.2 mm (0.008 in.)
	Thickness		7.25−7.95 mm (0.285−0.313 in.)	5.0 mm (0.20 in.)
Pressure plate	Warpage		0.03 mm (0.001 in.) max.	0.15 mm (0.006 in.)
	Height difference of diaphragm spring fingers measured with dial indicator		0.6 mm (0.02 in.) max.	1.0 mm (0.04 in.)

Steering

Item	Measurement	Qualification	Standard or New
Steering wheel	Rotational play measured at outside edge with engine running		0−10 mm (0−0.39 in.)
	Initial load measured at outside edge with engine running		29 N (3.0 kgf, 6.6 lbf)
Gearbox	Angle of rack guide screw loosened from locked position		10±3 °

Suspension

Item	Measurement	Qualification	Standard or New	Service Limit
Wheel alignment	Camber	Front	0 ° 00 ′±1 °	
		Rear	−1 ° 00 ′±1 °	
	Caster	Front	3 ° 20 ′±1 °	
	Total toe-in	Front	0±3 mm (0±0.12 in.)	
		Rear	2.5±2.5 mm (10±0.10 in.)	
	Front wheel turning angle	Inward	40 ° 19 ′±2 °	
		Outward (reference)	33 ° 19 ′±1 °	
Wheel	Steel wheel runout	Axial	0−1.0 mm (0−0.04 in.)	2.0 mm (0.08 in.)
		Radial	0−1.0 mm (0−0.04 in.)	1.5 mm (0.06 in.)
	Aluminium wheel runout	Axial	0−0.7 mm (0−0.03 in.)	2.0 mm (0.08 in.)
		Radial	0−0.7 mm (0−0.03 in.)	1.5 mm (0.06 in.)
Wheel bearing	End play	Front	0−0.05 mm (0−0.002 in.)	
		Rear	0−0.05 mm (0−0.002 in.)	

Brakes

Item	Measurement	Qualification	Standard or New		Service Limit
Parking brake	Distance traveled when lever pulled with 196 N (20 kgf, 44 lbf) of force		6 to 8 clicks		
Brake pedal	Pedal height (carpet moved aside)	M/T	139 mm (5.5 in.)		
		A/T	138 mm (5.4 in.)		
	Free play		1−5 mm (0.04−0.20 in.)		
Brake disc	Thickness	Front	20.9−21.1 mm (0.82−0.83 in.)		19.0 mm (0.75 in.)
		Rear	8.9−9.1 mm (0.35−0.36 in.)		8.0 mm (0.31 in.)
	Runout		———		0.04 mm (0.0016 in.)
	Parallelism		———		0.015 mm (0.0006 in.)
Brake pad	Thickness	Front	9.5−10.2 mm (0.37−0.41 in.)		1.6 mm (0.06 in.)
		Rear	6.8−7.5 mm (0.27−0.30 in.)		1.6 mm (0.06 in.)
Brake booster	Master cylinder oil pressure	Vacuum booster Vacuum kPa (mmHg, in.Hg)	Brake pedal pressure N (kgf, lbf)	Master cylinder oil pressure kPa (kgf/cm ^{2} , psi)	
		0 (0, 0)	98 (10, 22)	0 (0, 0)	
			196 (20, 44)	Except LHD (M/T)	577 (5.9, 84)
				LHD (M/T)	501 (5.1, 73)
		66.7 (500, 19.7)	98 (10, 22)	Except LHD (M/T)	4,523 (46.1, 656)
				LHD (M/T)	4,235 (43.2, 614)
			196 (20, 44)	Except LHD (M/T)	9,538 (97.3, 1.383)
				LHD (M/T)	9,468 (96.5, 1.373)

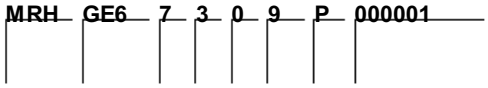
Air Conditioning

Item	Measurement	Qualification	Standard or New
Refrigerant	Type		HFC-134a (R-134a)
	Capacity of system		370−420 g (13.1−14.8 oz)
Refrigerant oil	Type		SP-10 (P/N 38897-P13-A01, 38898-P13-003, or 38899-P13-A01)
	Capacity of components	Condenser	25 mL (5/6 fl·oz, 0.9 Imp·oz)
		Evaporator	35 mL (1 1/6 fl·oz, 1.2 Imp·oz)
		Each line and hose	10 mL (1/3 fl·oz, 0.4 Imp·oz)
		Receiver/Dryer	10 mL (1/3 fl·oz, 0.4 Imp·oz)
		Compressor	80−90 mL (2 2/3−3 fl·oz, 2.8−3.2 Imp·oz)
Compressor	Field coil resistance	At 20 °C (68 °F)	3.15−3.45 Ω

Item	Measurement	Qualification	Standard or New
	Pulley-to-armature plate clearance		0.35−0.65 mm (0.014−0.026 in.)

VIN, Engine, and Transmission Numbers

Vehicle Identification Number



a b c d e f g h

8: 4-door Hatchback/5-speed Automatic

d. Vehicle Grade (Series)

3: S (except IN model)
4: S (IN model)
5: 1.3GLI, 1.5VTI, V
6: 1.5VTIS, SV, E
8: S-MA
9: V-MA

e. Fixed Code or Check Digit

f. Model Year

9: '09
Production Year (IN model)

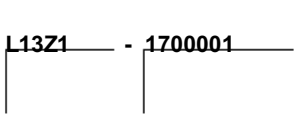
g. Factory Code

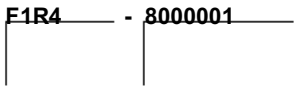
P: AYUTTHAYA Factory in Thailand
J: KARAWANG Factory in Indonesia

h. Serial Number

Engine Number

ngine
ngine



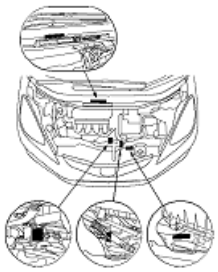


a b

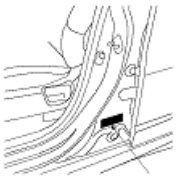
MODEL	APPLICABLE AREA CODE	GRADE NAME	ENGINE TYPE	TRANSMISSION TYPE	MANUFACTURER NAME
Jazz	KQ	1.3GLI	L13Z1	5MT	Honda Automobile (Thailand) Co.,Ltd.
				5AT	
		1.5VTI, 1.5VTIS	L15A7	5MT	
				5AT	
	KZ	S, V, SV	L15A7	5MT	
				5AT	
		S-MA, V-MA			
	KP	S	L13Z1	5MT	
				5AT	
		V	L15A7	5MT	
				5AT	
	IN	S, E	L15A7	5MT	P.T. Honda Prospect Motor, Indonesia
				5AT	

VIN, Engine, and Transmission Number Locations

NOTE: The illustration shows the RHD model, LHD model is similar.

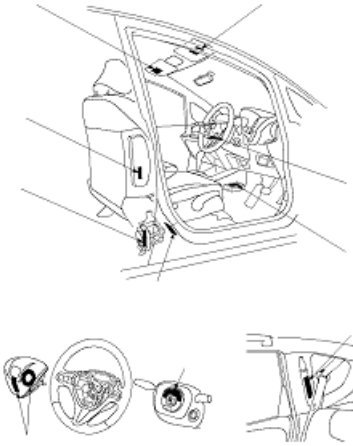


Left side doorjump:

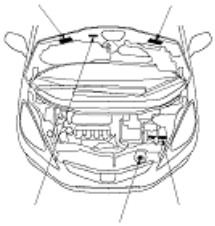


Danger/Warning/Caution Label Locations

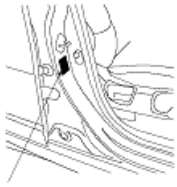
Front Passenger's Compartment:
NOTE: The illustration shows the RHD model, the LHD model is symmetrical.



NOTE: The illustration shows the RHD model, the LHD model is similar.



Driver's doorjamb:
NOTE: The illustration shows the RHD model, the LHD model is symmetrical.



Abbreviations

List of automotive abbreviations which may be used in shop manual.

ABS	Anti-lock Brake System
A/C	Air Conditioning, Air Conditioner
ACEA	Association des Constructeurs Europeens d' Automobiles
ACL	Air Cleaner
A/F	Air Fuel Ratio
AHB	Advanced Hydraulic Booster
ALR	Automatic Locking Retractor
ALT	Alternator
AMP	Ampere(s)
ANT	Antenna
API	American Petroleum Institute
APP	Accelerator Pedal Position
APPROX	Approximately
ASSY	Assembly
A/T	Automatic Transmission
ATDC	After Top Dead Center
ATF	Automatic Transmission Fluid
ATT	Attachment
AUTO	Automatic
AUX	Auxiliary
BARO	Barometric
BAT	Battery
BCM	Battery Condition Monitor
BDC	Bottom Dead Center
BTDC	Before Top Dead Center
CARB	Carburetor
CAT or CATA	Catalytic Converter
CD	Compact Disc
CHG	Charge
CKF	Crankshaft Speed Fluctuation
CKP	Crankshaft Position
CLV	Calculated Load Value
CMBS	Collision Mitigation Brake System
CMP	Camshaft Position
CO	Carbon Monoxide
COMP	Complete
CPB	Clutch Pressure Back up
CPC	Clutch Pressure Control
CPU	Central Processing Unit
CVT	Continuously Variable Transmission
CVTF	Continuously Variable Transmission Fluid
CYL	Cylinder
CYP	Cylinder Position
DIFF	Differential
DLC	Data Link Connector
DLI	Distributor Less Ignition
DOHC	Double Overhead Camshaft
DOT	Department of Transportation
DPF	Diesel Particulate Filter
DPI	Dual Point Injection
DPSF	Dual Pump System Fluid
DTC	Diagnostic Trouble Code
EBD	Electronic Brake Distribution
ECM	Engine Control Module
ECT	Engine Coolant Temperature
EGR	Exhaust Gas Recirculation
EGT	Exhaust Gas Temperature
ELD	Electrical Load Detector
EPR	Evaporator Pressure Regulator
EPS	Electrical Power Steering
ETCS	Electronic Throttle Control System
EVAP	Evaporative Emission
EX	Exhaust
F	Front
FIA	Fuel Injection Air
FL	Front Left
FP	Fuel Pump
FR	Front Right
FRP	Fuel Rail Pressure

FSR	Fail Safe Relay
FWD	Front Wheel Drive
GAL	Gallon
GND	Ground
GPS	Global Positioning System
H/B	Hatchback
HBA	Hydraulic Brake Assist
HC	Hydrocarbons
HDS	Honda Diagnostic System
HFT	Hands Free Telephone
HID	High Intensity Discharge
HIM	Honda Interface Module
HO2S	Heated Oxygen Sensor
HPS	Hydraulic Power Steering
HVAC	Heating, Ventilation, and Air Conditioning
IAB	Intake Air Bypass
IAC	Idle Air Control
IACV	Idle Air Control Valve
IAR	Intake Air Resonator
IAT	Intake Air Temperature
ICM	Ignition Control Module
ID	Identification
ID or I.D.	Inside Diameter
i-DSI	Intelligent-Dual & Sequential Ignition
IG or IGN	Ignition
IMA	Idle Mixture Adjustment
	Integrated Motor Assisted
IMMOBI.	Immobilizer (Immobiliser)
IMRC	Intake Manifold Runner Control
IMT	Intake Manifold Tuning
IN	Intake
INJ	Injection
INT	Intermittent
IQA	Injector Quantity Adjustment (Diesel model)
ISV	Intake Shutter Valve
KS	Knock Sensor
L	Left
L/C	Lock-up Clutch
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LEV	Low Emission Vehicle
LF	Left Front
LH	Left Handle
LHD	Left Handle Drive
LR	Left Rear
LSD	Limited Slip Differential
L4	In-line Four Cylinder (engine)
MAF	Mass Air Flow
MAP	Manifold Absolute Pressure
MAX.	Maximum
MBS	Mainshaft Brake System
MCK	Motor Check
MCM	Motor Control Module
MCU	Moment Control Unit
MICS	Multiplex Integrated Control System
MICU	Multiplex Integrated Control Unit
MIL	Malfunction Indicator Lamp
MIN.	Minimum
MPI	Multi Point Injection
M/S	Manual Steering
M/T	Manual Transmission
MTF	Manual Transmission Fluid
NOx	Oxides of Nitrogen
OBD	On-board Diagnostic
OD or O.D.	Outside Diameter
OPDS	Occupant Position Detection System
O2S	Oxygen Sensor
PAIR	Pulsed Secondary Air Injection
PCM	Powertrain Control Module
PCV	Positive Crankcase Ventilation
	Proportioning Control Valve
PDU	Power Drive Unit

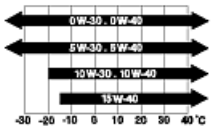
PGM-FI	Programmed-fuel Injection
PGM-IG	Programmed Ignition
PH	Pressure High
PL	Pilot Light or Pressure Low
PMR	Pump Motor Relay
P/N	Part Number
PRI	Primary
P/S	Power Steering
PSF	Power Steering Fluid
PSP	Power Steering Pressure
PSW	Pressure Switch
Qty	Quantity
R	Right
REF	Reference
RH	Right Handle
RHD	Right Handle Drive
RL	Rear Left
RON	Research Octane Number
RR	Rear Right
SAE	Society of Automotive Engineers
SCS	Service Check Signal
SEC	Second, Secondary
SOHC	Single Overhead Camshaft
SOL	Solenoid
SPEC	Specification
S/R	Sun Roof
SRS	Supplemental Restraint System
STD	Standard
SW	Switch
T	Torque
TB	Throttle Body
T/B	Timing Belt
TC	Torque Converter
TCM	Transmission Control Module
TCS	Traction Control System
TDC	Top Dead Center
TFT	Thin Film Transistor
T/N	Tool Number
TP	Throttle Position
TPMS	Tyre Pressure Monitoring System
TWC	Three Way Catalytic Converter
VC	Viscous Coupling
VCM	Variable Cylinder Management
VIN	Vehicle Identification Number
VSA	Vehicle Stability Assist
VSS	Vehicle Speed Sensor
VTEC	Variable Valve Timing & Valve Lift Electronic Control
VVIS	Variable Volume Intake System
V6	V-engine Six Cylinder (engine)
W	With
W/O	Without
WOT	Wide Open Throttle
2WD	Two Wheel Drive
4WD	Four Wheel Drive
4AT	4-speed Automatic Transmission
5AT	5-speed Automatic Transmission
5MT	5-speed Manual Transmission
6MT	6-speed Manual Transmission
P	Park
R	Reverse
N	Neutral
D4	Drive (1st through 4th gear)
D3	Drive (1st through 3rd gear)
D	Drive
M	Manual mode
S	Second
L	Low
O/D	Over Drive
1ST	Low (gear)
2ND	Second (gear)
3RD	Third (gear)

4TH	Fourth (gear)
5TH	Fifth (gear)
6TH	Sixth (gear)

Lubricants and Fluids

⚠CAUTION

Used engine oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still advisable to thoroughly wash your hands with soap and water as soon as possible after handling used oil.



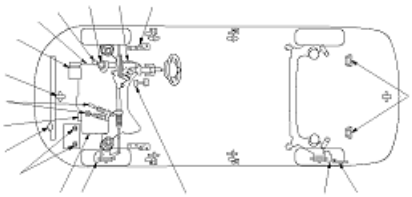
For the details of the lubrication points and the type of lubricants to be applied, refer to the illustrated index and the various work procedures (such as Assembly/Reassembly, Replacement, Overhaul, Installation, etc.) contained in each section.

	Application	Lubricant or Fluid
A	Engine	Always use API service grade SL or higher SAE viscosity: See chart.
B	Manual transmission	Honda Manual Transmission Fluid (MTF) Always use genuine Honda MTF *. Using motor oil can cause stiffer shifting because it does not contain the proper additives.
	Automatic transmission	Honda ATF-Z1 Always use genuine Honda ATF-Z1. Using a non-Honda ATF can affect shift quality.
C D	Brake system (including ABS lines) Clutch system (manual transmission)	Brake Fluid DOT 3 or DOT 4 We recommend genuine Honda Brake Fluid. Using a non-Honda brake fluid can cause corrosion and decrease the life of the system.
E F G H I J K	Release fork (manual transmission) Battery terminals Brake booster clevis pin Clutch master cylinder clevis pin (manual transmission) Fuel fill door Hood hinges and hood latch Tailgate hinges	Multipurpose Grease
L	Caliper piston boot	Rubber Grease
M N	Caliper piston seal, caliper pins and boots Shift cable ends (manual transmission)	Silicone Grease
O	Air conditioning compressor	Compressor Oil:SP-10 (P/N 38897-P13-A01 or 38899-P13-A01) for refrigerant HFC-134a (R-134a)
P	Cooling system	Always use genuine Honda All Season Antifreeze/Coolant Type 2

If genuine Honda MTF is not available, use API service SL or higher grade motor oil with a viscosity of SAE 10W-30 or 10W-40 as a temporary replacement.

NOTE:

- Lubricate the following grease using the recommended lubricants and fluids.
- In corrosive area, more frequent lubrication is necessary.
- The illustration shows the RHD model, the LHD model is symmetrical.



Alternator

Item	Measurement	Qualification	Standard or New	Service Limit
Alternator	Output	At 13.5 V and normal engine temperature	95 A	
	Coil (rotor) resistance	At 20 °C (68 °F)	2.1−2.3 Ω	
	Slip ring O.D.		22.7 mm (0.89 in.)	21.2 mm (0.83 in.)
	Brush length		23.0 mm (0.91 in.)	18.0 mm (0.71 in.)
	Brush spring tension		4.1−5.3 N (0.42−0.54 kgf, 0.93−1.19 lbs)	

Drive belt

Item	Measurement	Qualification	Standard or New	Service Limit
Drive belt	Tension		Auto-tensioner	

Coolant reservoir

Item	Measurement	Qualification	Standard or New
Coolant reservoir	Coolant capacity		0.44 L (0.116 US qt, 0.097 Imp qt)

Radiator

Item	Measurement	Qualification				Standard or New
Radiator	Coolant capacity (Includes engine, heater, hoses, and reservoir) Use genuine Honda All Season Antifreeze/Coolant Type 2	L13Z1	M/T	With heater	Engine overhaul	5.02 L (1.326 US gal, 1.104 Imp gal)
					Coolant change	4.53 L (1.197 US gal, 0.997 Imp gal)
				Without heater	Engine overhaul	4.59 L (1.213 US gal, 1.010 Imp gal)
					Coolant change	4.10 L (1.083 US gal, 0.902 Imp gal)
			A/T	With heater	Engine overhaul	4.94 L (1.305 US gal, 1.087 Imp gal)
					Coolant change	4.45 L (1.176 US gal, 0.979 Imp gal)
				Without heater	Engine overhaul	4.51 L (1.192 US gal, 0.992 Imp gal)
					Coolant change	4.02 L (1.062 US gal, 0.884 Imp gal)
		L15A7	M/T	With heater	Engine overhaul	5.03 L (1.329 US gal, 1.107 Imp gal)
					Coolant change	4.54 L (1.199 US gal, 0.999 Imp gal)
				Without heater	Engine overhaul	4.60 L (1.215 US gal, 1.012 Imp gal)
					Coolant change	4.11 L (1.086 US gal, 0.904 Imp gal)
			A/T	With heater	Engine overhaul	4.95 L (1.308 US gal, 1.089 Imp gal)
					Coolant change	4.46 L (1.178 US gal, 0.981 Imp gal)
				Without heater	Engine overhaul	4.52 L (1.195 US gal, 0.994 Imp gal)
					Coolant change	4.03 L (1.065 US gal, 0.887 Imp gal)

Radiator cap

Item	Measurement	Qualification	Standard or New
Radiator cap	Opening pressure		93−123 kPa (0.95−1.25 kgf/cm ^{2}, 14−18 psi)

Thermostat

Item	Measurement	Qualification	Standard or New
Thermostat	Opening temperature	Begins to open	76−80 °C (169−176 °F)
		Fully open	90 °C (194 °F)
	Valve lift at fully open		8.0 mm (0.31 in.) min.

Head

Item	Measurement	Qualification	Standard or New	Service Limit
Head	Warpage		0.07 mm (0.0028 in.)	0.08 mm (0.003 in.)
	Height		119.9−120.1 mm (4.720−4.728 in.)	———

Camshaft

Item	Measurement	Qualification		Standard or New	Service Limit
Camshaft	End play			0.05–0.25 mm (0.002–0.010 in.)	0.5 mm (0.02 in.)
	Camshaft-to-holder oil clearance			0.045–0.084 mm (0.0018–0.0033 in.)	0.100 mm (0.004 in.)
	Total runout			0.03 mm (0.001 in.) max.	0.04 mm (0.002 in.)
	Cam lobe height	L13Z1	Intake, primary	34.290 mm (1.3500 in.)	———
			Intake, secondary	30.529 mm (1.2019 in.)	———
			Exhaust	35.047 mm (1.3798 in.)	———
		L15A7	Intake, primary	35.241 mm (1.3874 in.)	———
			Intake, secondary	36.173 mm (1.4241 in.)	———
			Exhaust	35.471 mm (1.3964 in.)	———

Rocker arm

Item	Measurement	Qualification	Standard or New	Service Limit
Rocker arm	Arm-to-shaft clearance	Intake	0.019–0.058 mm (0.0007–0.0023 in.)	0.08 mm (0.003 in.)
		Exhaust	0.019–0.058 mm (0.0007–0.0023 in.)	0.08 mm (0.003 in.)

Valve

Item	Measurement	Qualification	Standard or New	Service Limit
Valve	Clearance (cold)	Intake	0.15−0.19 mm (0.006−0.007 in.)	———
		Exhaust	0.26−0.30 mm (0.010−0.012 in.)	———
	Stem O.D.	Intake	5.48−5.49 mm (0.216−0.216 in.)	5.45 mm (0.215 in.)
		Exhaust	5.45−5.46 mm (0.215−0.215 in.)	5.42 mm (0.213 in.)
	Stem-to-guide clearance	Intake	0.020−0.050 mm (0.0008−0.0020 in.)	0.08 mm (0.003 in.)
		Exhaust	0.050−0.080 mm (0.0020−0.0031 in.)	0.11 mm (0.004 in.)

Valve guide

Item	Measurement	Qualification	Standard or New	Service Limit
Valve guide	I.D.	Intake	5.51−5.53 mm (0.217−0.218 in.)	5.55 mm (0.219 in.)
		Exhaust	5.51−5.53 mm (0.217−0.218 in.)	5.55 mm (0.219 in.)
	Installed height	Intake	15.85−16.35 mm (0.624−0.644 in.)	———
		Exhaust	15.85−16.35 mm (0.624−0.644 in.)	———

Valve spring

Item	Measurement	Qualification		Standard or New	Service Limit
Valve spring	Free length	L13Z1	Intake	51.17 mm (2.014 in.)	———
			Exhaust	57.26 mm (2.254 in.)	———
		L15A7	Intake	48.55 mm (1.911 in.)	———
			Exhaust	54.52 mm (2.146 in.)	———

Valve seat

Item	Measurement	Qualification	Standard or New	Service Limit
Valve seat	Width	Intake	0.850−1.150 mm (0.0335−0.0453 in.)	1.60 mm (0.063 in.)
		Exhaust	1.250−1.550 mm (0.0492−0.0610 in.)	2.00 mm (0.079 in.)
	Stem installed height	Intake	46.1−46.5 mm (1.815−1.831 in.)	46.8 mm (1.843 in.)
		Exhaust	46.2−46.6 mm (1.819−1.835 in.)	46.9 mm (1.846 in.)

Compression

Item	Measurement	Qualification	Standard or New	Service Limit
Compression	Pressure check at 250 rpm (min^{-1}) with wide open throttle. (See Design Specs for ratio)	Minimum	980 kPa (10.0 kgf/cm^2, 142 psi)	———
		Maximum variation	200 kPa (2.0 kgf/cm^2, 28 psi)	———

Block

Item	Measurement	Qualification	Standard or New	Service Limit
Block	Warpage of deck		0.07 mm (0.003 in.) max.	0.10 mm (0.004 in.)
	Bore diameter		73.000−73.015 mm (2.8740−2.8746 in.)	73.065 mm (2.8776 in.)
	Bore taper		———	0.05 mm (0.002 in.)
	Reboring limit		———	0.25 mm (0.01 in.)

Connecting rod

Item	Measurement	Qualification	Standard or New	Service Limit
Connecting rod	Pin-to-rod interferemce		0.019−0.036 mm (0.007−0.0014 in.)	———
	Small-end bore diameter		17.964−17.977 mm (0.707−0.708 in.)	———
	Large-end bore diameter	Nominal	43.0 mm (1.69 in.)	———
	End play installed on crankshaft		0.15−0.35 mm (0.006−0.014 in.)	0.40 mm (0.016 in.)

Crankshaft

Item	Measurement	Qualification	Standard or New	Service Limit
Crankshaft	Main journal diameter		49.976−50.000 mm (1.9676−1.9685 in.)	———
	Rod journal diameter		39.976−40.000 mm (1.5739−1.5748 in.)	———
	Rod/main journal taper		0.005 mm (0.0002 in.)	0.010 mm (0.0004 in.)
	Rod/main journal out-of-round		0.005 mm (0.0002 in.)	0.010 mm (0.0004 in.)
	End play		0.10−0.35 mm (0.004−0.014 in.)	0.45 mm (0.018 in.)
	Runout		0.03 mm (0.0012 in.) max.	0.04 mm (0.0016 in.)

Crankshaft bearing

Item	Measurement	Qualification	Standard or New	Service Limit
Crankshaft bearing	Main bearing-to-journal oil clearance		0.018−0.036 mm (0.0007−0.0014 in.)	0.050 mm (0.0020 in.)
	Rod bearing clearance	L15A7	0.020−0.038 mm (0.0008−0.0015 in.)	0.050 mm (0.0020 in.)
		L13Z1	0.026−0.044 mm (0.0010−0.0017 in.)	0.050 mm (0.0020 in.)

Piston

Item	Measurement	Qualification	Standard or New	Service Limit
Piston	Skirt O.D. at 16 mm (0.6 in.) from bottom of skirt	L13Z1	72.972−72.982 mm (2.8729−2.8733 in.)	72.97 mm (2.8728 in.)
		L15A7	72.980−72.990 mm (2.8732−2.8736 in.)	72.97 mm (2.8728 in.)
	Clearance in cylinder	L13Z1	0.018−0.043 mm (0.007−0.0017 in.)	0.05 mm (0.002 in.)
		L15A7	0.010−0.035 mm (0.0004−0.0014 in.)	0.05 mm (0.002 in.)
	Ring groove width	Top	1.050−1.060 mm (0.0413−0.0417 in.)	1.080 mm (0.0425 in.)
		Second	1.020−1.030 mm (0.0401−0.0405 in.)	1.050 mm (0.0413 in)
		Oil	2.005−2.020 mm (0.0789−0.0795 in.)	2.050 mm (0.0807 in.)

Piston pin

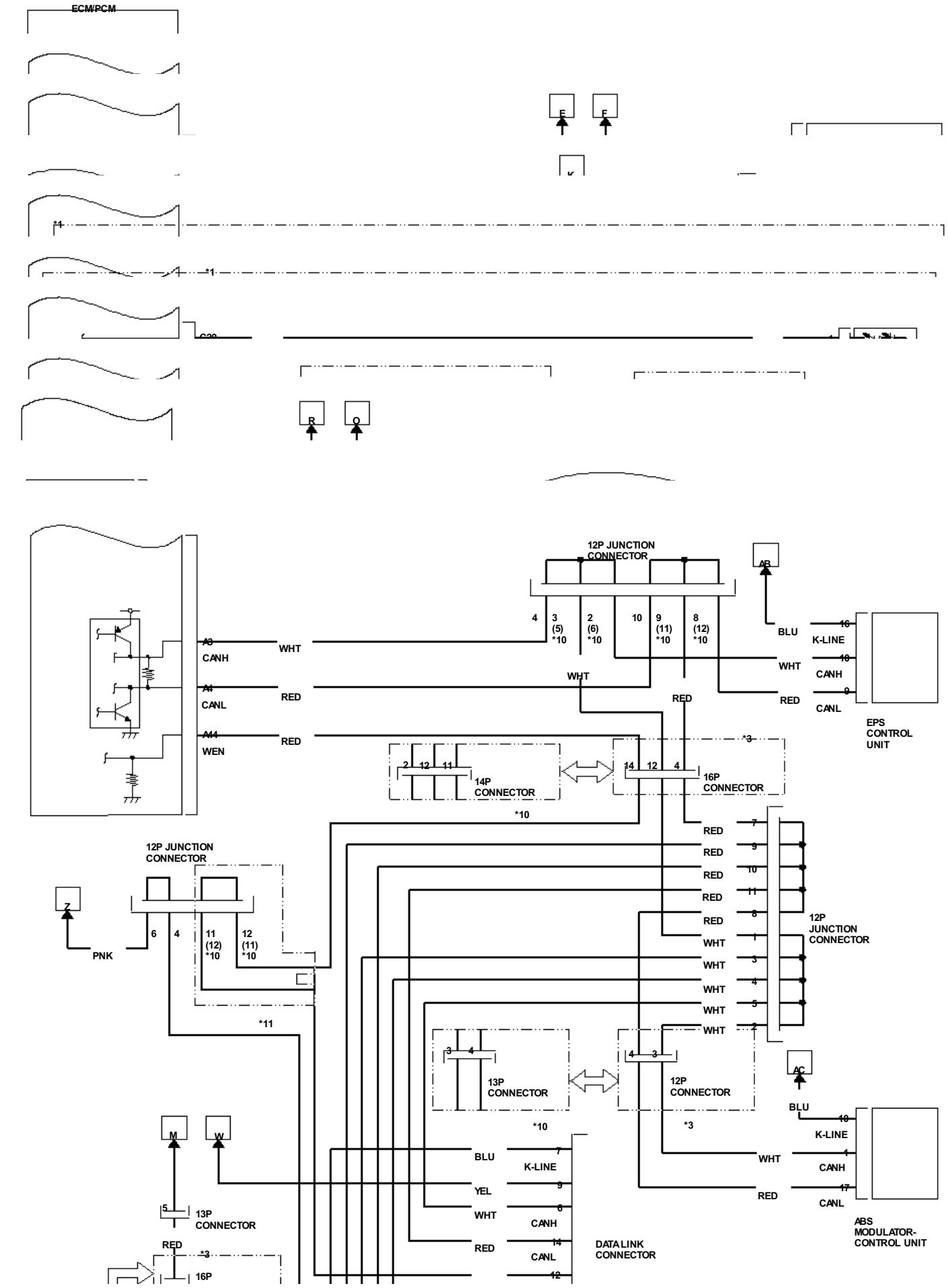
Item	Measurement	Qualification	Standard or New	Service Limit
Piston pin	O.D.		17.996−18.000 mm (0.7085−0.7087 in.)	———
	Pin-to-piston clearance		0.010−0.017 mm (0.0004−0.0007 in.)	———

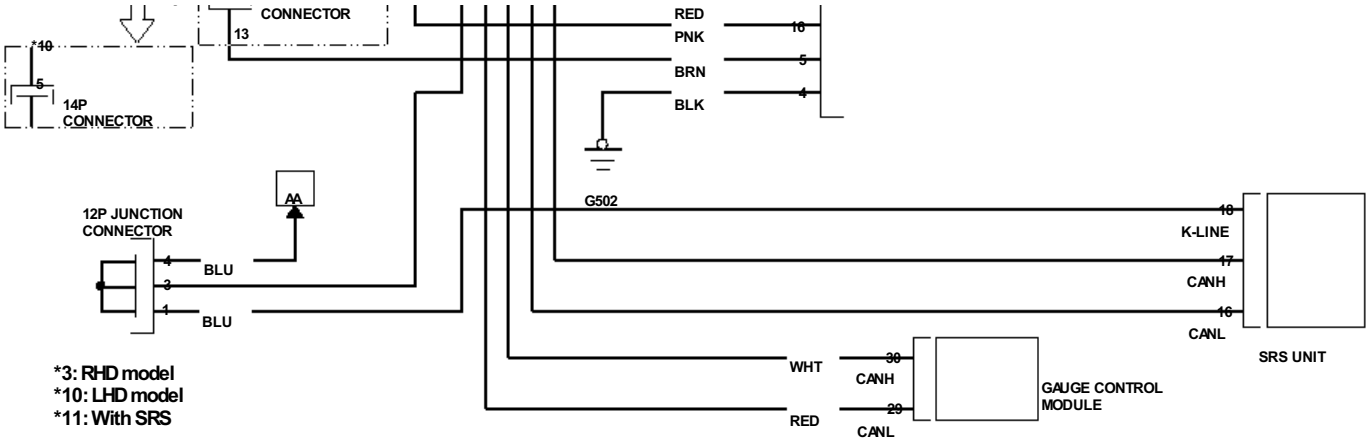
Piston ring

Item	Measurement	Qualification	Standard or New	Service Limit
Piston ring	Ring-to-groove clearance	Top	0.065−0.090 mm (0.0026−0.0035 in.)	0.15 mm (0.006 in.)
		Second	0.030−0.055 mm (0.0012−0.0022 in.)	0.12 mm (0.005 in.)
	Ring end gap	Top	0.15−0.30 mm (0.006−0.012 in.)	0.60 mm (0.024 in.)
		Second	0.30−0.42 mm (0.012−0.017 in.)	0.65 mm (0.026 in.)
		Oil	0.20−0.70 mm (0.008−0.028 in.)	0.80 mm (0.031 in.)

Fuel and Emissions Systems Circuit Diagram

ECM/PCM Circuit Diagram




CONNECTOR
13
*10
5
14P
CONNECTOR
RED
PNK
BRN
BLK
16
5
4
G502
12P JUNCTION
CONNECTOR
AA
4
3
1
BLU
BLU
18
K-LINE
17
CANH
16
CANL
SRS UNIT
WHT
30
CANH
RED
29
CANL
GAUGE CONTROL
MODULE
*3: RHD model
*10: LHD model
*11: With SRS

Engine will not start (MIL works OK, no DTCs set)

Diagnostic procedure

1. Test the battery.
2. Test the starter.
3. Check the fuel pressure.
4. Troubleshoot the fuel pump circuit.

Also check for

- Low compression
- No ignition spark
- Intake vacuum leaks
- Locked up engine
- Broken cam chain
- Fuel contamination

Engine will not start (MIL comes on and stays on, no DTCs set)

Diagnostic procedure

1. Troubleshoot the DLC circuit.

Also check for

- Low compression
- No ignition spark
- Intake vacuum leaks
- Locked up engine
- Broken cam chain
- Fuel contamination
- No power to ECM/PCM
- No ground to ECM/PCM
- Shorted reference voltage

MIL comes on and stays on, or never comes on at all, no DTCs set

Diagnostic procedure

1. Troubleshoot the MIL circuit.

Engine will not start (MIL works OK, no DTCs set, immobilizer indicator stays on or flashes)

Diagnostic procedure

1. Check the immobilizer system.

Engine starts but stalls immediately (MIL works OK, no DTCs set, immobilizer indicator stays on or flashes)

Diagnostic procedure

1. Check the immobilizer system.

Engine is hard starting (MIL works OK, no DTCs set)

Diagnostic procedure

1. Test the battery.
2. Check the fuel pressure.
3. Test the throttle body.

Also check for

- Low compression
- Intake air leaks
- Fuel contamination
- Weak spark

Cold fast idle too low (MIL works OK, no DTCs set)

Diagnostic procedure

1. Do the ECM/PCM idle learn procedure.
2. Check the idle speed.
3. Throttle body cleaning.

Also check for

- Incorrect valve adjustment

Cold fast idle too high (MIL works OK, no DTCs set)

Diagnostic procedure

1. Do the ECM/PCM idle learn procedure.
2. Check the idle speed.
3. Test the throttle body.

Also check for

- Incorrect valve adjustment

After warming up, idle speed is below specifications without load (MIL works OK, no DTCs set)

Diagnostic procedure

1. Troubleshoot the alternator FR signal circuit.
2. Test the throttle body.

Also check for

- Intake vacuum leaks
- Incorrect valve adjustment

After warming up, idle speed is above specifications without load (MIL works OK, no DTCs set)

Diagnostic procedure

1. Troubleshoot the alternator FR signal circuit.
2. Inspect the APP sensor.

Also check for

- Intake vacuum leaks

Idle speed fluctuates (MIL works OK, no DTCs set)

Diagnostic procedure

1. Do the ECM/PCM idle learn procedure.
2. Test the fuel pressure.
3. Except KQ model: Test the injectors.
4. Troubleshoot the alternator FR signal circuit.
5. Inspect the PCV valve.
6. Test the throttle body.
7. Troubleshoot the A/C signal circuit.
8. Troubleshoot the VTEC system oil pressure.

Also check for

- Fuel contamination
- Intake vacuum leaks

Misfire or rough running (MIL works OK, no DTCs set)

Diagnostic procedure

1. Check the spark plugs.
2. Test the fuel pressure.
3. Test the injectors.
4. Troubleshoot the fuel pump circuit.
5. Troubleshoot the VTEC system oil pressure.

Also check for

- Low compression
- Valve clearance
- Fuel contamination

Fails emission test (MIL works OK, no DTCs set)

Diagnostic procedure

1. Except KQ model: Inspect the three way catalytic converter (TWC).
2. Except KQ model: Check the spark plugs.
3. Test the fuel pressure.
4. Except KQ model: Test the injectors.
5. Check the EVAP system.
6. Troubleshoot the VTEC system oil pressure.

Also check for

- Fuel contamination
- Low compression
- Broken cam chain

Low power (MIL works OK, no DTCs set)

Diagnostic procedure

1. Test the fuel pressure.
2. Check the air cleaner element.
3. Test the throttle body.
4. Except KQ model: Inspect the three way catalytic converter (TWC).
5. Except KQ model: Test the injectors.
6. Troubleshoot the VTEC system oil pressure.

Also check for

- Fuel contamination
- Low compression
- Camshaft timing
- Engine oil level

Engine stalls (MIL works OK, no DTCs set)

Diagnostic procedure

1. Do the ECM/PCM idle learn procedure.
2. Test the fuel pressure.
3. Check the idle speed.
4. Troubleshoot the brake pedal position switch signal circuit.
5. Except KQ model: Check the spark plugs.
6. Troubleshoot the VTEC system oil pressure.

Also check for

- Intake vacuum leaks
- Faulty harness and sensor connections
- Fuel contamination

Difficult to refuel

Diagnostic procedure

1. Inspect the breather line and the suction line.

HDS does not communicate with the ECM/PCM or the vehicle

Diagnostic procedure

1. Troubleshoot the DLC circuit.

Fuel and Emissions Systems Symptom Troubleshooting Index

When the vehicle has one of these symptoms, check for a diagnostic trouble code (DTC) with the HDS. If there is no DTC, do the diagnostic procedure for the symptom, in the sequence listed, until you find the cause.

Symptom	Diagnostic procedure	Also check for
Engine will not start (MIL works OK, no DTCs set)	1.Test the battery. 2.Test the starter. 3.Check the fuel pressure. 4.Troubleshoot the fuel pump circuit.	• Low compression • No ignition spark • Intake vacuum leaks • Locked up engine • Broken cam chain • Fuel contamination
Engine will not start (MIL comes on and stays on, no DTCs set)	Troubleshoot the DLC circuit.	• Low compression • No ignition spark • Intake vacuum leaks • Locked up engine • Broken cam chain • Fuel contamination • No power to ECM/PCM • No ground to ECM/PCM • Shorted reference voltage
MIL comes on and stays on, or never comes on at all, no DTCs set	Troubleshoot the MIL circuit.	
Engine will not start (MIL works OK, no DTCs set, immobilizer indicator stays on or flashes)	Check the immobilizer system.	
Engine starts but stalls immediately (MIL works OK, no DTCs set, immobilizer indicator stays on or flashes)	Check the immobilizer system.	
Engine is hard starting (MIL works OK, no DTCs set)	1.Test the battery. 2.Check the fuel pressure. 3.Test the throttle body.	• Low compression • Intake air leaks • Fuel contamination • Weak spark
Cold fast idle too low (MIL works OK, no DTCs set)	1.Do the ECM/PCM idle learn procedure. 2.Check the idle speed. 3.Throttle body cleaning.	Incorrect valve adjustment
Cold fast idle too high (MIL works OK, no DTCs set)	1.Do the ECM/PCM idle learn procedure. 2.Check the idle speed. 3.Test the throttle body.	Incorrect valve adjustment
After warming up, idle speed is below specifications without load (MIL works OK, no DTCs set)	1.Troubleshoot the alternator FR signal circuit. 2.Test the throttle body.	• Intake vacuum leaks • Incorrect valve adjustment
After warming up, idle speed is above specifications without load (MIL works OK, no DTCs set)	1.Troubleshoot the alternator FR signal circuit. 2.Inspect the APP sensor.	Intake vacuum leaks
Idle speed fluctuates (MIL works OK, no DTCs set)	1.Do the ECM/PCM idle learn procedure. 2.Test the fuel pressure. 3.Except KQ model: Test the injectors. 4.Troubleshoot the alternator FR signal circuit. 5.Inspect the PCV valve. 6.Test the throttle body. 7.Troubleshoot the A/C signal circuit. 8.Troubleshoot the VTEC system oil pressure.	• Fuel contamination • Intake vacuum leaks
Misfire or rough running (MIL works OK, no DTCs set)	1.Check the spark plugs. 2.Test the fuel pressure. 3.Test the injectors. 4.Troubleshoot the fuel pump circuit. 5.Troubleshoot the VTEC system oil pressure.	• Low compression • Valve clearance • Fuel contamination
Fails emission test (MIL works OK, no DTCs set)	1.Except KQ model: Inspect the three way catalytic converter (TWC). 2.Except KQ model: Check the spark plugs. 3.Test the fuel pressure. 4.Except KQ model: Test the injectors. 5.Check the EVAP system. 6.Troubleshoot the VTEC system oil pressure.	• Fuel contamination • Low compression • Broken cam chain
Low power (MIL works OK, no DTCs set)	1.Test the fuel pressure. 2.Check the air cleaner element. 3.Test the throttle body. 4.Except KQ model: Inspect the three way catalytic converter (TWC). 5.Except KQ model: Test the injectors. 6.Troubleshoot the VTEC system oil pressure.	• Fuel contamination • Low compression • Camshaft timing • Engine oil level
Engine stalls (MIL works OK, no DTCs set)	1.Do the ECM/PCM idle learn procedure. 2.Test the fuel pressure. 3.Check the idle speed. 4.Troubleshoot the brake pedal position switch signal circuit. 5.Except KQ model: Check the spark plugs. 6.Troubleshoot the VTEC system oil pressure.	• Intake vacuum leaks • Faulty harness and sensor connections • Fuel contamination

Symptom	Diagnostic procedure	Also check for
Difficult to refuel	Inspect the breather line and the suction line.	
HDS does not communicate with the ECM/PCM or the vehicle	Troubleshoot the DLC circuit.	

Fuel pressure regulator

Item	Measurement	Qualification	Standard or New
Fuel pressure regulator	Pressure with fuel pressure gauge connected		320−370 kPa (3.3−3.8 kgf/cm ^{2} , 47−54 psi)

Fuel tank

Item	Measurement	Qualification	Standard or New
Fuel tank	Capacity		42 L (11.0 US gal, 9.2 Imp gal)

Engine idle

Item	Measurement	Qualification	Standard or New
Engine idle	Idle speed without load (L13Z1)	M/T (in neutral)	650±50 rpm
		A/T (in N or P)	700±50 rpm
	Idle speed without load (L15A7)	M/T (in neutral), A/T (in N or P)	700±50 rpm
	Idle speed with high electrical load (A/C switch ON, temperature set to max cool, blower fan on High, rear window defogger ON, and headlights on high beam)	M/T (in neutral), A/T (in N or P)	790±50 rpm
	Idle CO		0.1 % max.

Ignition timing

Item	Measurement	Qualification	Standard or New	Service Limit
Ignition timing		At idle (check the *white* mark)	M/T (in neutral): 0±2 ° BTDC	
			A/T (in N or P): 0±2 ° BTDC	

Ignition coil

Item	Measurement	Qualification	Standard or New	Service Limit
Ignition coil	Rated voltage		12 V	
	Firing order		1−3−4−2	

Spark plug

Item	Measurement	Qualification	Standard or New	Service Limit
Spark plug	Type		NGK: IZFR6K13 DENSO: SKJ20DR-M13	
	Gap		1.2−1.3 mm (0.047−0.051 in.)	———

Oil pump

Item	Measurement	Qualification	Standard or New	Service Limit
Oil pump	Inner rotor-to-outer rotor clearance		0.06−0.16 mm (0.002−0.006 in.)	0.20 mm (0.008 in.)
	Pump housing-to-outer rotor clearance		0.100−0.175 mm (0.0039−0.0069 in.)	0.20 mm (0.008 in.)
	Pump housing-to-rotor axial clearance		0.02−0.06 mm (0.001−0.002 in.)	0.15 mm (0.006 in.)

Relief valve

Item	Measurement	Qualification	Standard or New	Service Limit
Relief valve	Relief valve, oil pressure with oil temperature at 80°C (176°F)	At idle	70 kPa (0.7 kgf/cm ^{2}, 10 psi) min.	———
		At 3,000 rpm (min $^{-1}$)	340 kPa (3.5 kgf/cm ^{2}, 50 psi) min.	———

Engine oil

Item	Measurement	Qualification	Standard or New	Service Limit
Engine oil	Capacity	Engine overhaul	4.2 L (4.4 US qt, 3.7 Imp qt)	———
		Oil change including oil filter	3.6 L (3.8 US qt, 3.2 Imp qt)	———
		Oil change without oil filter	3.4 L (3.6 US qt, 3.0 Imp qt)	———

Starter

Item	Measurement	Qualification	Standard or New	Service Limit
Starter	Output	Except L13Z1 KP, KQ	0.7 kw	
		L13Z1 KP, KQ	0.6 kw, 0.7 kw	
	Commutator mica depth		0.45−0.75 mm (0.018−0.030 in.)	0.20 mm (0.008 in.)
	Commutator runout		0.05 mm (0.002 in.) max.	0.4 mm (0.02 in.)
	Commutator O.D.		27.9−28.0 mm (1.098−1.102 in.)	27.0 mm (1.06 in.)
	Brush length		9.7−10.3 mm (0.38−0.41 in.)	6.0 mm (0.20 in.)

Wheel alignment

Item	Measurement	Qualification	Standard or New	Service Limit
Wheel alignment	Camber	Front	0 ° 00 ′±1 °	
		Rear	−1 ° 00 ′±1 °	
	Caster	Front	3 ° 20 ′±1 °	
	Total toe-in	Front	0±3 mm (0±0.12 in.)	
		Rear	2.5±2.5 mm (10±0.10 in.)	
	Front wheel turning angle	Inward	40 ° 19 ′±2 °	
		Outward (reference)	33 ° 19 ′±1 °	

Wheel bearing

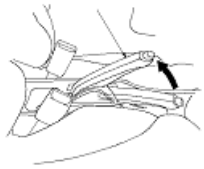
Item	Measurement	Qualification	Standard or New	Service Limit
Wheel bearing	End play	Front	0−0.05 mm (0−0.002 in.)	
		Rear	0−0.05 mm (0−0.002 in.)	

Wheel

Item	Measurement	Qualification	Standard or New	Service Limit
Wheel	Steel wheel runout	Axial	0−1.0 mm (0−0.04 in.)	2.0 mm (0.08 in.)
		Radial	0−1.0 mm (0−0.04 in.)	1.5 mm (0.06 in.)
	Aluminium wheel runout	Axial	0−0.7 mm (0−0.03 in.)	2.0 mm (0.08 in.)
		Radial	0−0.7 mm (0−0.03 in.)	1.5 mm (0.06 in.)

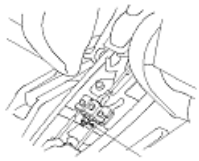
Parking Brake Inspection and Adjustment

Inspection

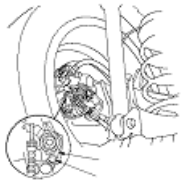


1. Pull the parking brake lever (A) with 196 N (20 kgf, 44 lbf) of force to fully apply the parking brake. The parking brake lever should be locked within the specified number of clicks.
   Lever locked clicks: 6 to 8
2. If the number of lever clicks is not as specified, adjust the parking brake.

Adjustment



1. Release the parking brake lever fully.
2. Press the brake pedal several times.
3. Remove the center console.
4. Loosen the parking brake adjusting nut (A).
5. Raise the rear of the vehicle, and support it with safety stands in the proper locations.
6. Remove the rear wheels.



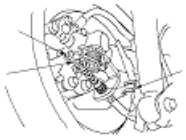
7. Make sure the lever (A) on the rear brake caliper contacts the stop pin (B).
   NOTE: The parking brake lever will contact the stop pin when the parking brake adjusting nut is loosened.
8. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the rear wheels.
9. Pull the parking brake lever 1 click.
10. Tighten the parking brake adjusting nut until the parking brakes drag slightly when the rear wheels are turned.
11. Release the parking brake lever fully, and check that the parking brakes do not drag when the rear wheels are turned. Readjust if necessary.
12. Make sure the parking brake lever within the specified number of clicks (6 to 8 clicks).
13. Install the center console.

Parking brake

Item	Measurement	Qualification	Standard or New	Service Limit
Parking brake	Distance traveled when lever pulled with 196 N (20 kgf, 44 lbf) of force		6 to 8 clicks	

Parking Brake Cable Replacement

Exploded View



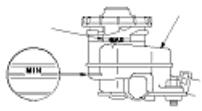
NOTE:

- The parking brake cables must not be bent or distorted. This will lead to stiff operation and premature cable failure.
- Refer to the Exploded View as needed during this procedure.

1. Release the parking brake lever fully.
2. Loosen the parking brake cable adjustment nut.
3. Remove the parking brake cable clip (A) from the brake cable (B).
4. Disconnect the parking brake cable from the lever (C).
5. Remove the parking brake cable mounting hardware, then remove the cable.
6. Install the parking brake cable in the reverse order of removal, and note these items:
   - Be careful not to bend or distort the cable.
   - Make sure the parking brake cable clip is fully seated on the cable housing.
   - Adjust the parking brake.

Brake System Bleeding

NOTE:



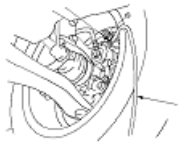
- Do not reuse the drained fluid. Use only clean genuine Honda DOT 3 or DOT 4 Brake Fluid from an unopened container. Using a non-Honda brake fluid can cause corrosion and shorten the life of the system.
- Make sure no dirt or other foreign matter is allowed to contaminate the brake fluid.
- Do not spill brake fluid on the vehicle, it may damage the paint; if brake fluid does contact the paint, wash it off immediately with water.
- The reservoir connected to the master cylinder must be at the MAX (upper) level mark at the start of the bleeding procedure and checked after bleeding each wheel location. Add fluid as required.

1. Make sure the brake fluid level in the reservoir (A) is at the MAX (upper) level line (B).
2. Have someone slowly pump the brake pedal several times, then apply steady pressure.

3. Start the bleeding at the driver's side of the front brake system.
   NOTE: Bleed the calipers or the wheel cylinders in the sequence shown.

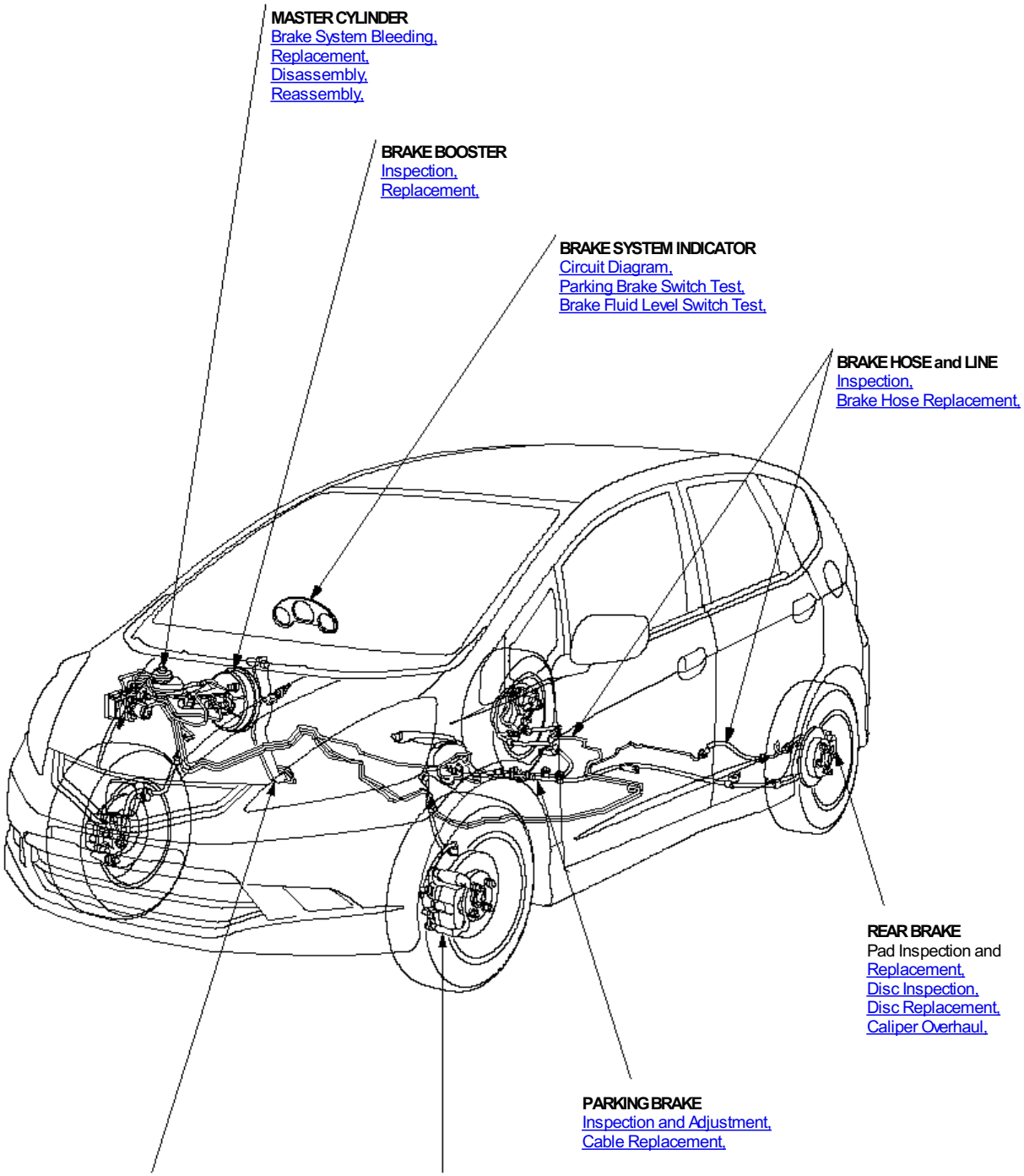
4. Attach a length of clear drain tube (A) to the bleed screw (B), then, loosen the bleed screw to allow air to escape from the system. Then tighten the bleed screw securely.
5. Refill the master cylinder reservoir to the MAX (upper) level line.
6. Repeat the procedure for each brake circuit until there are no air bubbles are in the fluid.

Front



Rear

Conventional Brake Component Location Index

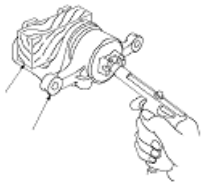


*: The illustration shows RHD model, LHD model is similar.

Brake booster

Item	Measurement	Qualification	Standard or New		Service Limit
Brake booster	Master cylinder oil pressure	Vacuum booster Vacuum kPa (mmHg, in.Hg)	Brake pedal pressure N (kgf, lbf)	Master cylinder oil pressure kPa (kgf/cm ^{2} , psi)	
		0 (0, 0)	98 (10, 22)	0 (0, 0)	
			196 (20, 44)	Except LHD (M/T)	577 (5.9, 84)
				LHD (M/T)	501 (5.1, 73)
		66.7 (500, 19.7)	98 (10, 22)	Except LHD (M/T)	4,523 (46.1, 656)
				LHD (M/T)	4,235 (43.2, 614)
			196 (20, 44)	Except LHD (M/T)	9,538 (97.3, 1.383)
				LHD (M/T)	9,468 (96.5, 1.373)

Front Brake Caliper Overhaul



Exploded View

⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.

- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an appropriate vacuum cleaner.

NOTE: Make sure that the caliper pins are installed correctly. Upper caliper pin B and lower caliper pin A are different. If these caliper pins are installed in the wrong location, it will cause vibration, uneven or rapid pad wear, and possibly uneven tyre wear.

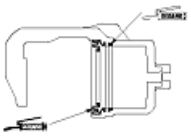
- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
- To prevent dripping brake fluid, cover disconnected hose joints with rags or shop towels.
- Clean all parts in brake fluid and air dry; blow out all passages with compressed air.
- Before reassembling, check that all parts are free of dirt and other foreign particles.
- Replace parts with new ones as specified in the illustration.
- Make sure no dirt or other foreign matter gets in the brake fluid.
- Make sure no grease or oil gets on the brake discs or the brake pads.
- When reusing brake pads, always reinstall them in their original positions to prevent loss of braking efficiency.
- Do not reuse drained brake fluid. Use only clean genuine Honda DOT 3 or DOT 4 Brake Fluid from an unopened container. Using a non-Honda brake fluid can cause corrosion and shorten the life of the system.
- Coat the piston, the piston seal groove, and the caliper bore with clean brake fluid.
- Use recommended greases in the front caliper set.
- After installing the caliper, check the brake hose and line for leaks, interference, and twisting.
- When you apply the silicone grease, make sure not to adhere to the terminal part of connectors and surrounding switches. Also do not touch the switches and the terminal part of connector by hands or glove that adheres the silicone grease.

Disassembly

1. Remove the caliper body.
2. Set the wooden block (A) or several shop towels to the caliper body (B) as shown. Blow out the piston with compressed air gradually, and remove the piston from the caliper body.
   NOTE: Do not put the hand into the caliper body because the piston will come out hardly from the caliper body.

3. Remove the piston boot (A) and the piston seal (B) from the caliper body (C).
   NOTE: Be careful not to damage the inner surface of the cylinder wall with the tool.

Reassembly



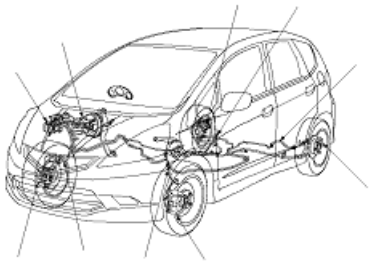
1. Apply a thin coat of silicone grease to the new piston seal (A), then install it into the groove in the caliper body.
2. Apply a thin coat of rubber grease to the new piston boot (B), then install it into the groove in the caliper body.
3. Apply the brake fluid to the outer surface of the piston, then set the piston in place on the caliper body.

4. Mount the commercially available brake caliper piston compressor tool (A) on the caliper body (B).
5. Press in the piston with the brake caliper piston compressor tool. Make sure that the piston boot is properly positioned into the groove of the piston.
   NOTE:
   - Do not press the piston diagonally, and do not press it forcibly.
   - Be careful not to damage the piston boot when press the piston.
6. Install the caliper body.
7. Bleed the brake system.

Brake disc

Item	Measurement	Qualification	Standard or New	Service Limit
Brake disc	Thickness	Front	20.9−21.1 mm (0.82−0.83 in.)	19.0 mm (0.75 in.)
		Rear	8.9−9.1 mm (0.35−0.36 in.)	8.0 mm (0.31 in.)
	Runout		———	0.04 mm (0.0016 in.)
	Parallelism		———	0.015 mm (0.0006 in.)

Brake Hose and Line Inspection



1. Inspect the brake hoses for damage, deterioration, leaks, interference, and twisting.
2. Check the brake lines for damage, rusting, and leaks. Also check for bent brake lines.
3. Check for leaks at hose and line joints and connections, and retighten if necessary.
4. Check the master cylinder and the ABS modulator-control unit for damage and leaks.

Connection Point	Component	Connected to	Specified Torque Value	Note
A	Front brake caliper	Brake hose	34 N·m (3.5 kgf·m, 25 lbf·ft)	Banjo bolt
		Bleed screw	8 N·m (0.8 kgf·m, 6 lbf·ft)	
B	Rear brake caliper	Brake hose	34 N·m (3.5 kgf·m, 25 lbf·ft)	Banjo bolt
		Bleed screw	9 N·m (0.9 kgf·m, 7 lbf·ft)	
C	Brake hose	Brake line	15 N·m (1.5 kgf·m, 11 lbf·ft)	Flare nut
D	Master cylinder	Brake line	15 N·m (1.5 kgf·m, 11 lbf·ft)	Flare nut
E	ABS modulator-control unit	Brake line	15 N·m (1.5 kgf·m, 11 lbf·ft)	Flare nut

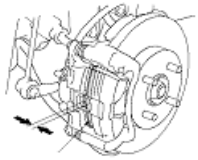
Front Brake Pad Inspection and Replacement

⚠CAUTION

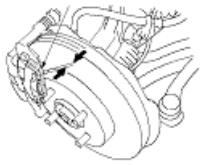
Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.

- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an appropriate vacuum cleaner.

Inner pad



Outer pad



Inspection

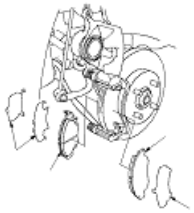
1. Raise the front of the vehicle, and support it with safety stands in the proper locations.
2. Remove the front wheels.
3. Check the thickness (A) of the inner pad (B) and the outer pad (C). Do not include the thickness of the backing plate.
   Brake pad thickness:

Standard:	**9.5–10.2 mm (0.37–0.41 in.)**
Service limit:	**1.6 mm (0.06 in.)**

4. If the brake pad thickness of any of the pads is less than the service limit, replace the front brake pads as a set.
5. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheels.

Replacement

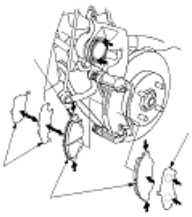
1. Remove some brake fluid from the master cylinder.
2. Raise the front of the vehicle, and support it with safety stands in the proper locations.
3. Remove the front wheels.
4. Remove the brake hose mounting bolt (A).
5. Remove the flange bolt (B) while holding the caliper pin (C) with a wrench. Be careful not to damage the pin boot, and pivot the caliper (D) up out of the way. Check the hose and the pin boots for damage and deterioration.



6. Remove the pad shims (A) and the brake pads (B).

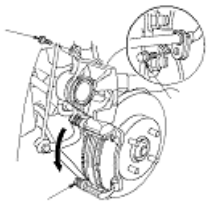
7. Remove the pad retainers (A).
8. Clean the caliper bracket (B) thoroughly; remove any rust, and check for grooves and cracks.
   Verify that the caliper pins (C) move in and out smoothly. Clean and lube if needed.
9. Inspect the brake disc, and check for damage and cracks.
10. Install the pad retainers. Wipe excess grease off the retainers. Keep grease off the brake disc and the brake pads.

11. Mount a commercially available brake caliper piston compressor tool (A) on the caliper body (B).
12. Press in the piston with the brake caliper piston compressor tool so the caliper will fit over the brake pads. Make sure the piston boot is in position to prevent damaging it when pivoting the caliper down.
    NOTE: Be careful when pressing in the piston; brake fluid might overflow from the master cylinder's reservoir. If brake fluid gets on any painted surface, wash it off immediately with water.
13. Remove the brake caliper piston compressor tool.



14. Apply Molykote M77 grease to the pad side of the shims (A), the back of the brake pads (B) and the other areas indicated by the arrows. Wipe excess grease off the pad shims and the brake pads. Keep grease off the brake discs and the brake pads. Contaminated brake discs or brake pads reduce stopping ability.
15. Install the brake pads and the pad shims correctly. Install the brake pad with the wear indicator (C) on the upper inside. If you are reusing the brake pads, always reinstall the brake pads in their original positions to prevent a momentary loss of braking efficiency.

16. Pivot the caliper down into position. Install the flange bolt (A), and tighten it to the specified torque while holding the caliper pin (B) with a wrench being careful not to damage the pin boot.



17. Install the brake hose mounting bolt (C).
18. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheels.
19. Press the brake pedal several times to make sure the brakes work.
    NOTE: Engagement may require a greater pedal stroke immediately after the brake pads have been replaced as a set. Several applications of the brake pedal will restore the normal pedal stroke.
20. Add brake fluid as needed.
21. After installation, check for leaks at hose and line joints or connections, and retighten if necessary.
    Test-drive the vehicle, then check for leaks.

Brake pad

Item	Measurement	Qualification	Standard or New	Service Limit
Brake pad	Thickness	Front	9.5−10.2 mm (0.37−0.41 in.)	1.6 mm (0.06 in.)
		Rear	6.8−7.5 mm (0.27−0.30 in.)	1.6 mm (0.06 in.)

Brake pedal

Item	Measurement	Qualification	Standard or New	Service Limit
Brake pedal	Pedal height (carpet moved aside)	M/T	139 mm (5.5 in.)	
		A/T	138 mm (5.4 in.)	
	Free play		1−5 mm (0.04−0.20 in.)	

Gearbox

Item	Measurement	Qualification	Standard or New
Gearbox	Angle of rack guide screw loosened from locked position		10±3 °

Steering wheel

Item	Measurement	Qualification	Standard or New
Steering wheel	Rotational play measured at outside edge with engine running		0−10 mm (0−0.39 in.)
	Initial load measured at outside edge with engine running		29 N (3.0 kgf, 6.6 lbf)

A/C condenser fan does not run at all (but radiator fan runs with the A/C on)

Diagnostic procedure

1. A/C condenser fan circuit troubleshooting

Also check for

- Blown fuse No. 47 (30 A) in the under-dash fuse/relay box
- Poor ground at G202
- Cleanliness and tightness of all connectors

Both fans do not run with the A/C on (but the A/C compressor runs with the A/C on)

Diagnostic procedure

1. Radiator and A/C condenser fan common circuit troubleshooting

Also check for

- Blown fuse No. 30 (30 A) and No. 47 (30 A) in the under-dash fuse/relay box
- Poor ground at G202
- Cleanliness and tightness of all connectors

The A/C compressor clutch does not engage (but both fans run with the A/C on)

Diagnostic procedure

1. A/C compressor clutch circuit troubleshooting

Also check for

- Blown fuse No. 43 (7.5 A) in the under-dash fuse/relay box
- Cleanliness and tightness of all connectors

A/C system does not come on (both fans and the A/C compressor do not work); heater is OK

Diagnostic procedure

1. A/C pressure switch circuit troubleshooting

Also check for

- Poor ground at G502
- Cleanliness and tightness of all connectors

A/C Pressure Switch Circuit Troubleshooting

NOTE:

- Do not use this troubleshooting procedure if any of these items are working properly with the A/C switch ON; condenser fan, radiator fan, A/C compressor, or if the heater does not work. Refer to the symptom troubleshooting index.
- Check the A/C high-side pressure.

1. Disconnect the A/C pressure switch 2P connector.
2. Turn the ignition switch to ON (II).
3. Measure the voltage between the A/C pressure switch 2P connector No. 2 terminal and body ground.

   Is there battery voltage?
   YES - Go to Step 4 .
   NO - Go to Step 23 .
4. Turn the ignition switch to LOCK (0).

---

5. Check for continuity between the No. 1 and No. 2 terminals of the A/C pressure switch.

   Is there continuity?
   YES - Go to Step 6 .
   NO - Replace the A/C pressure switch.■
6. Reconnect the A/C pressure switch 2P connector.
7. Disconnect the A/C switch 5P connector.
8. Turn the ignition switch to ON (II).

---

9. Measure the voltage between the A/C switch 5P connector No. 2 terminal and body ground.

   Is there battery voltage?
   YES - Go to Step 10 .
   NO - Repair open in the wire between the A/C pressure switch and the A/C switch.■
10. Turn the ignition switch to LOCK (0).
11. Test the A/C switch.

    Is the A/C switch OK?
    YES - Go to Step 12 .
    NO - Replace the A/C switch.■
12. Disconnect the heater fan switch 8P connector.

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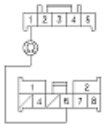
13. Check for continuity between the A/C switch 5P connector No. 1 terminal and the heater fan switch 8P connector No. 6 terminal.



    Is there continuity?
    YES - Go to Step 14 .
    NO - Repair open in the wire between the A/C switch and the heater fan switch.■
14. Test the heater fan switch.

    Is the heater fan switch OK?
    YES - Go to Step 15 .
    NO - Replace the heater fan switch. ■
15. Remove the evaporator temperature sensor and test it.

    Is the evaporator temperature sensor OK?
    YES - Go to Step 16 .
    NO - Replace the evaporator temperature sensor. ■
16. Jump the SCS line with the HDS.
    NOTE: This step must be done to protect the engine control module (ECM)/powertrain control module (PCM) from damage.
17. Disconnect ECM/PCM connector A (49P).

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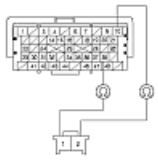
18. Check for continuity between the following terminals of ECM/PCM connector A (49P) and the evaporator temperature sensor 2P connector.



49P:	2P:
No. 10	No. 2
No. 38	No. 1

Is there continuity?

YES -
- KZ, KP, and MA models: Go to Step 19 .
- Except KZ, KP, and MA models: Go to Step 22 .

NO - Repair open in the wire(s) between the ECM/PCM and the evaporator temperature sensor.■

19. Test the temperature control dial.

Is the temperature control dial OK?

YES - Go to Step 20 .
NO - Replace the temperature control dial. ■

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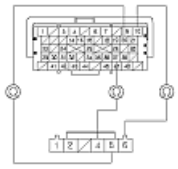
20. Check for continuity between the following terminals of ECM/PCM connector A (49P) and the heater control panel 6P connector.



49P:	6P:
No. 10	No. 6
No. 20	No. 5
No. 37	No. 4

Is there continuity?

YES - Go to Step 21 .
NO - Repair open in the wire(s) between the ECM/PCM and the heater control panel. Also check the heater control panel harness.■

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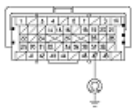
21. Check for continuity between ECM/PCM connector A (49P) No. 37 terminal and body ground.



Is there continuity?

YES - Repair short to body ground in the wire between the ECM/PCM and the temperature control dial.■
NO - Go to Step 22 .

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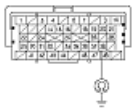
22. Check for continuity between ECM/PCM connector A (49P) No. 38 terminal and body ground.



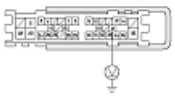
Is there continuity?

YES - Repair short to body ground in the wire between the ECM/PCM and the evaporator temperature sensor.■
NO - Check for loose wires or poor connections at ECM/PCM connector A (49P), the evaporator temperature sensor 2P connector, the A/C pressure switch 2P connector, the A/C switch 5P connector and at the heater fan switch 8P connector. If the connections are good, substitute a known-good ECM/PCM, and recheck. If the symptom/indication goes away, replace the original ECM/PCM.■

23. Turn the ignition switch to LOCK (0).
24. Reconnect the A/C pressure switch 2P connector.
25. Make sure the A/C switch is OFF.
26. Turn the ignition switch to ON (II).

---

27. Measure the voltage between under-dash fuse/relay box connector A (36P) No. 21 terminal and body ground with the under-dash fuse/relay box connectors connected.



Is there battery voltage?

YES - Repair open in the wire between the A/C pressure switch and the MICU.■
NO - Check for loose wires or poor connections at the under-dash fuse/relay box. If the connections are OK, substitute a known-good MICU and recheck. If the symptom goes away, replace the original MICU .■

Refrigerant

Item	Measurement	Qualification	Standard or New
Refrigerant	Type		HFC-134a (R-134a)
	Capacity of system		370−420 g (13.1−14.8 oz)

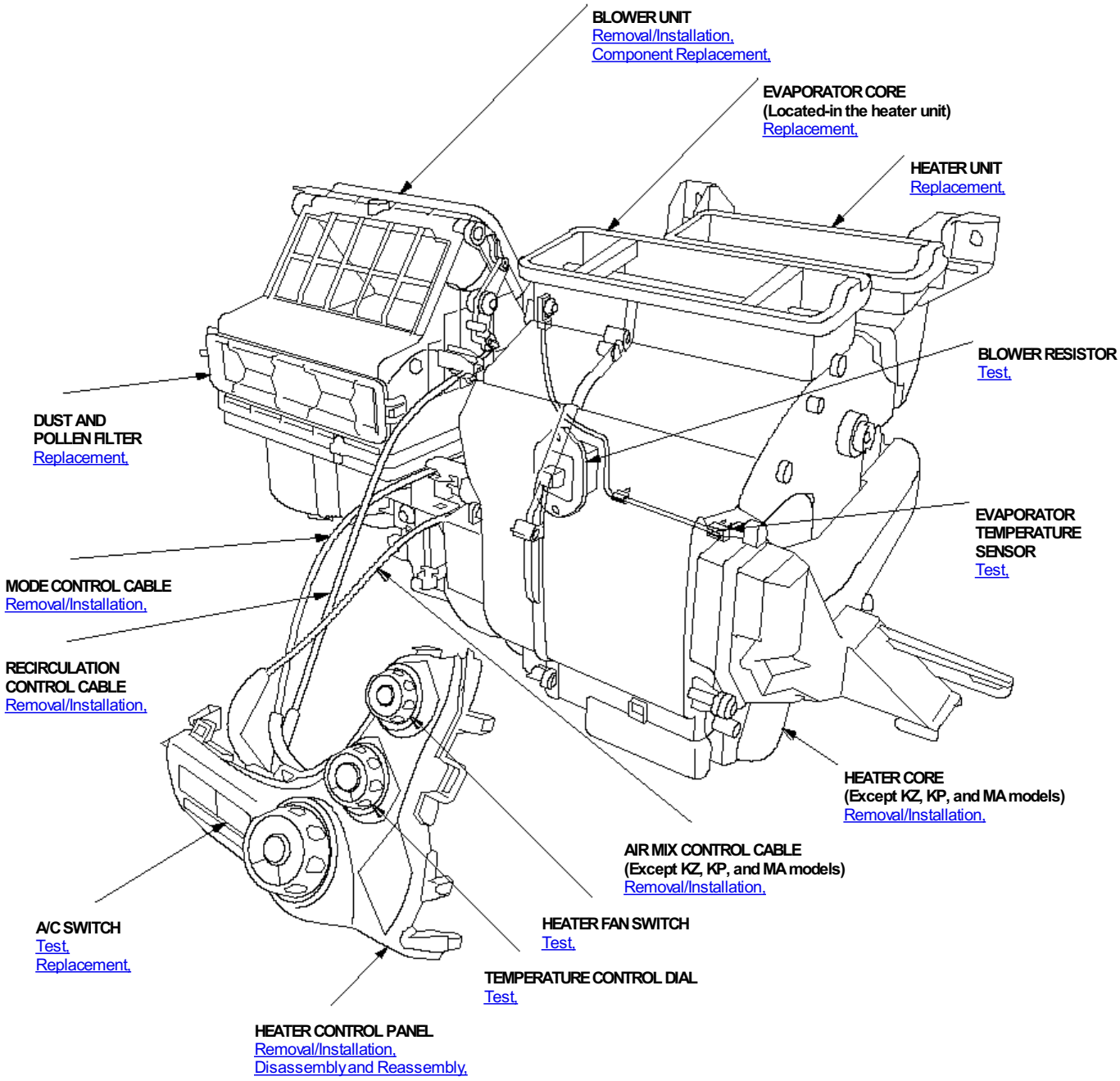
Refrigerant oil

Item	Measurement	Qualification	Standard or New
Refrigerant oil	Type		SP-10 (P/N 38897-P13-A01, 38898-P13-003, or 38899-P13-A01)
	Capacity of components	Condenser	25 mL (5/6 fl·oz, 0.9 Imp·oz)
		Evaporator	35 mL (1 1/6 fl·oz, 1.2 Imp·oz)
		Each line and hose	10 mL (1/3 fl·oz, 0.4 Imp·oz)
		Receiver/Dryer	10 mL (1/3 fl·oz, 0.4 Imp·oz)
		Compressor	80−90 mL (2 2/3−3 fl·oz, 2.8−3.2 Imp·oz)

Compressor

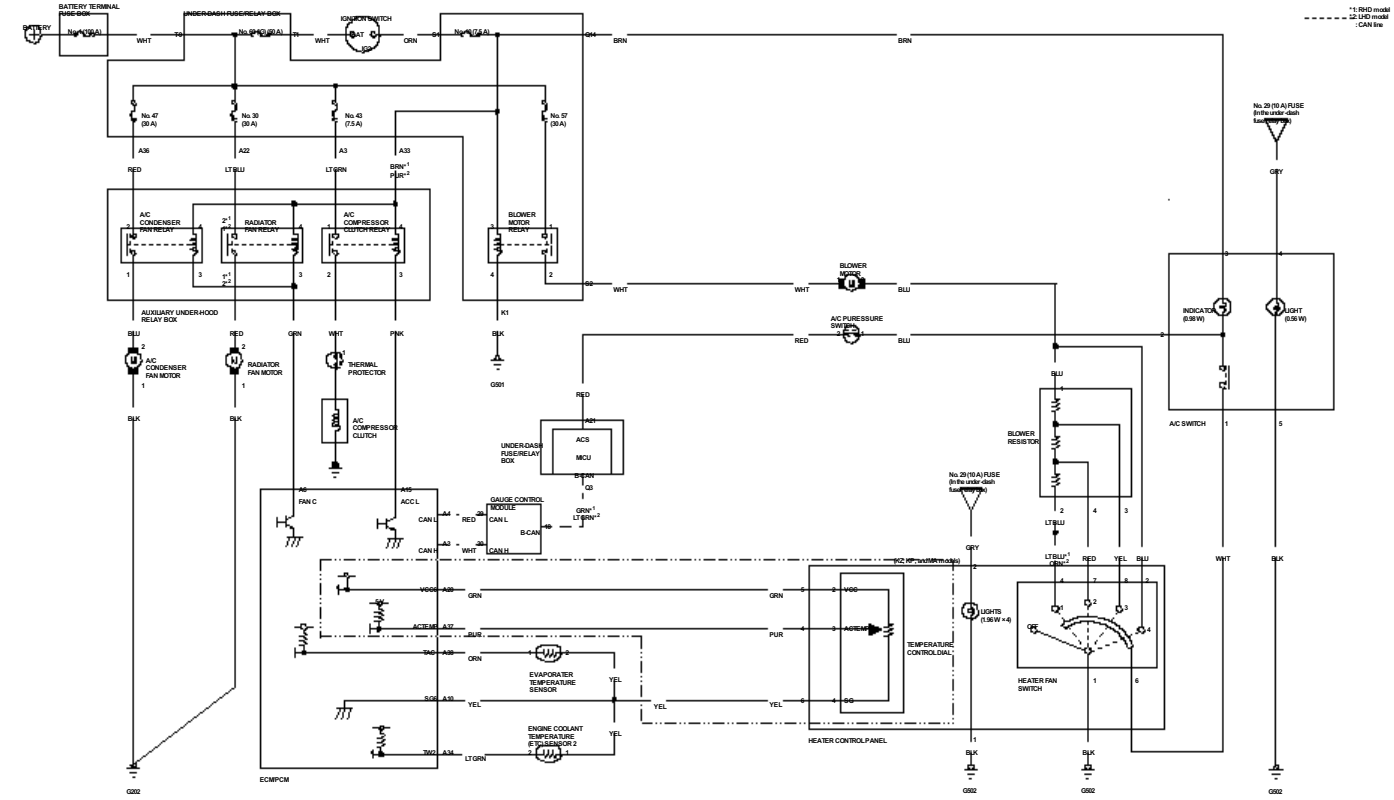
Item	Measurement	Qualification	Standard or New
Compressor	Field coil resistance	At 20 °C (68 °F)	3.15−3.45 Ω
	Pulley-to-armature plate clearance		0.35−0.65 mm (0.014−0.026 in.)

Heating and A/C Component Location Index



RHD model is shown, LHD model is similar.

Heating and A/C Circuit Diagram



Blower motor runs, but one or more speeds are inoperative

Diagnostic procedure

1. Blower motor circuit troubleshooting

Also check for

- Cleanliness and tightness of all connectors

Blower motor does not run at all

Diagnostic procedure

1. Blower motor circuit troubleshooting

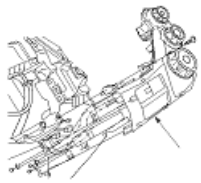
Also check for

- Blown fuse No. 10 (7.5 A) and No. 57 (30 A) in the under-dash fuse/relay box
- Poor ground at G501
- Cleanliness and tightness of all connectors

Heating and A/C Symptom Troubleshooting

Symptom	Diagnostic procedure	Also check for
Blower motor runs, but one or more speeds are inoperative	Blower motor circuit troubleshooting	Cleanliness and tightness of all connectors
Blower motor does not run at all	Blower motor circuit troubleshooting	• Blown fuse No. 10 (7.5 A) and No. 57 (30 A) in the under-dash fuse/relay box • Poor ground at G501 • Cleanliness and tightness of all connectors
A/C condenser fan does not run at all (but radiator fan runs with the A/C on)	A/C condenser fan circuit troubleshooting	• Blown fuse No. 47 (30 A) in the under-dash fuse/relay box • Poor ground at G202 • Cleanliness and tightness of all connectors
Both fans do not run with the A/C on (but the A/C compressor runs with the A/C on)	Radiator and A/C condenser fan common circuit troubleshooting	• Blown fuse No. 30 (30 A) and No. 47 (30 A) in the under-dash fuse/relay box • Poor ground at G202 • Cleanliness and tightness of all connectors
The A/C compressor clutch does not engage (but both fans run with the A/C on)	A/C compressor clutch circuit troubleshooting	• Blown fuse No. 43 (7.5 A) in the under-dash fuse/relay box • Cleanliness and tightness of all connectors
A/C system does not come on (both fans and the A/C compressor do not work); heater is OK	A/C pressure switch circuit troubleshooting	• Poor ground at G502 • Cleanliness and tightness of all connectors

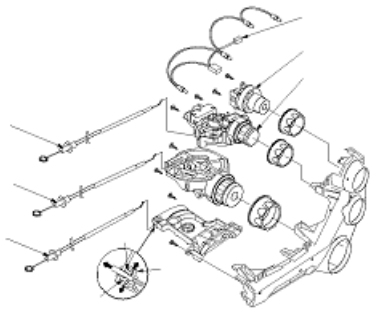
Heater Control Panel Removal/Installation



1. Remove the audio unit.
2. Remove the control cables from the blower/heater unit.
3. Remove the screw and pull the heater control panel (A).
4. Disconnect the connectors and remove the heater control panel.
5. Install the control panel in the reverse order of removal. After installation, operate the control panel controls to see whether it works properly.

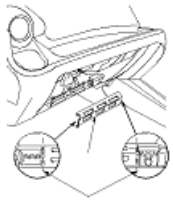
Heater Control Panel Disassembly/Reassembly

1. Remove the heater control panel.
2. Using a snap ring pliers, widen the cable stops (A) in the cable holder (B), then pull out the recirculation control cable (C), mode control cable (D), and air mix control cable (E).
3. Hook the tip of the new control cables to the dial or slider, then push the cable housing into the cable holder until it locks into place.
4. After assembly, check that the lever slides or the dial turns smoothly through the full stroke from right to left.

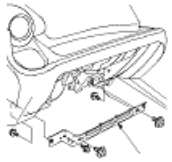


Blower Unit Removal/Installation

1. Remove the passenger's dashboard undercover and the glove box.
2. Remove the recirculation control cable from the blower unit.
3. Cut the plastic cross brace (A) in the glove box opening with diagonal cutters in the area (B). Retain plastic cross brace to be reinstalled later.

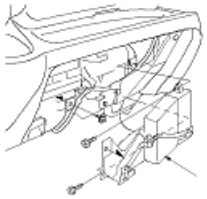


4. Remove the bolts, and the glove box frame (A).

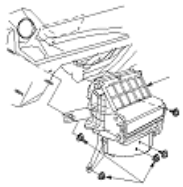


5. Disconnect the connector (A) from the blower motor. Remove the clips (B).

6. Remove the self-tapping screws and the passenger's heater duct (A).

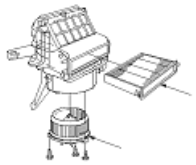


7. Remove the self-tapping screws and the mounting nuts, and pull the blower unit (A) out.
8. Install the unit in the reverse order of removal. Make sure that there is no air leakage.



Blower Unit Component Replacement

NOTE: The these items when overhauling the blower unit.

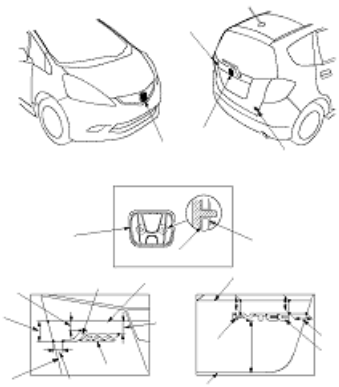


- The blower motor (A) and the dust and pollen filter (B) can be placed without removing the blower unit.
- Before reassembly, make sure that the recirculation control linkage and door move smoothly.

Emblem/Sticker Replacement

NOTE: When removing the emblems, take care not to scratch the body.

1. To remove the front “H" emblem, remove the upper front grille.
2. To remove the rear “H" emblem, remove the rear license trim.
3. Clean the body surface with a sponge dampened in isopropyl alcohol. After cleaning, keep oil, grease, and water from getting on the surface.
4. Apply the emblems where shown.



Lower Front Grille Replacement

NOTE:

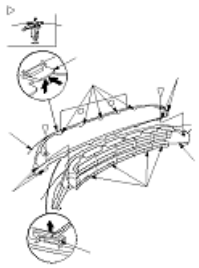
- Put on gloves to protect your hands.
- Take care not to scratch the front bumper.

1. Remove the front bumper.

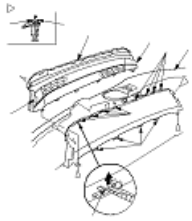
2. Detach the clips and the hooks (A) by using a flat-tip screwdriver wrapped with the protective tape, then remove the front bumper lower grille (B) from the front bumper (C).
   NOTE: To remove the clips, pry the inner clip up at the edge near the line (D) on its head.

3. Install the grille in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips and the hooks into place securely.

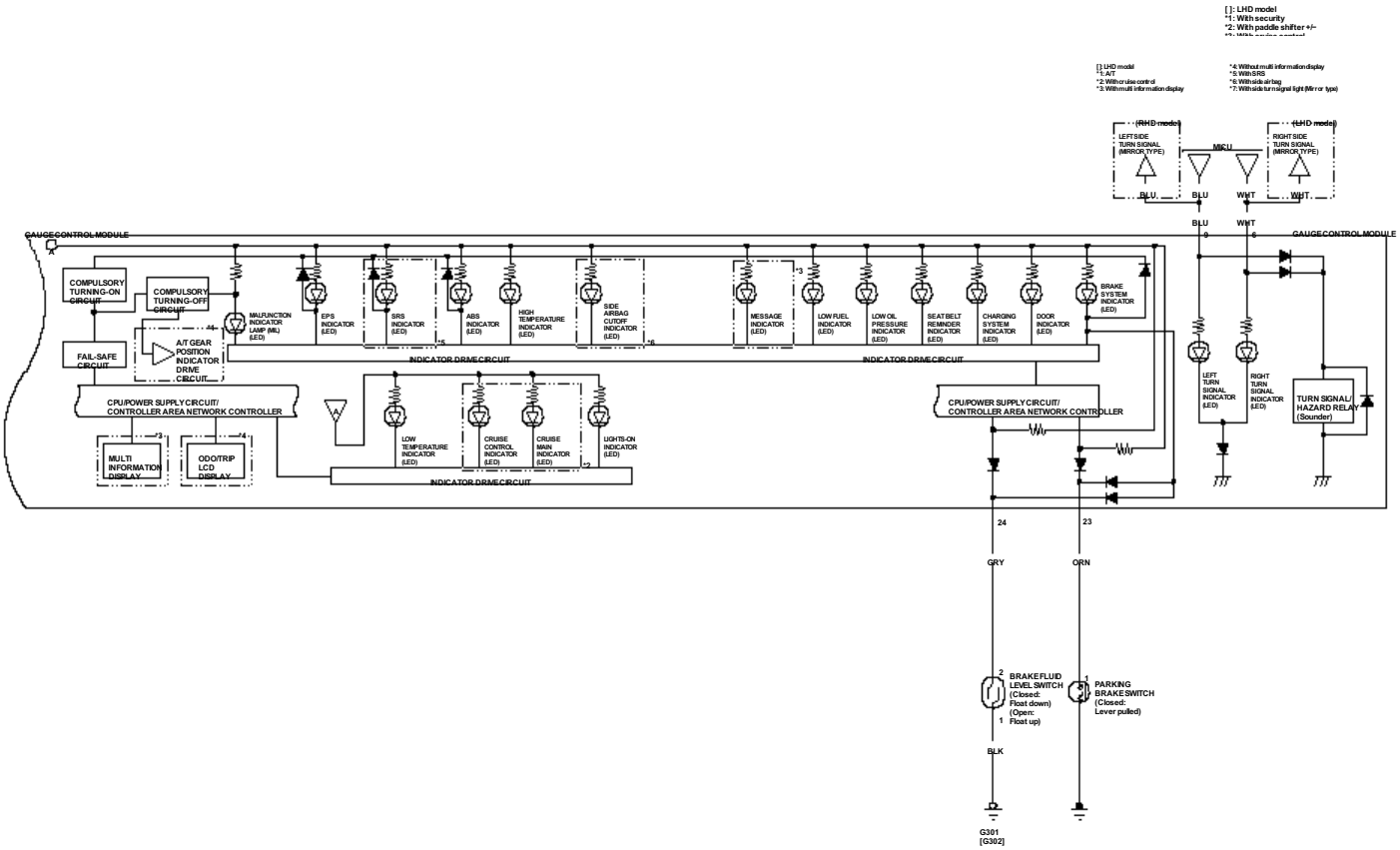
With front air spoiler



Without front air spoiler

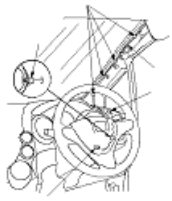


Gauges Circuit Diagram



Headliner Removal/Installation

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:

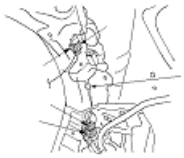


- Put on gloves to protect your hands.
- When removing components, use the trim tools or equivalent.
- Take care not to bend or scratch the trim and panels.
- RHD model is shown; LHD model is symmetrical.

1. Do the battery terminal disconnection procedure, then wait at least 3 minutes before beginning work.
2. Remove these items:
   - Driver's dashboard undercover
   - Front pillar trim, both sides:
     - Without side curtain airbags
     - With side curtain airbags
   - Center pillar upper/lower trim, both sides:
     - Without side curtain airbags
     - With side curtain airbags
   - Quarter pillar trim, both sides:
     - Without side curtain airbags
     - With side curtain airbags
   - Individual map light
   - Ceiling light
   - Sunvisors, both sides
   - Grab handles, four places
   - Rear center seat belt (for some model)
   - Ultrasonic sensor (for some model)
3. Remove the roof wire harness (A) by detaching the harness clips (B, C, D) and disconnect the roof wire harness connector (E) from the driver's side front pillar.

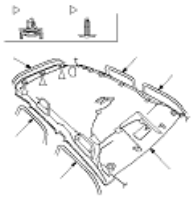
4. Remove the antenna lead (A) by detaching the harness clips (B) and disconnect the antenna lead connector (C) from the passenger's side front pillar.

5. Disconnect the tailgate sub lead connectors (A, B) by detaching the harness clips (C, D).

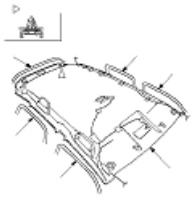


6. Lower the headliner (A).
   -1. Remove the front door inner seals (B), rear door inner seals (C), and tailgate weatherstrip (D) from each roof portion.
   -2. Release the clips (E, F) from the headliner.
   -3. Lower the headliner.

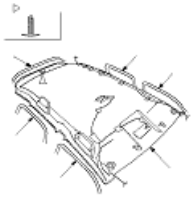
With child seat tether anchor model



With ultra sonic sensor model

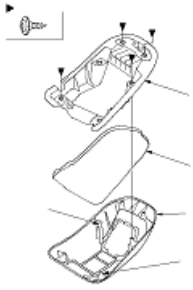


Without child seat tether anchor and ultra sonic sensor model



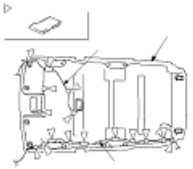
7. With the help of an assistant, pull the headliner (A) out through the tailgate opening. Do not bend the headliner. Bending the headliner will crease and damage it.

8. For some model: Remove the screws, and release the hooks (A), then remove the retractor cover bracket (B) and retractor cover (C) from the headliner (D).

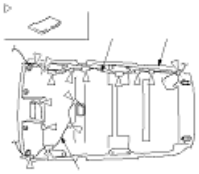


9. Remove the cushion tapes, then remove the roof wire harness (A) and antenna lead (B) from the headliner (C).

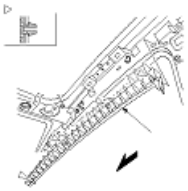
RHD model



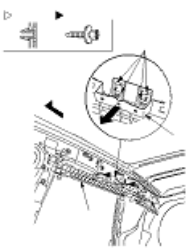
LHD model



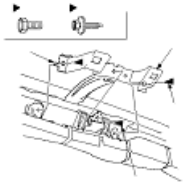
10. Without side curtain airbags: If necessary, detach the hooks, then remove the front roof side pad (A).



11. Without side curtain airbags: If necessary, remove the hooks and screws, and remove the center roof side pad (A) with a glove rail bracket (B), then release the hooks (C) and remove the bracket from the pad.

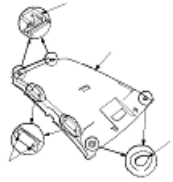


12. With side curtain airbags: If necessary, remove the grab handle bracket mounting bolts (A) and the side curtain airbag mounting screw (B), then remove the grab handle bracket (C) from each side by releasing the hooks (D).



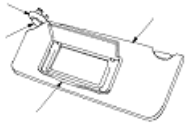
13. Install the headliner in the reverse order of removal, and note these items:
    - If the side curtain airbag has deployed, replace the headliner and removed trim pieces with new ones.
    - To prevent the side curtain airbags from deploying improperly and possibly causing injury, inspect removed pieces and replace them if they have any of these types of damage:
      - Any crease or tears in the headliner (A)
      - Any cracks or breakages in the grab handle (B)
      - Any damages around the grab handle holes (C) or sunvisor holes in the headliner
      - Any cracks in the sunvisor stay base (D)
      - Any bends or cracks in the sunvisor stay shaft (E)
      - Any cracks in the sunvisor base (F)
      - Any cracks or breakages in the vanity mirror base (G)
      - Any clip bases (H) which have come off the headliner
    - When installing the grab handle, push on the handle against the bracket (I) until the clips (J) snap into place securely.
    - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
    - Replace the removed cushion tape with new ones.
    - Check that both sides of the headliner are securely attached to the trim.
    - Make sure the headliner overlaps the trim pieces correctly.
    - When reinstalling the headliner through the tailgate opening, be careful not to fold or bend it. Also, be careful not to scratch the body.

Headliner



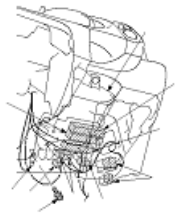
Grab handle

Sunvisor



Dashboard/Steering Hanger Beam Removal/Installation

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:



- Put on gloves to protect your hands.
- Have an assistant help you when removing and installing the dashboard/steering hanger beam.
- Take care not to scratch the dashboard, body and other related parts.
- RHD model is shown; LHD model is symmetrical.

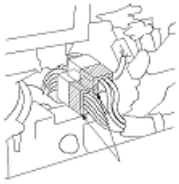
1. Do the battery terminal disconnection procedure, then wait at least 3 minutes before beginning work.
2. Remove these items:
   - Front seats, both sides
   - Driver's dashboard undercover
   - Kick panels, both sides
   - Center console
   - Glove box
   - Fuse lid panel:
     - RHD model
     - LHD model
   - Passenger's dashboard undercover
   - Front pillar trim, both sides:
     - Without side curtain airbags
     - With side curtain airbags
   - Steering column
   - AC control cables

Driver's side

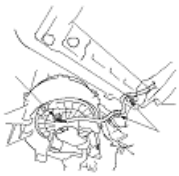
3. From under the dash, disconnect the right engine compartment wire harness connector (A), the left engine compartment wire harness connector (B), the driver's door wire harness connectors (C), the interior wire harness connectors (D), floor wire harness connector (E), and remove the bolt (F), then release the battery cable (G) from the driver's under-dash fuse/relay box (H).

Center

4. Disconnect the sub harness connectors (A).

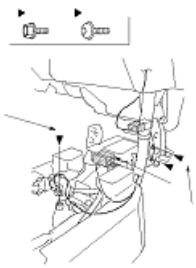


5. Release the harness clips (A), then disconnect the blower motor connector (B).

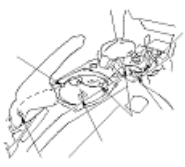


6. Remove the heater joint duct (A).

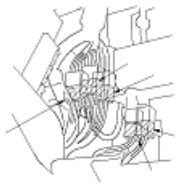
7. From under dash, disconnect SRS control unit connector A and remove the bolt (B). Remove the ground bolt (C) using a TORX T30 bit.



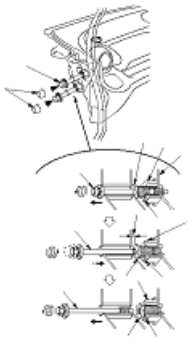
8. Detach the wire harness clips (A), then disconnect the parking brake switch connector (B), fuel pump connector (C), and A/T position switch connector (D) (A/T model).



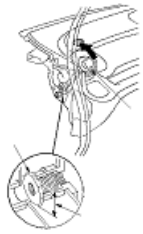
Passenger's side



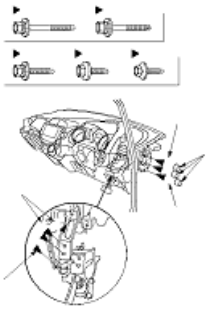
9. From under the dash, disconnect the passenger's floor wire harness connectors (A), passenger's door wire harness connector (B), the left engine compartment wire harness connectors (RHD model)/the right engine compartment wire harness connectors (LHD model) (C), and SRS sensor sub harness connector (D).
10. Detach all of the harness and the connector clips.



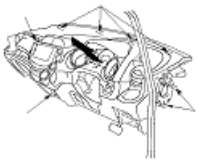
11. Remove the special bolts (A, B) from outside the passenger's door. RHD model is shown; LHD model is symmetrical.
    -1. Remove the caps (C).
    -2. Loosen the special bolts until its threads have come off the side bracket (D) of the steering hanger beam. The bolt will be screwed into the inside threads of the collar bolt (E) by loosening the bolt. Because of the thread lock on the threads of the bolt, the bolt and the collar bolt will be fixed.
    -3. Loosen the bolt again to screw the collar bolt into the fixed space adjuster (F) until it is stopped by the stopper (G). This will provide a gap (H) between the collar bolt and the body.
    -4. Remove the bolts.



12. If the collar bolts (A) are not screwed fully into the fixed space adjuster when removing the special bolts, slightly screw the collar bolt into the space adjuster with a 21 mm open-end wrench (B). In this case, the special bolt should be replaced with a new one because its thread locks were worn out.



13. From outside the driver's door, remove the caps (A), then remove the bolts (B, C, D, E, F).

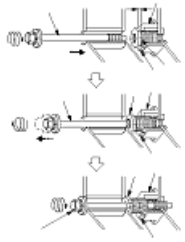


14. Lift up on the dashboard (A) to release it from the guide pins (B, C). Carefully remove the dashboard through the front door opening. Take care not to scratch the body with the collar nuts on the passenger's side.
    NOTE: Do not rest the dashboard on its lower center cover opening, or it may be damaged. Lay it on its front or back.

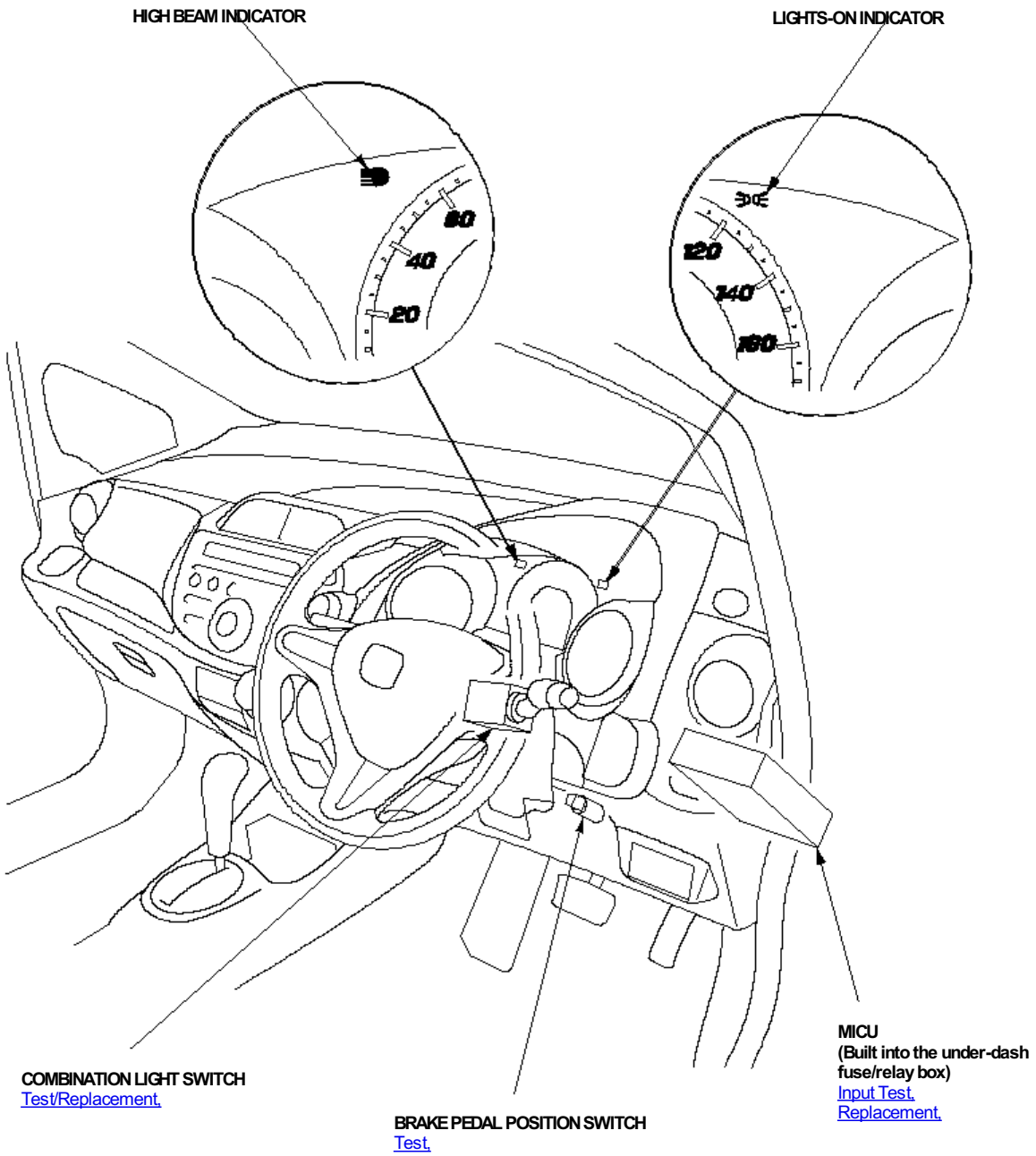
---

15. Install the dashboard in the reverse order of removal, and note these items:
    - Make sure the dashboard fits onto the guide pins correctly.
    - Before tightening the bolts, make sure the wire harnesses are not pinched.
    - Make sure the connectors are plugged in properly.
    - Before reinstalling the dashboard, be sure the collar bolt (A) on passenger's side can be screwed/unscrewed lightly by hand, and then screw all of them into the fixed space adjuster (B) until they contact the stoppers (C) by hand. Do not tighten them fully with any tools.
    - Before reinstalling the dashboard, try to screw the special bolt (D) into the loosened collar bolt. If the collar bolt is not unscrewed by screwing the special bolt, replace this special bolt with a new one.
    - After setting the dashboard on the body, reinstall all of the mounting bolts to the dashboard, tighten the driver's side bracket to the specified torque, then torque the special bolt D on the passenger's side. First screw the special bolt into the collar bolt A, they will be fixed because of the thread lock on the bolt. Continue tightening the bolt with the collar bolt, they are loosened from the fixed space adjuster B until the collar bolt contacts the inside face of the body. Then tighten the bolts again to the specified torque.
    - Apply medium strength type liquid thread lock to the bolts securing the center joint bracket and the dashboard before reinstallation.
    - After tightening the dashboard mounting bolts, tighten the center joint bracket mounting bolts, and then tighten the center frame mounting bolts.
    - Do the battery terminal reconnection procedure.
    - Check for any DTCs that may have been set during repairs, and clear them.

Special bolt tightening on passenger's side



Exterior Lights Component Location Index



RHD model is shown, LHD model is similar.

BACK-UP LIGHT

Replacement,

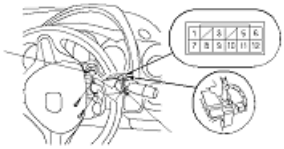
Bulb Replacement,

RHD model is shown, LHD model is similar.

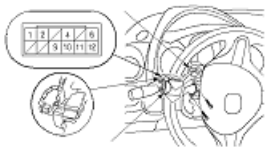
Combination Light Switch Test/Replacement

1. Remove the steering column covers.
2. Disconnect the 12P connector (A) from the combination light switch (B).
3. Remove the two screws, then slide out the combination light switch.

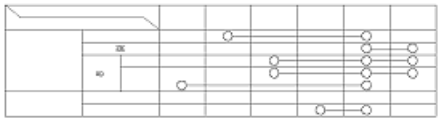
RHD model

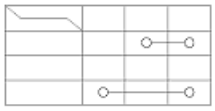


LHD model

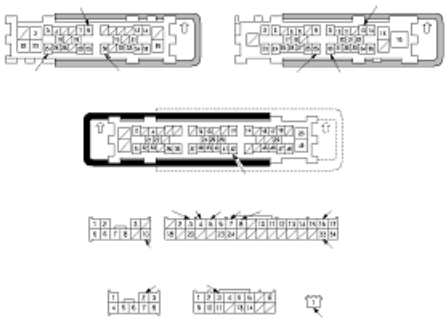


4. Inspect the connector terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, check for continuity between the terminals in each switch position according to the tables.
     - If the continuity is not as specified, replace the switch.





Exterior Lights (MICU) Input Test



NOTE:

- Before performing the input tests, check the No. 1, No. 5, No. 22, No. 24, No. 32, No. 34, No. 48, and No. 51 fuses in the under-dash fuse/relay box.
- The illustration shows the RHD model and the black portion shows the lock lever. The lock lever for LHD model is shown as the dashed lines.

1. Turn the ignition switch to LOCK (0).
2. RHD model: Remove the fuse lid panel , and remove the driver's dashboard lower cover.
   LHD model: Remove the fuse lid panel.
3. Disconnect under-dash fuse/relay box connectors A, B, C, K, M, N, Q, and W.
   NOTE: All connector views are wire side of female terminals.
4. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to Step 5 .
5. With the connectors still disconnected, make these input tests at the connectors.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the MICU must be faulty; replace the under-dash fuse/relay box.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
N2	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
K10	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • An open in the wire
M16	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
Q9	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • An open in the wire
W1	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 60 (IGN) (50 A) fuse in the under-dash fuse/relay box • Faulty ignition switch • An open in the wire
A24	PNK	Ignition switch ON (II)	Connect W1 terminal and A24 terminal with a jumper wire: The right headlight (low beam) should come on.	• Blown bulb • Poor ground (G202) [G401] • An open in the wire
A30	GRN	Ignition switch ON (II)	Connect W1 terminal and A30 terminal with a jumper wire: The right headlight (high beam) should come on.	• Blown bulb • Poor ground (G202) [G401] • An open in the wire
B29	BRN	Ignition switch ON (II)	Connect W1 terminal and B29 terminal with a jumper wire: The left headlight (low beam) should come on.	• Blown bulb • Poor ground (G401) [G202] • An open in the wire
B13	GRY	Ignition switch ON (II)	Connect W1 terminal and B13 terminal with a jumper wire: The left headlight (high beam) should come on.	• Blown bulb • Poor ground (G401) [G202] • An open in the wire
A8	GRY	Ignition switch ON (II)	Connect W1 terminal and A8 terminal with a jumper wire: The right front position light should come on.	• Blown bulb • Poor ground (G202) [G401] • An open in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
B30	GRY	Ignition switch ON (II)	Connect W1 terminal and B30 terminal with a jumper wire: The left front position light should come on.	• Blown bulb • Poor ground (G401) [G202] • An open in the wire
C42	GRY	Ignition switch ON (II)	Connect W1 terminal and C42 terminal with a jumper wire: The taillights and license plate lights should come on.	• Blown bulb • Poor ground (G602, G604) • An open in the wire
C21	GRN	Ignition switch ON (II)	Connect W1 terminal and C21 terminal with a jumper wire: The back-up lights should come on.	• Blown bulb • Poor ground (G602, G604) • An open in the wire

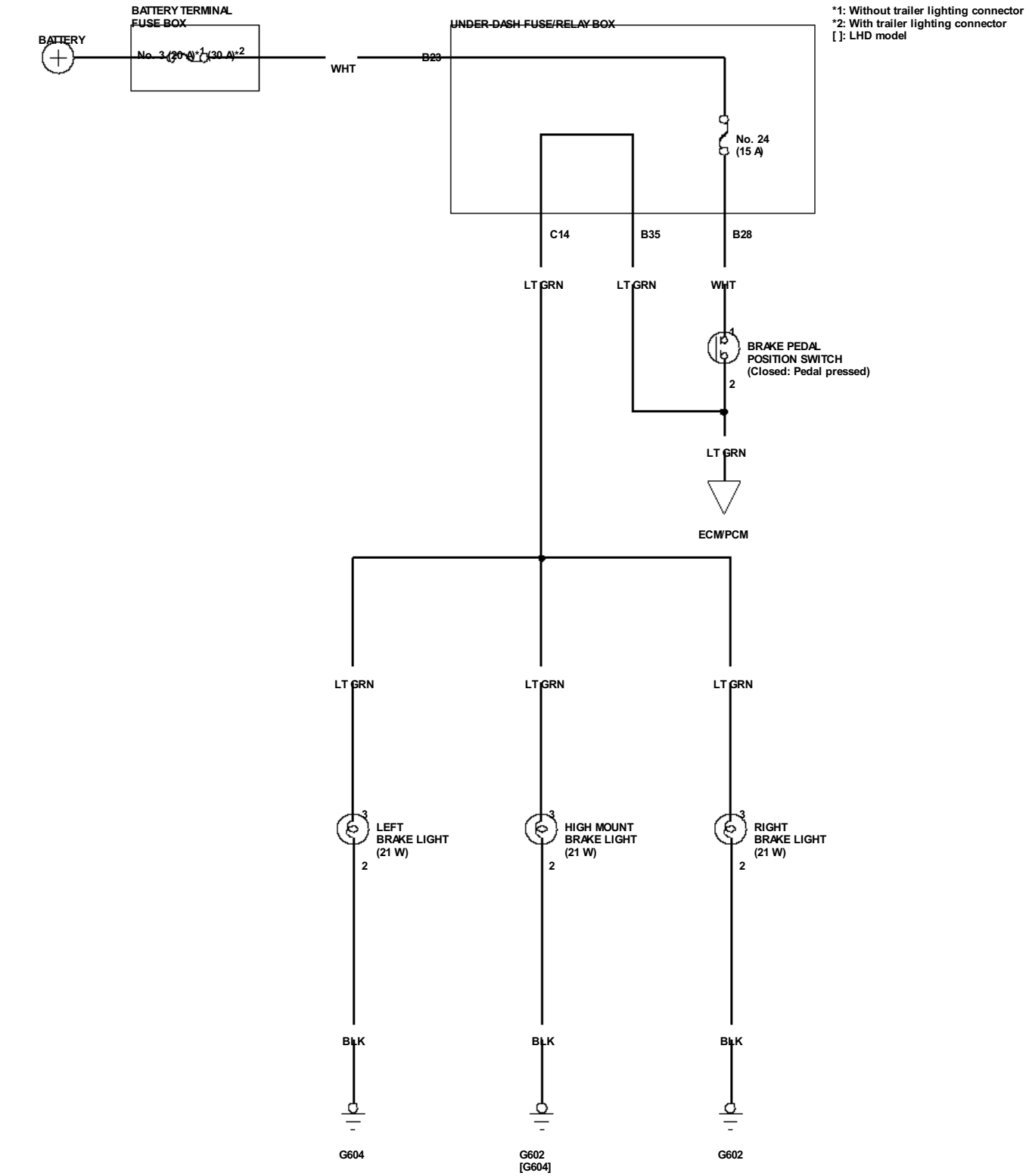
[ ]: LHD model

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
M8·M33	BLU·BLK	Combination light switch OFF	Check for continuity between M8 and M33 terminals: There should be continuity.	• Faulty combination light switch • An open in the wire
		Combination light switch in any other position than OFF	Check for continuity between M8 and M33 terminals: There should be no continuity.	• Faulty combination light switch • A short in the wire
M7·M33	GRY·BLK	Combination light switch (SMALL position) ON	Check for continuity between M7 and M33 terminals: There should be continuity.	• Faulty combination light switch • An open in the wire
		Combination light switch OFF	Check for continuity between M7 and M33 terminals: There should be no continuity.	• Faulty combination light switch • A short in the wire
M5·M33	RED·BLK	Combination light switch (headlight) ON	Check for continuity between M5 and M33 terminals: There should be continuity.	• Faulty combination light switch • An open in the wire
		Combination light switch OFF	Check for continuity between M5 and M33 terminals: There should be no continuity.	• Faulty combination light switch • A short in the wire
M4·M33	WHT·BLK	Combination light switch lever pulled (Passing)	Check for continuity between M4 and M33 terminals: There should be continuity.	• Faulty combination light switch • An open in the wire
		Combination light switch lever released (OFF)	Check for continuity between M4 and M33 terminals: There should be no continuity.	• Faulty combination light switch • A short in the wire
M3·M33	LT BLU·BLK	Combination light switch (Dimmer) in high beam position	Check for continuity between M3 and M33 terminals: There should be continuity.	• Faulty combination light switch • An open in the wire
		Combination light switch (Dimmer) in low beam position	Check for continuity between M3 and M33 terminals: There should be no continuity.	• Faulty combination light switch • A short in the wire

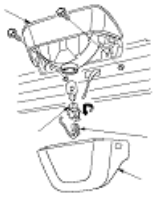
Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
B10(M/T)	LT GRN	Ignition switch ON (II) and shift lever in R position	Connect W1 terminal and B10 terminal with a jumper wire: The back-up lights should come on.	• Blown bulb • Faulty back-up light switch • Poor ground (G602, G604) • An open in the wire
B26(A/T)	GRN	Shift lever in R position	Check for continuity to ground: There should be continuity.	• Faulty transmission range switch • Poor ground (G101) • An open in the wire
Q3	GRN [LT GRN]	Under all condition	Check for continuity between the Q3 terminal and the gauge control module No. 18 terminal: There should be continuity.	An open in the wire
			Check for continuity to ground: There should be no continuity.	A short to ground in the wire

[ ]: LHD model

Brake Lights Circuit Diagram

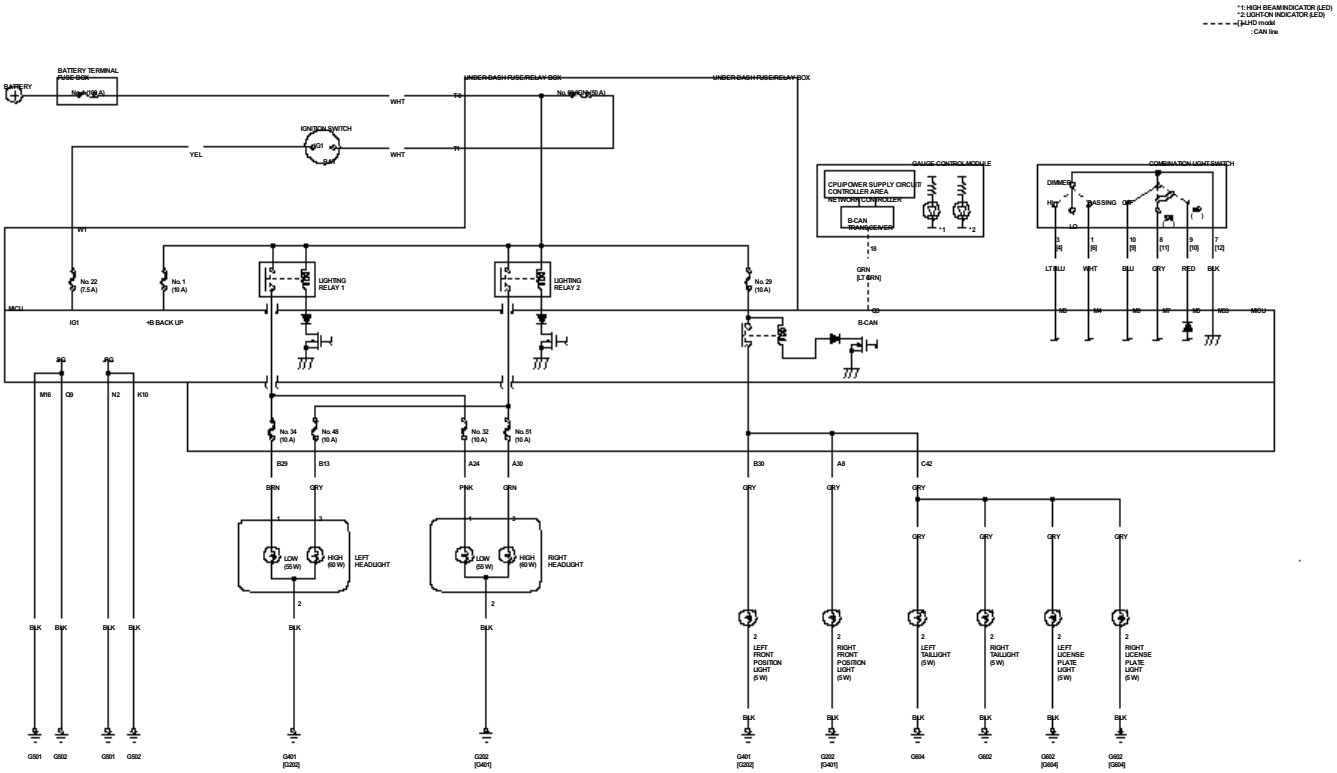


High Mount Brake Light Replacement



1. Open the tailgate.
2. Push in the clips, and remove the cover (A) from the high mount brake light (B).
   High Mount Brake Light: 21 W
3. Disconnect the 2P connector (C) from the bulb socket (D).
4. Remove the two mounting bolts and the high mount brake light.
5. Install the light in the reverse order of removal.

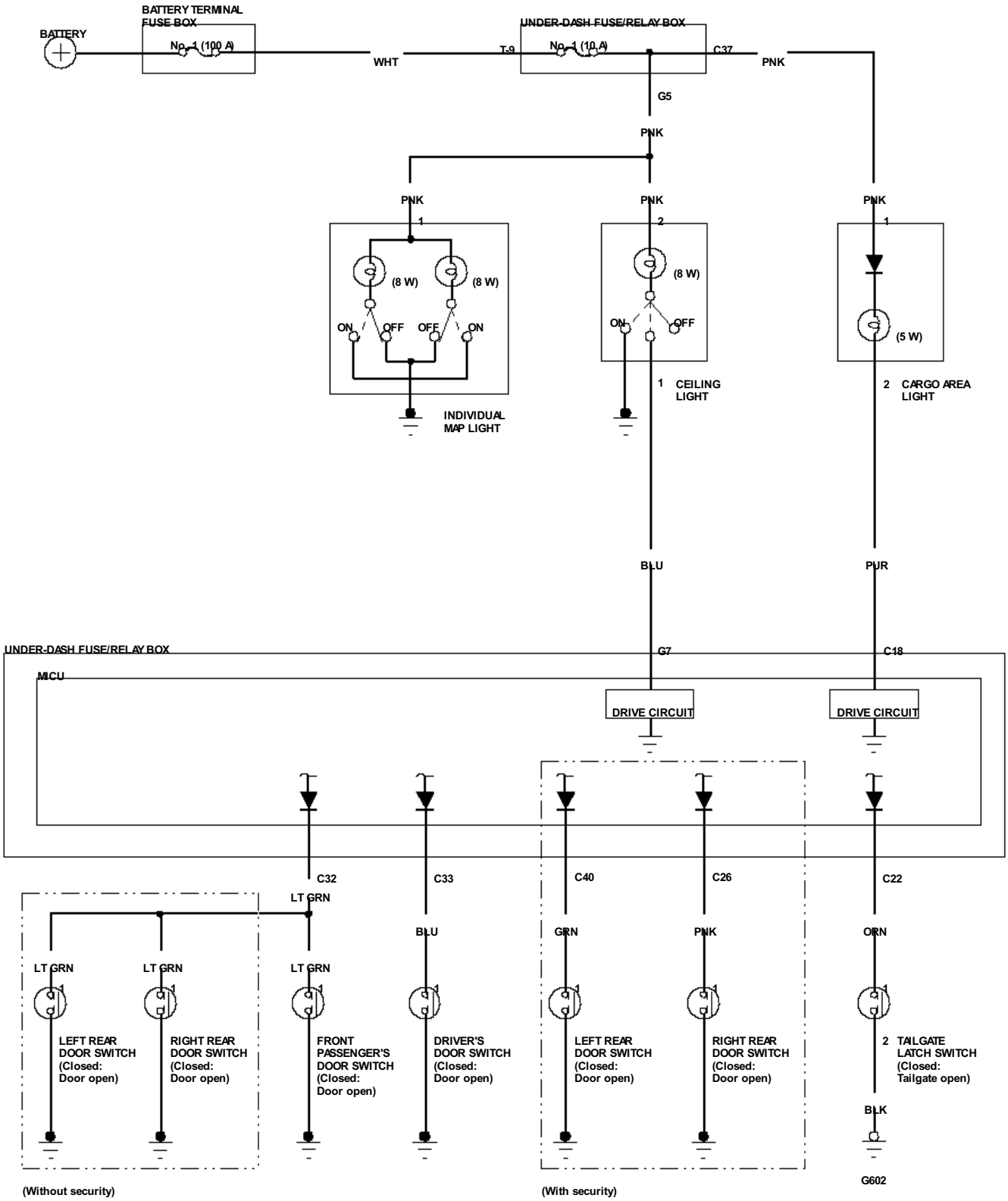
Headlights, Front Position Lights, Taillights, and License Plate Lights Circuit Diagram



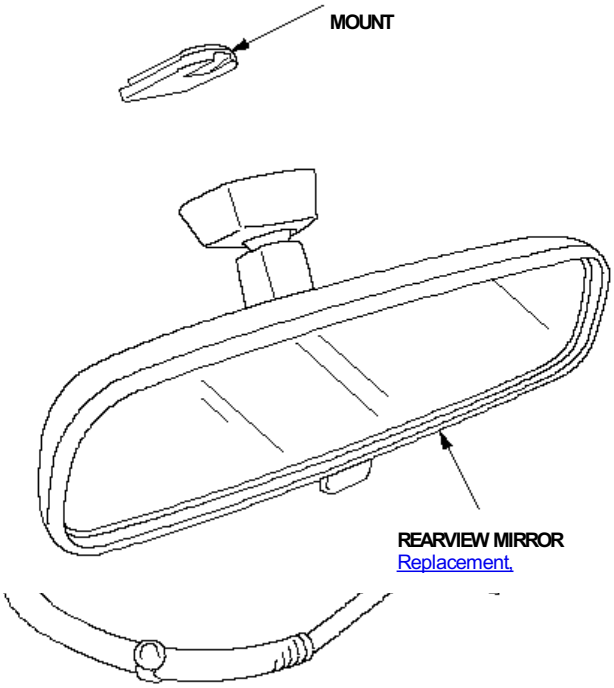
Taillight Replacement

1. Open the tailgate and remove the maintenance lid.
2. Disconnect the connectors (A) from the taillights (B).
3. Remove the mounting nuts from the taillight.
4. Install the taillight in the reverse order of removal.

Interior Lights Circuit Diagram



Mirrors Component Location Index

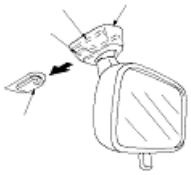


Rearview Mirror Replacement

1. Release the hooks (A), then pull the mirror base cover (B) down.

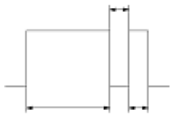
2. Pull the hook (A) down to release it from the mount (B), and slide the mirror base (C) rearward, then remove the rearview mirror (D).
3. Install the mirror base cover on the mirror base securely.

4. Fit the mirror base (A) over the mount (B), and secure the rearview mirror with the spring (C) and hook (D).



MICS Self-diagnostic Function

NOTE: Use only if the HDS is unavailable.



Test Mode 1

Special Tools Required

MPCS short connector
07WAZ-0010100

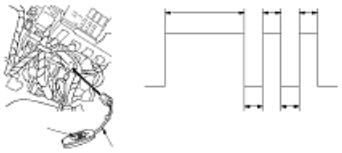
1. Turn the ignition switch to LOCK (0).
2. RHD model: Remove the fuse lid panel, and remove the driver's dashboard lower cover. LHD model: Remove the fuse lid panel.
3. Check the No. 1 (10 A) fuse in the under-dash fuse/relay box and the No. 22 (7.5 A) fuse in the under-dash fuse/relay box. If the fuse is blown, find and correct the cause, then replace the fuse.
4. Turn the ceiling light switch in "DOOR" (middle) position. Close all doors. Turn the ignition switch to ON (II).
   NOTE: If the driver's seat belt is unbuckled, the beeper will beep.
5. Connect the MPCS short connector (A) to the MICU service check connector (B), and turn the switch (C) on.
6. After 5 seconds, the ceiling light should come on for 2 seconds, go out, then blink once for 0.2 second. This means that you are in Test Mode 1 of the self-diagnostic function.
7. About 1 second after step 5, the ceiling light will blink and indicate the DTC, and repeat it every 3 seconds. If there is more than one DTC, the system will indicate them in ascending order, beginning from the DTC with the lowest numerical value. Troubleshoot the DTCs as indicated below:

DTC	Cause and Troubleshooting
1	The MICU cannot receive signals sent from the MICU itself (for checking the sending signals), or the MICU cannot receive signals from the gauge control module. If DTC 1 only indicates, substitute a known-good gauge control module and an MICU one at a time, in that order, and recheck for the DTC after each substitution.
5	The MICU cannot receive signals (VSP/NE message) from the gauge control module. If DTC 5 only indicates, substitute a known-good gauge control module, and recheck for the DTC.

How to cancel the Test Mode 1

NOTE: To cancel Test Mode 1, turn off the MICU short connector switch for more than 10 seconds or turn the ignition switch to LOCK (0).

Test Mode 2



1. While in Test Mode 1, turn off the MPCS short connector switch (A) for about 5 to 10 seconds, then turn it on again.
2. The ceiling light should come on for 2 seconds, go out, then blinks twice more at 0.2 second intervals. This means the system has gone from Test Mode 1 to Test Mode 2.
3. While still in Test Mode 2, operate the switches in the table shown. If the circuit is OK, the ceiling light blinks once. If the circuit is faulty, the ceiling light does not blink.
    - If the ceiling light do not blink even a switch is operated, check two or three other circuits listed in the table. If the ceiling light blinks for each circuit, the additional circuits are OK, repair the short or open circuit that failed the test in Step 3 .
    - If the ceiling light does not blink again, this multiple failed circuits mean that the control unit has failed without triggering a DTC. Test a few more circuits. If they also fail, test the MICU input test. If all the input tests prove OK, substitute a known-good MICU or gauge control module one at a time, then recheck. If the system works properly, the part that was substituted is faulty; replace it.

Driver's door lock switch (UNLOCK) Driver's door lock switch (LOCK) Driver's door lock knob switch (UNLOCK) Driver's door lock knob switch (LOCK) Driver's door key cylinder switch (UNLOCK) * Driver's door key cylinder switch (LOCK) * Front passenger's door lock knob switch (UNLOCK) * Left rear door lock knob switch (UNLOCK) * Right rear door lock knob switch (UNLOCK) * Driver's door switch Front passengers' door switch Left rear door switch Right rear door switch Tailgate latch switch Audio switch Windshield wiper HI/LO switch Windshield wiper INT/LO switch	Windshield wiper MIST switch Windshield washer switch Rear window wiper switch Rear window washer switch Turn signal switch (LEFT) Turn signal switch (RIGHT) Hazard warning switch Headlight switch (ON) Headlight switch (OFF) Lighting switch Dimmer switch Passing switch Hood switch * Brake pedal position switch Transmission range switch (P) Transmission range switch (R) Ignition key switch

*: With security

How to cancel the Test Mode 2

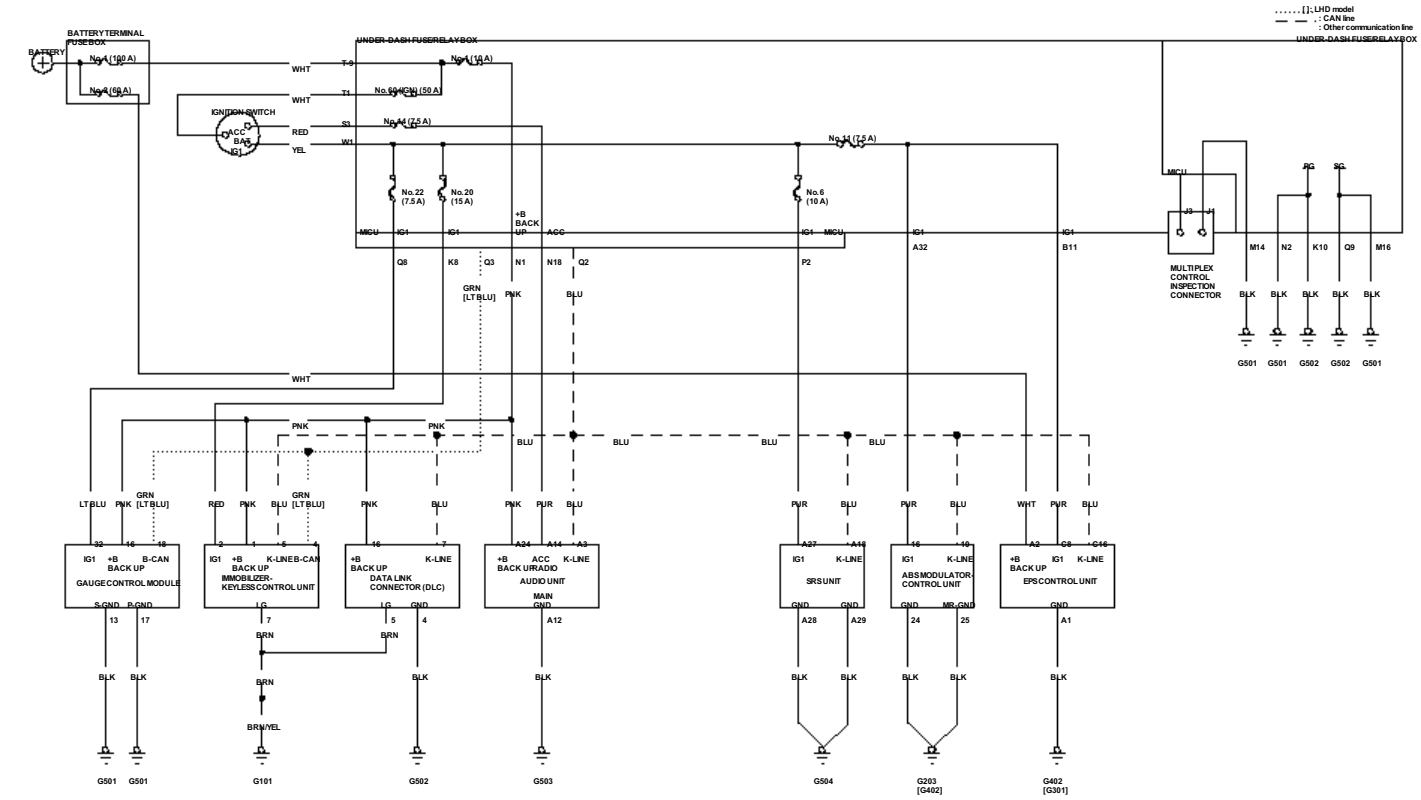
NOTE: To cancel Test Mode 2, disconnect the MPCS short connector from the multiplex control inspection connector for more than 10 seconds or turn the ignition switch to LOCK (0).

MICS System Description

The MICU that is combined with the under-dash fuse/relay box is one of the B-CAN network components. The MICU controls many systems related to the body controller area and security system, and also works as a gateway to diagnose the other B-CAN connected ECUs with the HDS.
Refer to each system circuit diagram for details.

MICU Control Function Index
Hardware Fail-safe Control
Software Fail-safe Control
B-CAN
Gateway Function
Network “Loss of Communication" Error Checking Function
Self-diagnostic Function
Wake-up and Sleep Function
Fail-safe Function
Power Supply Voltage Monitoring Function
Headlights
Turn Signal
Entry Light
Cargo Area Light
Windshield Wiper Operation
Rear Window Wiper Operation
Washer Operation
Key Interlock
Key-in Reminder
Power Window Timer (Key-off operation)
Collision Detection Signal (CDS)
Power Door Locks
Door Lock Response Operation
Keyless Entry System
Power Door Locks (LOCK operation)
Power Door Locks (UNLOCK operation)
Security Alarm System
Answer Back Response Operation
Answer Back Response Operation
Ultrasonic System
A/C Pressure Switch

MICS Circuit Diagram



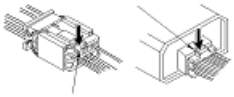
How to Troubleshoot the Body Electrical

Tips and Precautions

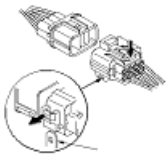
Before Troubleshooting

1. Check applicable fuses in the appropriate fuse/relay box.
2. Check the battery for damage, state of charge, and clean and tight connections.
   NOTICE
   - Do not quick-charge a battery unless the battery ground cable has been disconnected, otherwise you will damage the alternator diodes.
   - Do not attempt to crank the engine with the battery ground cable loosely connected or you will severely damage the wiring.

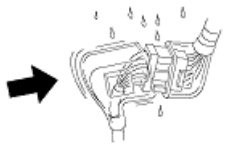
Handling Connectors



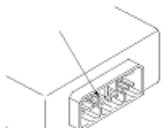
- Make sure the connectors are clean and have no loose wire terminals.
- Make sure multiple cavity connectors are packed with dielectric grease (except watertight connectors).
- All connectors have push-down release type locks (A).



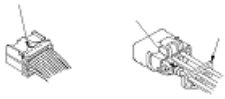
- Some connectors have a clip on their side used to attach them to a mount bracket on the body or on another component. This clip has a pull type lock.
- Some mounted connectors cannot be disconnected unless you first release the lock and remove the connector from its mount bracket (A).



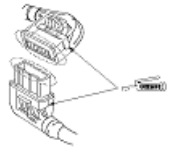
- Never try to disconnect connectors by pulling on their wires; pull on the connector halves instead.
- Always reinstall plastic covers.



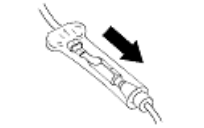
- Before connecting connectors, make sure the terminals (A) are in place and not bent.



- Check for loose retainers (A) and rubber seals (B).

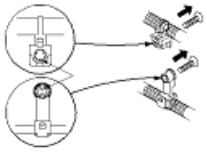


- The backs of some connectors are packed with dielectric grease. Add grease if necessary. If the grease is contaminated, replace it.



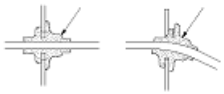
- Insert the connector all the way and make sure it is securely locked.
- Position wires so that the open end of the cover faces down.

Handling Wires and Harnesses

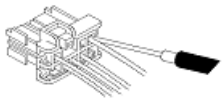


- Secure wires and wire harnesses to the frame with their respective wire ties at the designated locations.
- Remove clips carefully; don't damage their locks (A).

- After installing harness clips, make sure the harness doesn't interfere with any moving parts.
- Keep wire harnesses away from exhaust components and other hot parts, from sharp edges of brackets and holes, and from exposed screws and bolts.
- Seat grommets in their grooves properly (A). Do not leave grommets distorted (B).



Testing and Repairs



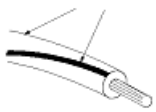
- Do not use wires or harnesses with broken insulation. Replace them or repair them by wrapping the break with electrical tape.
- Never attempt to modify, splice, or repair SRS wiring. If there is an open or damage is SRS wiring or terminals, replace the harness.
- After installing parts, make sure that no wires are pinched under them.
- When using electrical test equipment, follow the manufacturer's instructions and those described in this manual.
- If possible, insert the probe of the tester from the wire side (except waterproof connector).

- Use back probe adaptor 07TAZ-001020A.
- Refer to the instructions in the Honda Terminal Kit for identification and replacement of connector terminals.

Five-step Troubleshooting

1. Verify The Complaint:
   Turn on all the components in the problem circuit to verify the customer complaint. Note the symptoms. Do not begin disassembly or testing until you have narrowed down the problem area.
2. Analyze The Schematic:
   Look up the schematic for the problem circuit. Determine how the circuit is supposed to work by tracing the current paths from the power feed through the circuit components to ground. If several circuits fail at the same time, the fuse or a ground is a likely cause.
   Based on the symptoms and your understanding of the circuit operation, identify one or more possible causes of the problem.
3. Isolate The Problem By Testing The Circuit:
   Make circuit tests to check the diagnosis you made in Step 2 . Keep in mind that a logical, simple procedure is the key to efficient troubleshooting. Test for the most likely cause of failure first. Try to make tests at points that are easily accessible.
4. Fix The Problem:
   Once the specific problem is identified, make the repair. Be sure to use proper tools and safe procedures.
5. Make Sure The Circuit Works:
   Turn on all components in the repaired circuit in all modes to make sure you've fixed the entire problem. If the problem was a blown fuse, be sure to test all of the circuits on the fuse. Make sure no new problems turn up and the original problem does not recur.

Wire Color Codes



The following abbreviations are used to identify wire colors in the circuit schematics:

WHT.	White
YEL.	Yellow
BLK.	Black
BLU.	Blue
GRN.	Green
RED.	Red
ORN.	Orange
PNK.	Pink
BRN.	Brown
GRY.	Gray
PUR.	Purple
LT BLU.	Light Blue
LT GRN.	Light Green

The wire insulation has one color or one color with another color stripe. The second color is the stripe.

Troubleshoot the B-CAN Circuit Related Problems

How to check for DTCs with the HDS (preferred method)

The HDS can check the F-CAN and B-CAN communication status, read and clear the DTCs, display the data list, and perform function test.

Check for DTCs

1. Connect the HDS to the data link connector (A) located under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with vehicle.
   NOTE: If the HDS does not communicate with the vehicle, troubleshoot the DLC circuit.
4. Select the BODY ELECTRICAL, then select the desired TEST MODE menu, and check the DTCs. If the DTCs do not pertain to the select menu, select the All DTC Check icon to view all Body DTCs.
   NOTE: For specific operations, refer to the HDS user's manual.
5. If any DTCs are indicated, go to the indicated DTCs troubleshooting.
   NOTE: If the DTC B1000, B1150, B1178, and/or B1900 are stored, troubleshoot these DTCs first (beginning with the lowest number).

How to check for DTCs without the HDS (Use only if the HDS is unavailable)

Special Tools Required

MPCS short connector
07WAZ-0010100

If the HDS is unavailable, using the following method, you can check the B-CAN communication status, DTCs, and some F-CAN communication status related with the gauge control module.

Check for DTCs

1. Turn the ignition switch to ON (II).
2. Connect the MPCS short connector (A) to the MICU service check connector (B), and turn the switch (C) ON.

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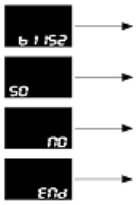
3. After 5 to 10 seconds, the DTCs which have been detected and stored individually by various B-CAN unit, will be indicated one by one on the odo/trip display if the communication line between the MICU and the gauge control module is OK. To scroll through the DTCs, press the select/reset button.



The unit that has stored the code can be identified by the number shown on the odo/trip display.

Control Unit	Control Unit I.D. Number
MICU	10
Gauge control module	50
Immobilizer-keyless control unit	96

NOTE: Also you can check the B-CAN communication status by following methods:

- The MICU self-diagnostic function Test Mode 1 and Test Mode 2 can check some communication status and some switch circuits.
- The gauge control module self-diagnostic function can check the communication status.

How to Clear the DTCs with the HDS

1. Connect the HDS to the data link connector (A) located under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Clear the DTCs with the HDS.
4. Turn the ignition switch to LOCK (0), and disconnect the HDS from the data link connector (DLC).

How to Clear the DTCs without the HDS

1. While in DTCs indication status, press and hold the SELECT/RESET switch for more than 10 seconds.
2. Turn the MPCS short connector switch off, and disconnect the connector from the MICU service check connector.
3. Turn the ignition switch to LOCK (0).

HDS Inputs and Commands

Certain inputs happen so quickly that the HDS cannot update fast enough. Hold the switch that is being tested while monitoring the Data List. This should give the HDS time to update the signal on the Data List.
Because the HDS software is updated to support the release for newer vehicles it is not uncommon to see system function tests that are not supported.
Make sure that the most current software is loaded.

Input

System Menu	Data List	Data List Indication
Lighting	Driver's Door Switch	OFF/ON
	Hazard Switch	OFF/ON
	Headlight Switch (OFF)	OFF/ON
	Headlight Switch (PARKING)	OFF/ON
	Headlight Switch (HEADLIGHT)	OFF/ON
	Headlight Switch (High Beam)	OFF/ON
	Headlight Switch (PASSING)	OFF/ON
	Turn Signal Switch (LEFT)	OFF/ON
	Turn Signal Switch (RIGHT)	OFF/ON
	Interior Light Command	OFF/ON
	Left Turn Signal Command	OFF/ON
	Right Turn Signal Command	OFF/ON
	Cargo Light Command	OFF/ON
	Headlight Command	OFF/ON
	Headlight High Beam Command	OFF/ON
	Parking Light Command	OFF/ON

HDS Inputs and Commands

Input

System Menu	Data List	Data List Indication
Gauges	Cruise Control Main Switch (ACC switch)	OFF/ON
	Cruise Control Set Switch	OFF/ON
	Cruise Control Resume Switch	OFF/ON
	Engine Oil Pressure Switch	OFF/ON
	Gauge Select/Reset Switch	OFF/ON
	Parking Brake Switch	OFF/ON
	Brake Fluid Level Switch	OFF/ON
	Select/Reset Switch	OFF/ON
	INFO Next Switch	OFF/ON
	Fuel Sending Unit Input 2	v
	ABS Indicator	OFF/ON
	EBD Indicator (Electronic Brake Distribution)	OFF/ON
	Cruise Control Main Switch Indicator	OFF/ON
	MIL Indicator	OFF/ON
	Low Oil Pressure Indicator	OFF/ON
	Charging System Indicator	OFF/ON
	Cruise Main Switch ON Indicator	OFF/ON
	High Beam Indicator	OFF/ON
	Parking Light ON Indicator	OFF/ON
	Low Fuel Warning Indicator	OFF/ON
	Security Indicator	OFF/ON
	Seat Belt Indicator	OFF/ON
	Door Open Indicator	OFF/ON
	A/T Indicator	OFF/ON
	SRS Indicator	OFF/ON
	Side Airbag Cutoff Indicator	OFF/ON
	Driver's Seat Belt Buckle Switch	OFF/ON
	A/T Gear Position Switch (R)	OFF/ON
	A/T Gear Position Switch (P)	OFF/ON

Input

System Menu	Data List	Data List Indication
Door Locks	Driver's Door Switch	OFF/ON
	Front Passenger's Door Switch	OFF/ON
	Driver's Rear Door Switch	OFF/ON

System Menu	Data List	Data List Indication
	Passenger's Rear Door Switch	OFF/ON
	Front Passenger's Door Lock Knob Switch (UNLOCK)	OFF/ON
	Driver's Rear Door Lock Knob Switch (UNLOCK)	OFF/ON
	Passenger's Rear Door Lock Knob Switch (UNLOCK)	OFF/ON
	Driver's Door Key Cylinder Switch (LOCK)	OFF/ON
	Driver's Door Key Cylinder Switch (UNLOCK)	OFF/ON
	Driver's Door Lock Switch (LOCK)	OFF/ON
	Driver's Door Lock Switch (UNLOCK)	OFF/ON
	Driver's Door Lock Knob Switch (LOCK)	OFF/ON
	Driver's Door Lock Knob Switch (UNLOCK)	OFF/ON
	Door LOCK Command	OFF/ON
	Door UNLOCK Command	OFF/ON
Wipers	Brake Pedal Position Switch	OFF/ON
	Windshield Wiper Switch (LOW)	OFF/ON
	Windshield Wiper Switch (HIGH)	OFF/ON
	Windshield Wiper Switch (MIST)	OFF/ON
	Windshield Wiper Switch (INT)	OFF/ON
	Windshield Washer Switch	OFF/ON
	Rear Wiper Switch	ON/OFF
	Windshield Wiper Motor PARK Switch	OFF/ON
	Rear Wiper Command	ON/OFF
	Rear Washer Command	ON/OFF
	Windshield Wiper Motor HI Command	OFF/ON
	Windshield Wiper Motor LO Command	OFF/ON
	Windshield Washer Motor Command	OFF/ON
	Rear Wiper Auto Stop Switch	OFF/ON

Input

System Menu	Data List	Data List Indication
Keyless	Driver's Door Switch	OFF/ON
	Front Passenger's Door Switch	OFF/ON
	Driver's Rear Door Switch	OFF/ON
	Passenger's Rear Door Switch	OFF/ON
	Trunk Lid/Tailgate Switch	OFF/ON
	Front Passenger's Door Lock Knob Switch (UNLOCK)	OFF/ON
	Driver's Rear Door Lock Knob Switch (UNLOCK)	OFF/ON
	Passenger's Rear Door Lock Knob Switch (UNLOCK)	OFF/ON
	Driver's Door Key Cylinder Switch (LOCK)	OFF/ON
	Driver's Door Key Cylinder Switch (UNLOCK)	OFF/ON
	Driver's Door Lock Switch (LOCK)	OFF/ON
	Driver's Door Lock Switch (UNLOCK)	OFF/ON
	Driver's Door Lock Knob Switch (LOCK)	OFF/ON
	Driver's Door Lock Knob Switch (UNLOCK)	OFF/ON
	Door LOCK Command	OFF/ON
	Door UNLOCK Command	OFF/ON

HDS Inputs and Commands

Input

System Menu	Data List	Data List Indication
Security	Ignition Key Cylinder Switch	OFF/ON
	Driver's Door Switch	OFF/ON
	Front Passenger's Door Switch	OFF/ON
	Driver's Rear Door Switch	OFF/ON
	Passenger's Rear Door Switch	OFF/ON
	Trunk Lid/Tailgate Switch	OFF/ON
	Front Passenger's Door Lock Knob Switch (UNLOCK)	OFF/ON
	Driver's Rear Door Lock Knob Switch (UNLOCK)	OFF/ON
	Passenger's Rear Door Lock Knob Switch (UNLOCK)	OFF/ON
	Trunk Knob Switch (UNLOCK)	OFF/ON
	Hazard Switch	OFF/ON
	Hood Switch	OFF/ON
	Driver's Door Key Cylinder Switch (LOCK)	OFF/ON
	Driver's Door Key Cylinder Switch (UNLOCK)	OFF/ON
	Driver's Door Lock Switch (LOCK)	OFF/ON
	Driver's Door Lock Switch (UNLOCK)	OFF/ON
	Driver's Door Lock Knob Switch (LOCK)	OFF/ON
	Driver's Door Lock Knob Switch (UNLOCK)	OFF/ON
	Door LOCK Command	OFF/ON
	Door UNLOCK Command	OFF/ON
	Security Hazard Signal Command	OFF/ON
	Headlight Command	OFF/ON
	Headlight High Beam Command	OFF/ON
	Parking Light Command	OFF/ON
	Horn Command	ON/OFF
A/C	A/C Pressure Switch/Thermal Protector	OFF/ON

Output

System Menu	HDS Description	Note
Door locks	LOCK all doors	Outputs LOCK signal 1 time (0.6 sec) to all door
	UNLOCK all doors	Outputs UNLOCK signal 1 time (0.6 sec) to all door
Lighting	Interior Light Command	Illuminates for 30 seconds
	Hazard flasher	Blinks turn signal (left and right) for 15 seconds
	LEFT Turn Signal Command	Blinks for 5 seconds
	RIGHT Turn Signal Command	Blinks for 5 seconds
	Headlight Command	Operates headlight (low) for 15 seconds
	Headlight HIGH Beam Command	Operates headlight (high) for 15 seconds
	Parking Light Command	Operates small lights for 15 seconds
	Cargo Area Light	Illuminates for 30 seconds
Security	Horn Command	Operates horn for 1 second
Wipers/washers	Windshield Wiper Motor LOW Command	Operates windshield wiper for 5 seconds (low speed)
	Windshield Wiper Motor HIGH Command	Operates windshield wiper for 5 seconds (high speed)
	Windshield Washer Command	Operates windshield washer for 5 seconds
	Rear window washer motor command	Operates for 5 seconds
	Rear Wiper motor	Operates for 5 seconds

Loss of Communication DTC cross-reference chart

When an ECU is unable to communicate with the other ECUs on the CAN circuit, the other control units will set loss of communication DTCs. Use this chart to find the control unit that is not communicating.

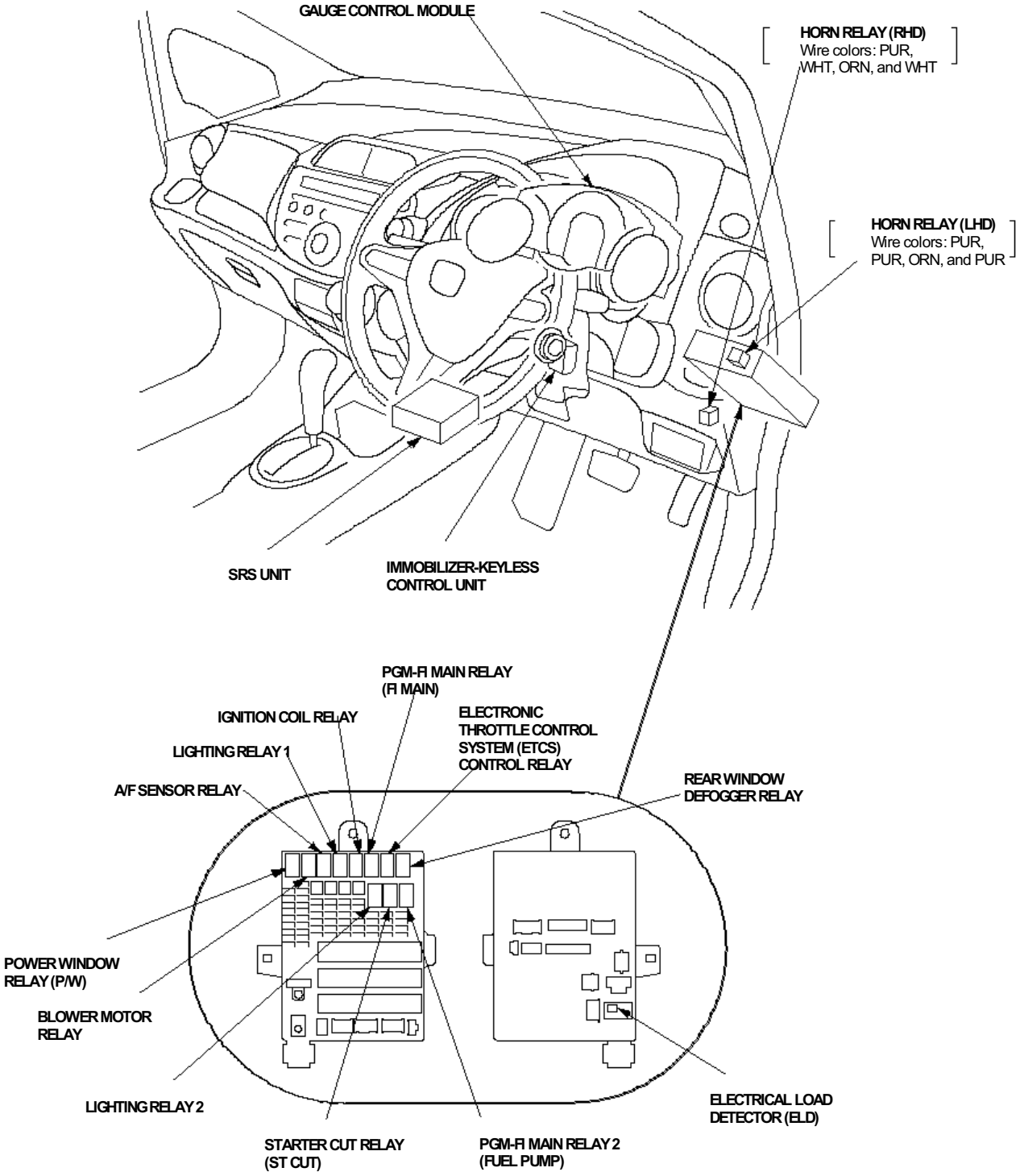
1. Find the Transmitting Control Unit that is in the same row as all of the loss of communication DTCs retrieved.
2. Perform the input test for the transmitting control unit.

Bus Off and Internal Error Codes

DTC type	Related Unit		
	MICU	Gauge Control Module	Immobilizer-Keyless Control Unit
BUS OFF	B1000	B1150	B1900
ECU (EEPROM) Error	B1002	B1152	

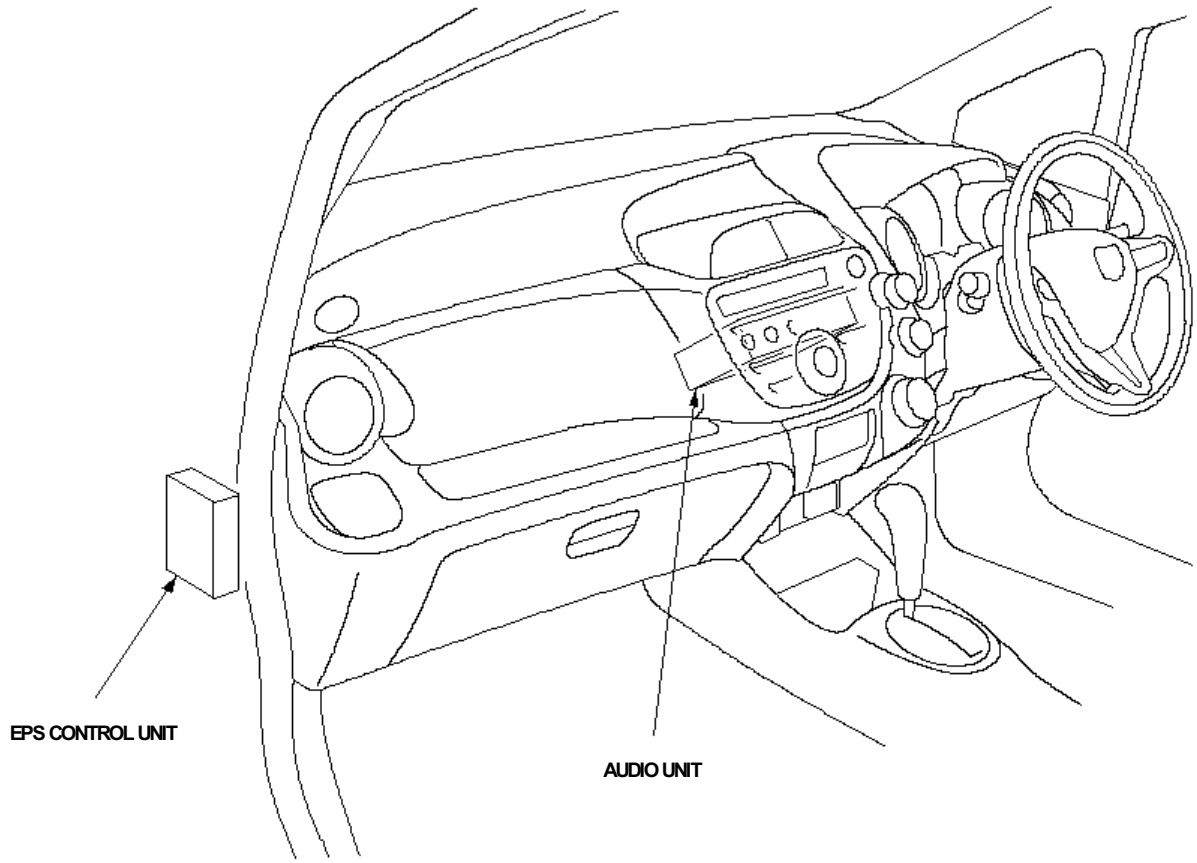
Transmitting Control Unit	Message	Receiving Unit/Loss of Communication DTC		
		MICU	Gauge Control Module	Immobilizer-Keyless Control Unit
MICU	RM		B1188	
	HLSW		B1155	
	WIPSW		B1156	
	MICU		B1157	
	DOORSW		B1159	
	DRLOCKSW		B1160	B1905
Gauge Control Module	VSP/NE	B1011		
	A/T			B1906
ECM/PCM	ENG		B1168	
	A/T		B1169	
ABS Modulator-Control Unit	ABS		B1170	
EPS Control Unit	EPS		B1183	
SRS	SRS		B1187	

Relay and Control Unit Locations - Dashboard 1



RHD model is shown, LHD model is similar.

Relay and Control Unit Locations - Dashboard 2

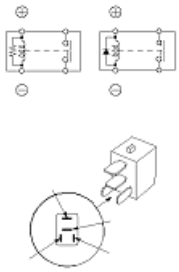


RHD model is shown, LHD model is similar.

Power Relay Test

Use this chart to identify the type of relay, then do the test listed for it.

Relay	Test
A/C compressor clutch relay	Normally-open type
A/C condenser fan relay	
A/F sensor relay	
Blower motor relay	
ETCS control relay	
Horn relay	
Ignition coil relay	
Lighting relay 1	
Lighting relay 2	
PGM-FI main relay 1 (FI MAIN)	
PGM-FI main relay 2 (FUEL PUMP)	
Power window relay (P/W)	
Radiator fan relay	
Rear window defogger relay	
Starter cut relay (ST CUT)	



Normally-open type

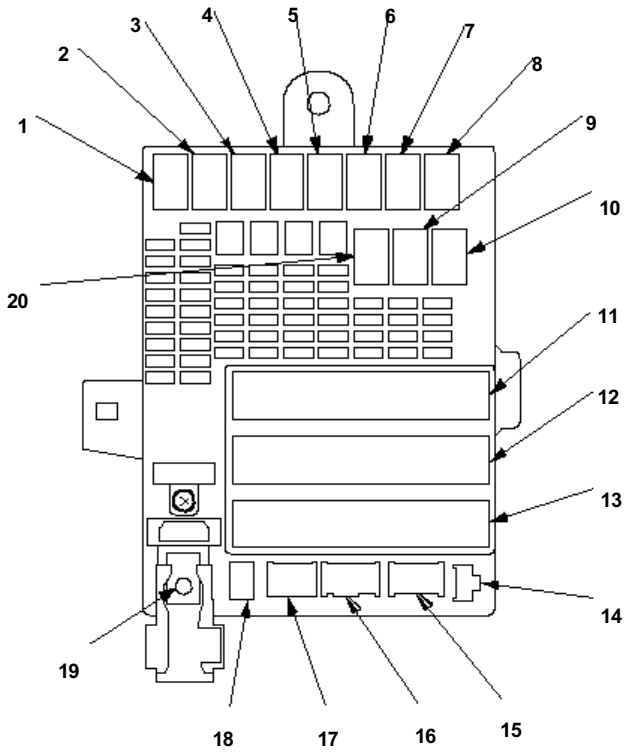
Check for continuity between the terminals:

- There should be continuity between the No. 1 and No. 2 terminals when battery power is connected to the No. 4 terminal, and body ground is connected to the No. 3 terminal.
- There should be no continuity between the No. 1 and No. 2 terminals when power is disconnected.

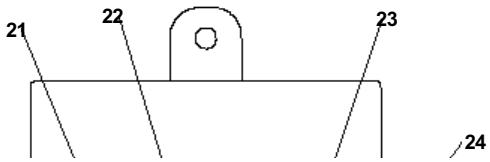
Under-dash Fuse/Relay Box Connector Locations

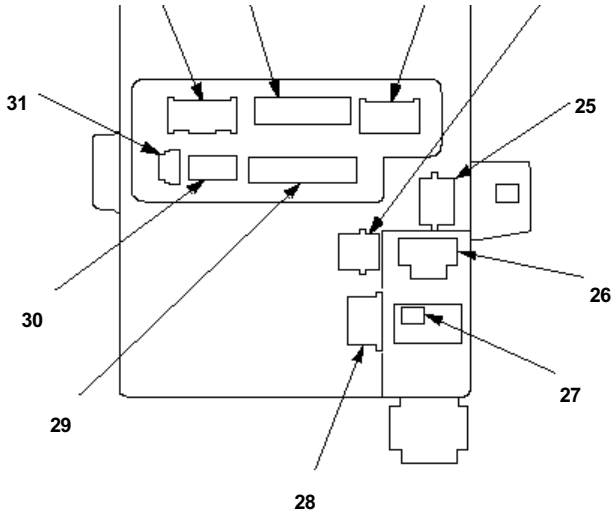
Under-dash Fuse/Relay Box

Socket	Ref	Terminal	Connects to
A	11	36	Right engine compartment wire harness
A/F sensor relay	3	4	
B	12	36	Left engine compartment wire harness
Blower motor relay	2	4	
C	13	49	Floor wire harness
E	18	12	Driver's door wire harness
Electronic throttle control system (ETCS) control relay	7	4	
F	17	6	Driver's door wire harness
G	16	8	Roof wire harness
H (optional connector)	15	8	Not used
Ignition coil relay	5	4	
J (MICU service check connector)	14	3	
K	21	10	Dashboard wire harness
Lighting relay 1	4	4	
Lighting relay 2	20	4	
M	22	34	Dashboard wire harness
N	23	8	Dashboard wire harness
P (SRS)	31	4	Dashboard wire harness
PGM-FI main relay 1 (FI MAIN)	6	4	
PGM-FI main relay 2 (FUEL PUMP)	10	4	
Power window relay (P/W)	1	4	
Q	30	16	Dashboard wire harness
R	29	———	Not used
Rear window defogger relay	8	4	
S	25	3	Dashboard wire harness
Starter cut relay (ST CUT)	9	4	
T	26	2	Dashboard wire harness
W	24	1	Dashboard wire harness
X	28	3	Dashboard wire harness
Y (Electrical load detector)	27	3	Dashboard wire harness
T-9	19	———	Left engine compartment wire harness



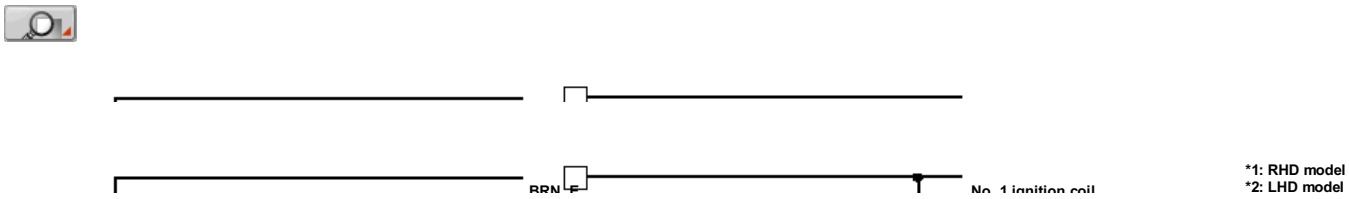
(view of front side)

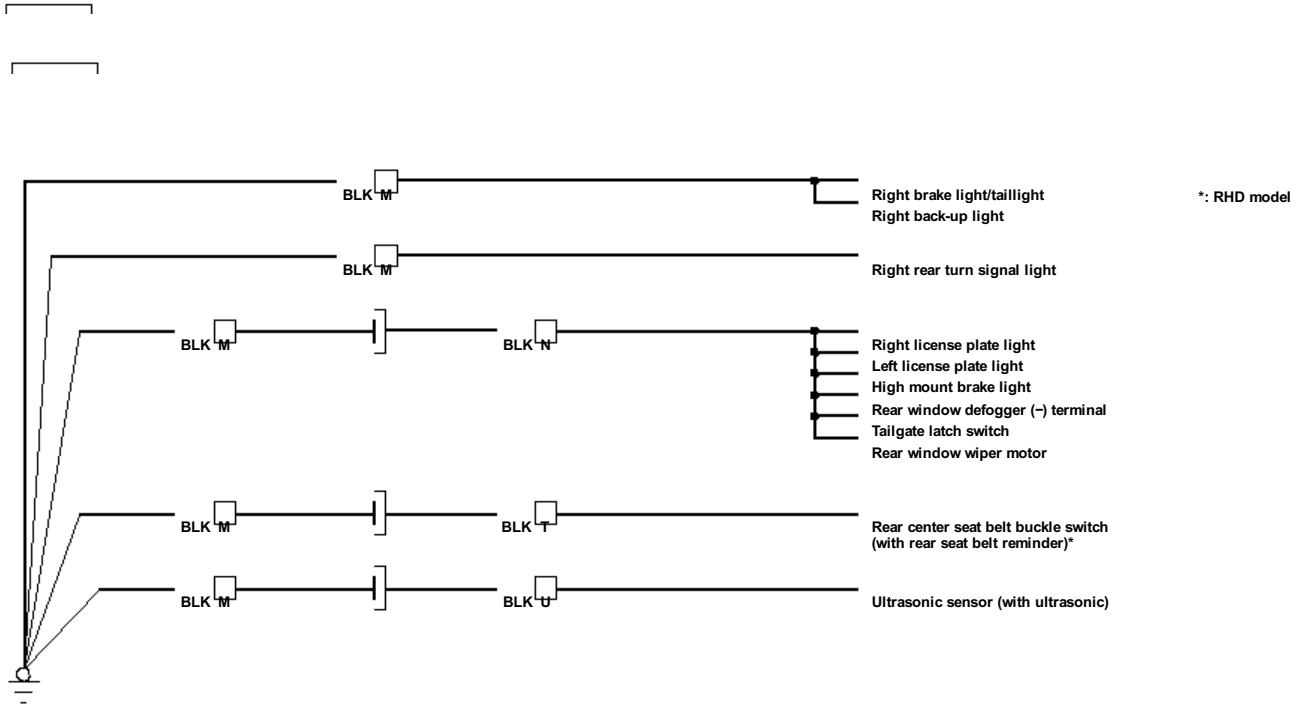


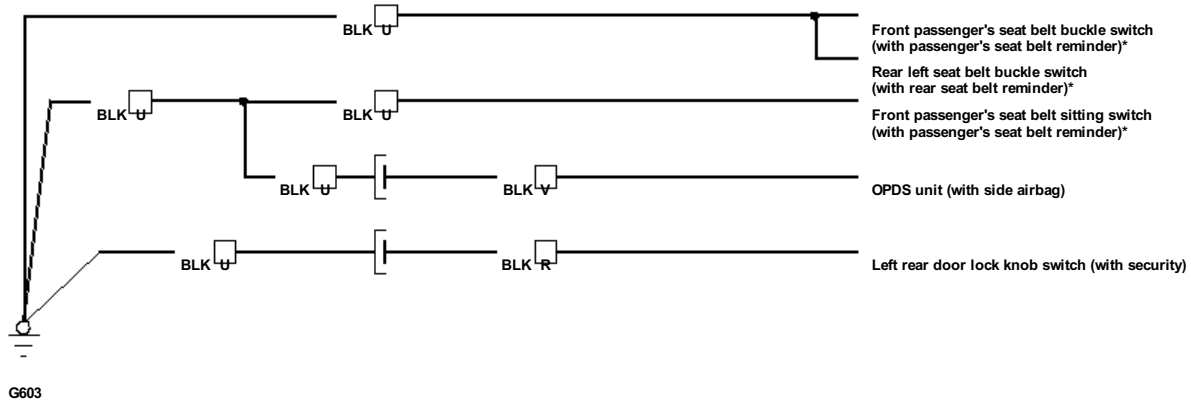


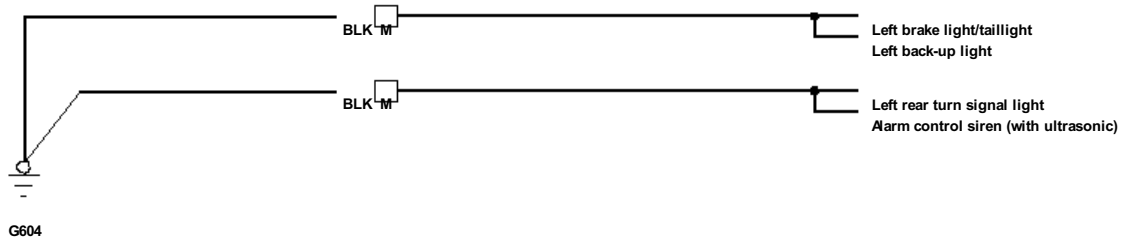
(view of back side)

Ground Circuit Identification









M : Floor wire harness

N : Tailgate wire harness

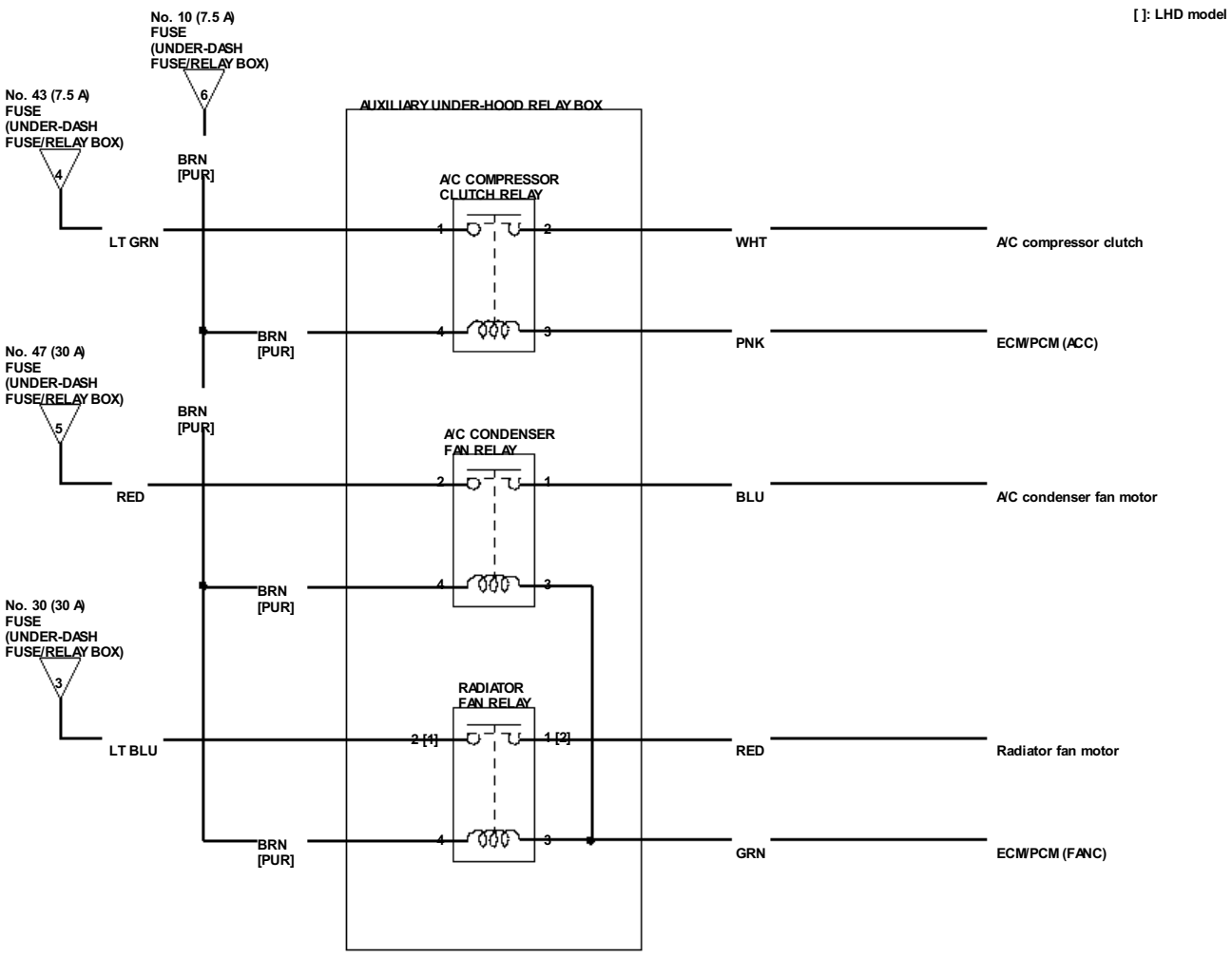
R : Left rear door wire harness

T : Reminder wire harness

U : Ultrasonic sensor subharness

V : OPDS unit harness

Power Circuit Identification



Under-dash fuse/relay box

Fuse Number	Amps	Component(s) or Circuit(s) Protected
1	10 A	Alarm control siren *1 , Audio unit, Cargo area light, Ceiling light, Data link connector (DLC), Gauge control module, Immobilizer-keyless control unit, Individual map light, MICU (+B BACK UP), Ultrasonic sensor *1
2	10 A	Not used
3	20 A	Power window master switch
4	———	Not used
5	10 A	Back-up light (via back-up light switch) (M/T), MICU (IG BACK LT) (A/T)
6	10 A	SRS unit (VB)
7	10 A	PCM (VBSOL)
8	7.5 A	SRS unit (VA), OPDS unit *2
9	20 A	Not used
10	7.5 A	A/C compressor clutch relay *4 , A/C condenser fan relay *4 , A/C switch, Blower motor relay, ECM/PCM (ACC) (via A/C compressor clutch relay), ECM/PCM (FANC) (via A/C condenser fan relay and radiator fan relay), Optional connector, Power mirror switch, Radiator fan relay *4 , Rear window defogger relay, Rear window defogger switch indicator light
11	7.5 A	ABS modulator-control unit (MTR), EPS control unit
12	10 A	MAF sensor, ECM/PCM (BRSWNC) (via brake pedal position switch), EVAP canister purge valve, Secondary HO2S, Alternator
13	20 A	Accessory power socket
14	7.5 A	Key interlock solenoid (A/T), Audio unit, MICU (ACC)
15	———	Not used
16	10 A	Rear wiper motor
17	20 A	Front passenger's power window motor (via front passenger's power window switch), Power window master switch
18	20 A	Power window master switch, Right rear power window motor (via right rear power window switch)
19	20 A	Left rear power window motor (via left rear power window switch), Power window master switch
20	15 A	ECM/PCM (IG1), Fuel pump (via PGM-FI main relay 2 (FUEL PUMP)), Immobilizer-keyless control unit
21	15 A	MICU (IG1 WASHER)
22	7.5 A	A/T gear position indicator panel light (A/T), Electrical load detector (ELD), Gauge control module
23	10 A	MICU (+B HAZARD)
24	15 A	ECM/PCM *5 , High mount brake light *5 , Horn (High) (LHD model), Horn (Low), Horn relay *3 , Left brake light *5 , Right brake light *5 , MICU (+B HORN) (Without security)
25	———	Not used
26	10 A	A/F sensor (via A/F sensor relay), A/F sensor relay, ECM/PCM (SUBRLY)
27	30 A	MICU (+B DOOR LOCK)
28	———	Not used

[ ]: LHD model

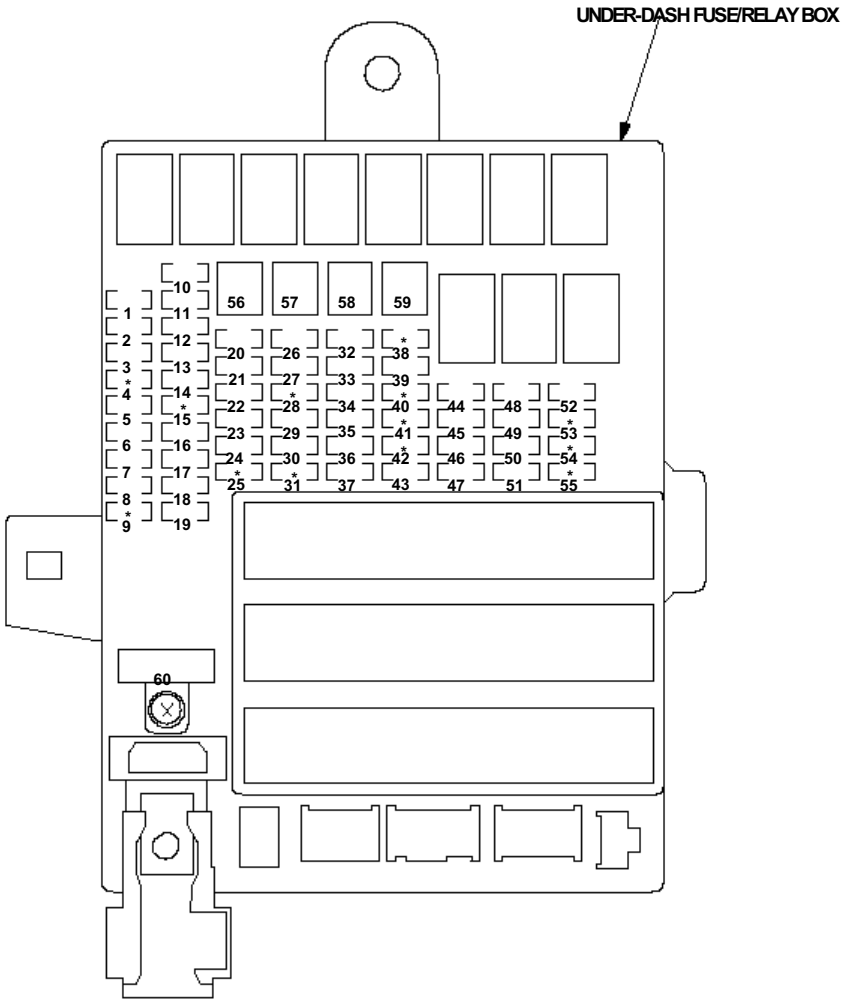
*1: With ultrasonic
*2: With side airbag/side curtain airbag
*3: With security
*4: In the auxiliary under-hood relay box
*5: Via brake pedal position switch

Fuse Number	Amps	Component(s) or Circuit(s) Protected
29	10 A	A/C switch light, Heater control panel light, A/T gear position indicator panel light, Audio unit, Hazard warning switch light, Left front position light, Left license plate light, Left taillight, Rear window defogger switch light, MICU (+B SMALL LT), Right license plate light
30	30 A	Radiator fan motor (via radiator fan relay)
31	———	Not used
32	10 A	Right headlight (LO)
33	15 A	Ignition coil relay, Ignition coils (via ignition coil relay), ECM/PCM (MRLY)
34	10 A	Left headlight (LO)
35	15 A	Front passenger's door lock actuator, Left [Right] rear door lock actuator, Tailgate lock actuator
36	15 A	Driver's door lock actuator, Fuel lid lock actuator, Right [Left] rear door lock actuator
37	30 A	ABS modulator-control unit (FSR)
38	———	Not used
39	15 A	CKP sensor, CMP sensor, ECM/PCM (IGP), ECM/PCM (IG1ETCSRLY) (via electronic throttle control system (ETCS) control relay), ECM/PCM (IMOFPR) (Via PGM-FI main relay 2(FUEL PUMP)), ECM/PCM (MRLY) (Via PGM-FI main relay 1), Electronic throttle control system (ETCS) control relay *6 , Injectors, PGM-FI main relay 1 (FI MAIN), PGM-FI main relay 2 (FUEL PUMP) *6
40	———	Not used
41	———	Not used
42	———	Not used
43	7.5 A	A/C compressor clutch (Via A/C compressor clutch relay)
44	7.5 A	Starter cut relay (ST CUT) (A/T)
45	———	Not used
46	20 A	Not used
47	30 A	A/C condenser fan motor (via A/C condenser fan relay)
48	10 A	Left headlight (HI)
49	15 A	Front passenger's door lock actuator, Left [Right] rear door lock actuator, Tailgate lock actuator
50	15 A	Driver's door lock actuator, Fuel lid lock actuator, Right [Left] rear door lock actuator
51	10 A	Right headlight (HI)

Fuse Number	Amps	Component(s) or Circuit(s) Protected
52	15 A	ECM/PCM (IG1ETCS) (via electronic throttle control system (ETCS) control relay)
53	———	Not used
54	———	Not used
55	———	Not used
56	30 A	MICU (IG1 FR WIPER)
57	30 A	Blower motor (via blower motor relay)
58	30 A	ABS modulator-control unit (MTR)
59	20 A	Rear window defogger (via rear window defogger relay)
60	(IGN)50 A	Ignition switch
	(AMT)40 A	Not used

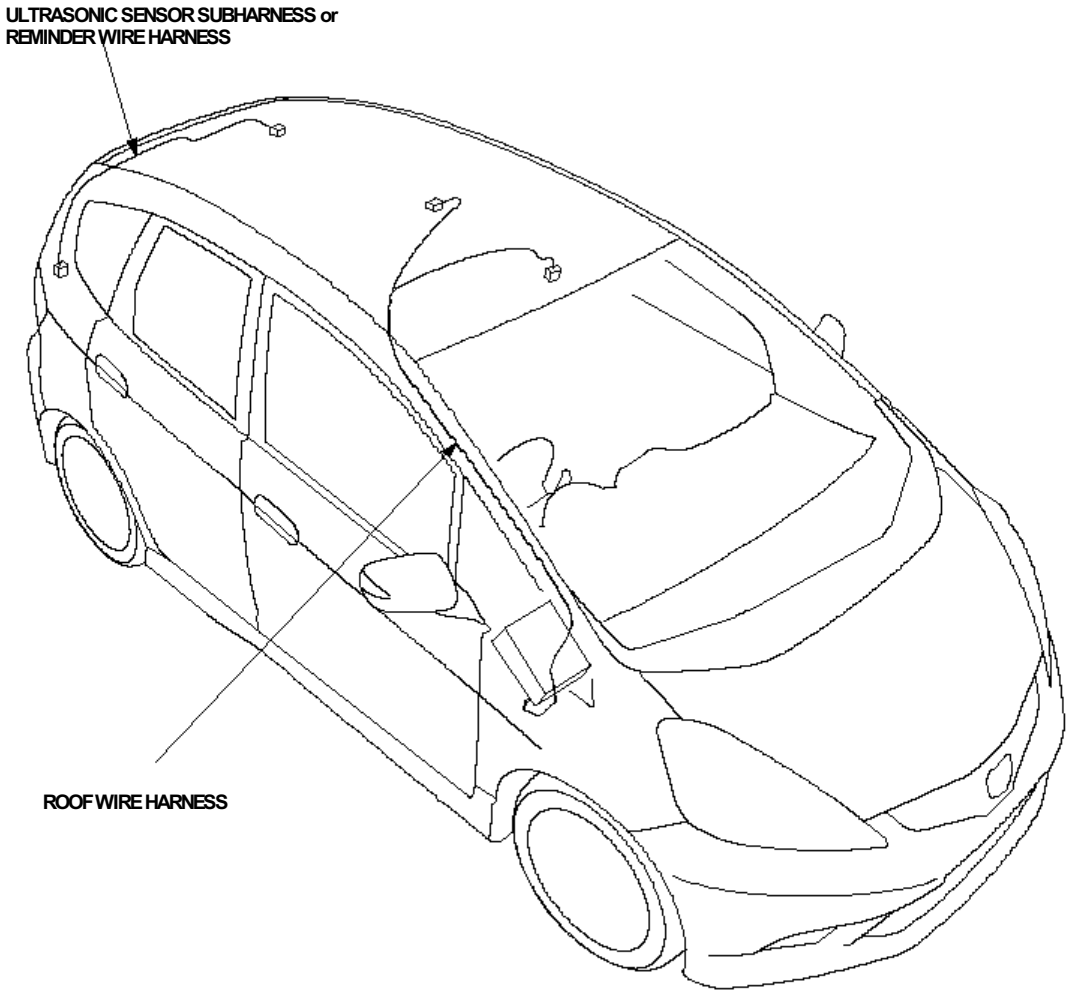
[ ]: LHD model

*1: With ultrasonic
*2: With side airbag/side curtain airbag
*3: With security
*4: In the auxiliary under-hood relay box
*5: Via brake pedal position switch
*6: Via PGM-FI main relay 1 (FI MAIN)



***: Not used**

Roof Wire Harness, Reminder Wire Harness, and Ultrasonic Sensor Subharness Locations



RHD model is shown, LHD model is symmetrical.

DTC Troubleshooting: B1029

DTC B1029:
MICU Lost Communication with Ultrasonic Unit

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Check for DTCs with the HDS.

   Is DTC B1029 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
4. Do the ultrasonic sensor input test, and check power supply and ground for ultrasonic sensor.

   Do all of the input tests prove OK?
   YES - Go to Step 5 .
   NO - If any input tests indicate a problem, find and correct them, then recheck the system.■
5. Do the alarm control siren input test, and check power supply and ground for alarm control siren.

   Do all of the input tests prove OK?
   YES - Go to Step 6 .
   NO - If any input tests indicate a problem, find and correct them, then recheck the system.■
6. Disconnect under-dash fuse/relay box connector C (49P).
7. Connect the alarm control siren 6P connector No. 3 terminal and body ground with a jumper wire.

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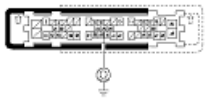
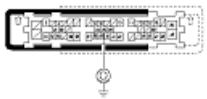
8. Check for continuity between under-dash fuse/relay box connector C (49P) No. 25 terminal and body ground.
   NOTE: The illustration shows the RHD model and the black portion shows the lock lever. The lock lever for LHD model is shown as the dashed lines.

   Is there continuity?
   YES - Go to Step 9 .
   NO - Repair an open in the wire between the MICU and the alarm control siren.■
9. Disconnect the jumper wire from the alarm control siren 6P connector.

---

10. Check for continuity between under-dash fuse/relay box connector C (49P) No. 25 terminal and body ground.
    NOTE: The illustration shows the RHD model and the black portion shows the lock lever. The lock lever for LHD model is shown as the dashed lines.

    Is there continuity?
    YES - Repair a short to ground in the wire between the MICU and the alarm control siren.■
    NO - Faulty alarm control siren, replace it.■

DTC Troubleshooting: B1030

DTC B1030:
Ultrasonic System Malfunction

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Check for DTCs with the HDS.

Is DTC B1030 indicated?
YES - Faulty alarm control siren, replace it.■
NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.■

DTC Troubleshooting: B1031

DTC B1031:
Ultrasonic Sensor Malfunction

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Check for DTCs with the HDS.

   Is DTC B1031 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
4. Do the ultrasonic sensor input test, and check power supply and ground for ultrasonic sensor.

   Do all of the input tests prove OK?
   YES - Go to Step 5 .
   NO - If any input tests indicate a problem, find and correct them, then recheck the system■
5. Do the alarm control siren input test, and check power supply and ground for alarm control siren.

   Do all of the input tests prove OK?
   YES - Faulty alarm control siren, replace it.■
   NO - If any input tests indicate a problem, find and correct them, then recheck the system.■

Brake System Symptom Troubleshooting - Rapid brake pad wear, vehicle vibration (after a long drive), or high, hard brake pedal

Rapid brake pad wear, vehicle vibration (after a long drive), or high, hard brake pedal

NOTE: Make sure that the caliper pins are installed correctly.
Upper caliper pin B and lower caliper pin A are different. If the pins are installed in the wrong location, it will cause vibration, uneven or rapid brake pad wear, and possibly uneven tyre wear. For proper caliper pin location.

1. Drive the vehicle until the brakes drag or until the pedal is high and hard. This can take 20 or more brake pedal applications during an extended test-drive.
2. With the engine running, raise the vehicle on a lift, and spin all four wheels by hand.

   Is there brake drag at any of the wheels?
   YES - Go to Step 3 .
   NO - Look for other causes of pad wear, high pedal, or vehicle vibration.■
3. Turn the ignition switch to LOCK (0), press the brake pedal several times to deplete the vacuum in the brake booster, and then spin the wheels again to check for brake drag.

   Is there brake drag at any of the wheels?
   YES - Go to Step 4 .
   NO - Replace the brake booster.

   - RHD model. ■
   - LHD model. ■
4. Without removing the brake lines, unbolt and separate the master cylinder from the booster, then spin the wheels to check for brake drag.

   Is there brake drag at any of the wheels?
   YES - Go to Step 5 .
   NO - Check the brake pedal position switch adjustment and pedal free play. ■
5. Loosen the hydraulic lines at the master cylinder, then spin the wheels to check for brake drag.

   Is there brake drag at any of the wheels?
   YES - Go to Step 6 .
   NO - Check the master cylinder reservoir for contamination in the brake fluid. If you find contamination, flush the entire brake system of all contaminated fluid. If the brake fluid is OK, replace the master cylinder.

   - RHD model. ■
   - LHD model. ■
6. Loosen the bleed screws at each caliper, then spin the wheels to check for brake drag.

   Is there brake drag at any of the wheels?
   YES - Check the master cylinder reservoir for contamination in the brake fluid. If you find contamination, flush the entire brake system of all contaminated fluid. If the brake fluid is OK, disassemble and repair the caliper on the wheel(s) with brake drag.■
   NO - Look for and replace any damaged brake lines. If all brake lines are OK, replace the ABS modulator-control unit. ■

Brake System Inspection and Test

Inspect the brake system components listed. Repair or replace any parts that are leaking or damaged.

Component Inspections:

Component	Procedure	Also check for
Master Cylinder	Look for damage or signs of fluid leakage at: • Reservoir tank, subreservoir or master cylinder body. • Lines, reservoir tank hose and grommets, and their joints. • Between master cylinder and booster.	Bulging seal at reservoir cap. This is a sign of fluid contamination.
Brake Hoses	Look for damage or signs of fluid leakage at: • Line joints and banjo bolt connections. • Hoses and lines, also inspect for twisting or damage.	Bulging, twisted, or bent lines.
Caliper	Look for damage or signs of fluid leakage at: • Piston seal. • Banjo bolt connections. • Bleed screw.	Seized or sticking caliper pins.
ABS Modulator-control Unit	Look for damage or signs of fluid leakage at: • Line joints. • Modulator-control unit.	

Brake System Test

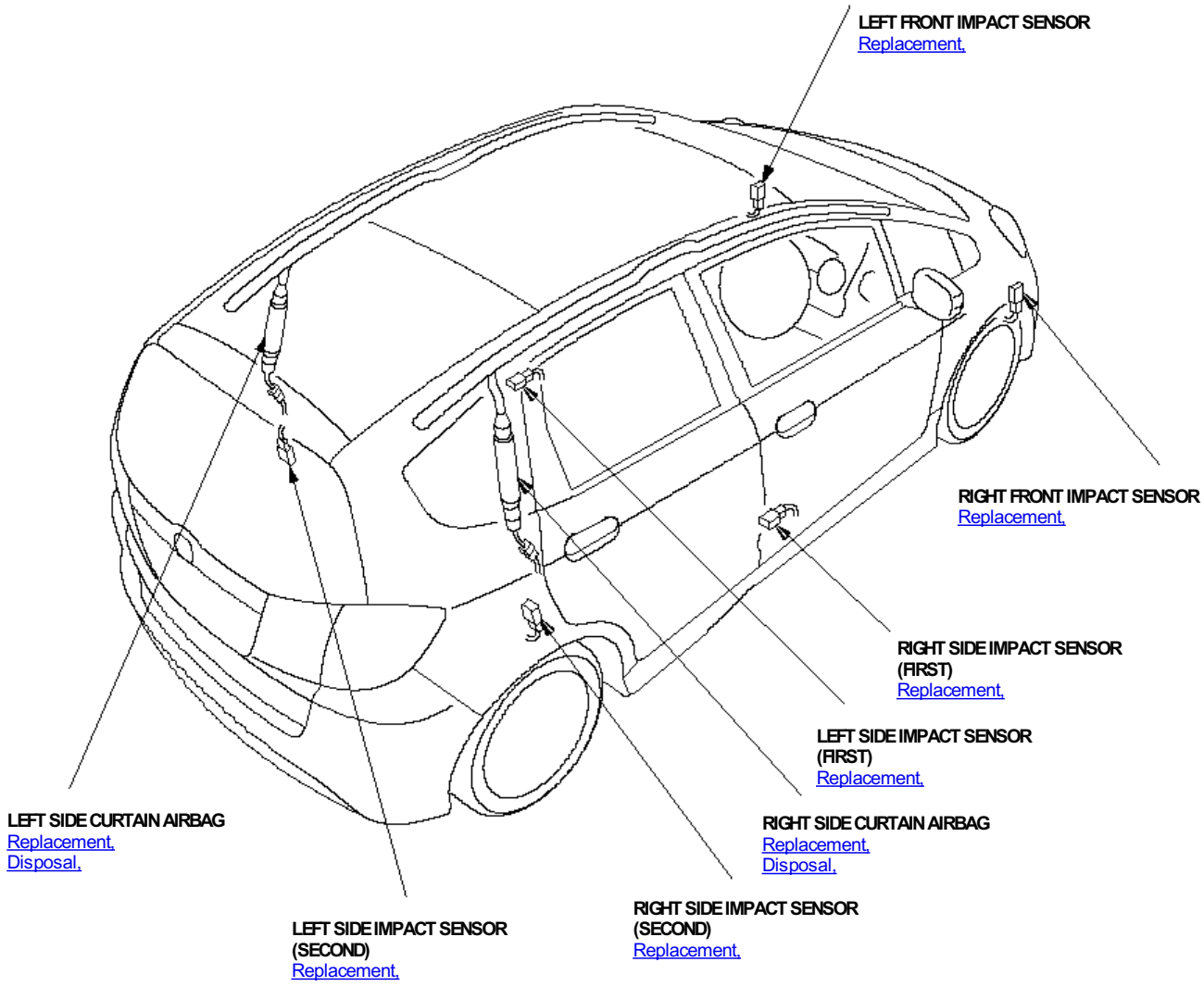
Brake pedal sinks/fades when braking

1. Set the parking brake, and start the engine, then turn off the A/C. Allow the engine to warm up to normal operating temperature (radiator fan comes on twice).
2. Attach a 50 mm (2 in.) piece of masking tape along the bottom of the steering wheel, and draw a horizontal reference mark across it.
3. With the transmission in neutral (M/T) or P or N (A/T), press and hold the brake pedal lightly (about the same pressure needed to keep an A/T-equipped vehicle from creeping), then release the parking brake.
4. While still holding the brake pedal, hook the end of the tape measure behind the brake pedal, then pull the tape up to the steering wheel. Note the measurement between the brake pedal and the reference mark on the steering wheel.
5. Apply steady pressure to the brake pedal for 3 minutes.
6. Watch the tape measure.
   - If the measurement increases 10 mm (0.39 in.) or less, the master cylinder is OK.
   - If the measurement increases more than 10 mm (0.39 in.), replace the master cylinder.

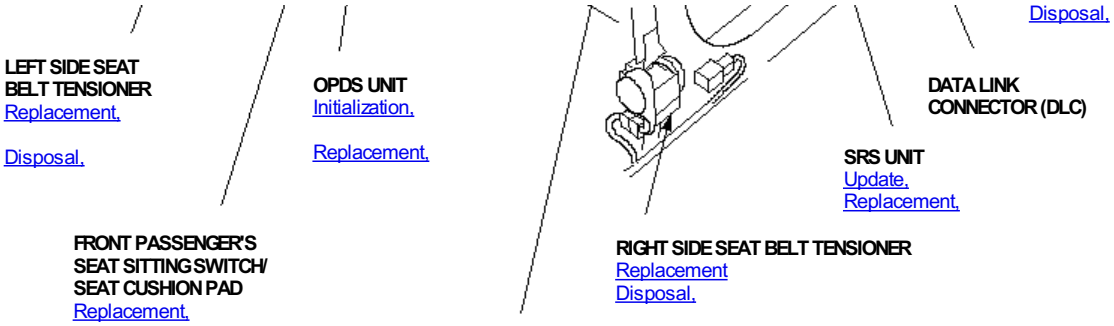
SRS System Description

SRS Components
Side Airbag Cutoff Indicator/OPDS Operation
SRS Operation
SRS Unit Inputs and Outputs at Connector A (39P)
SRS Unit Inputs and Outputs at Connector B (39P)

SRS Component Location Index

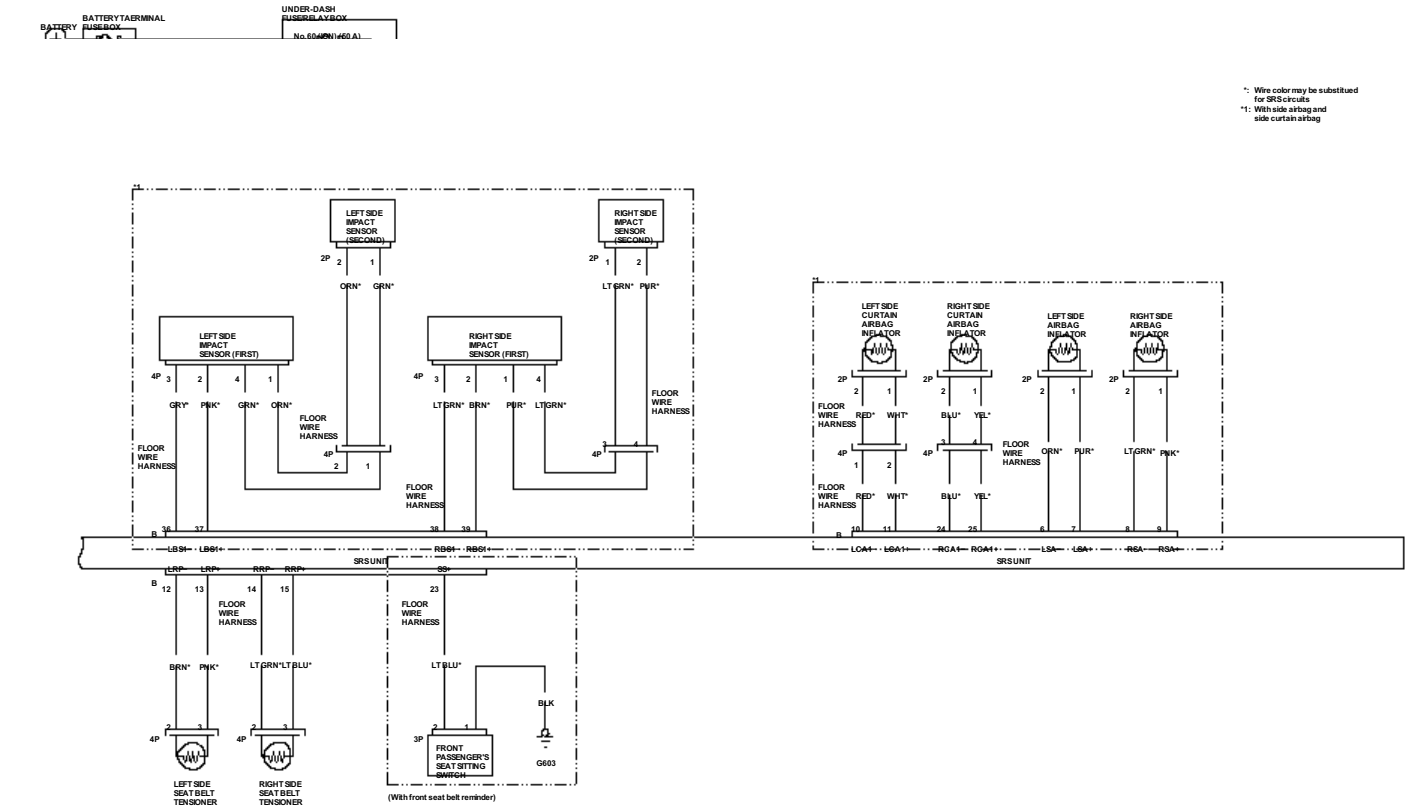


RHD model is shown, LHD model is similar.



RHD model is shown, LHD model is similar.

SRS Circuit Diagram



Side Impact Sensor (First) Replacement

Removal

1. Do the battery terminal disconnection procedure, then wait for 3 minutes before starting work.
2. Remove the front seat assembly.
3. Remove the center pillar lower trim:
   - Without side curtain airbag
   - With side curtain airbag
4. Disconnect the floor wire harness 4P connector (A) from the side impact sensor (first) (B).
5. Using a TORX T30 bit, remove the TORX bolt (C), then remove the side impact sensor (first).

Installation

1. Install the side impact sensor (first) with a new TORX bolt (A), then connect the floor wire harness 4P connector (B) to the side impact sensor (first) (C).
2. Do the battery terminal reconnection procedure.
3. After installing the side impact sensor (first) confirm proper system operation: Turn the ignition switch to ON (II); the SRS indicator should come on for 6 seconds and then go off.
4. Reinstall all removed parts.

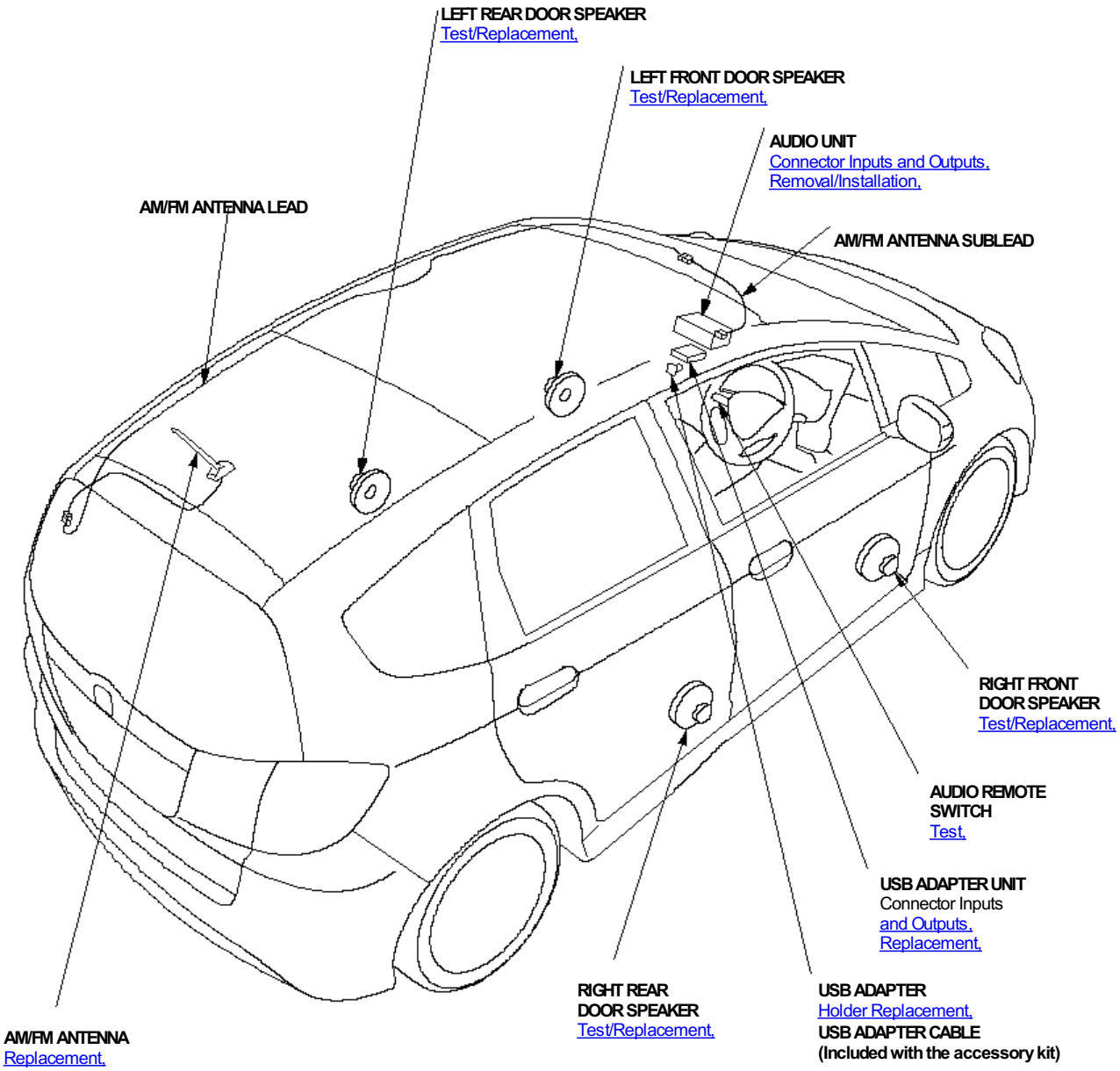
Audio System Error Codes

The audio system displays error codes when a problem is detected with the disc player or the disc.

CD Error Codes

Error Code Displayed	Possible Cause	Solution
CD UNSUPPORTED	Track/File format not supported.	Current track will skipped. The next supported track or file plays automatically. • Verify that CD file names end in CDA. • Verify that CD-R or CD-RW with compressed music formats end in MP3 or WMA. • Other file formats like i-Tunes (AAC) or Ogg are not recognized. • WMA files may have (DRM) copy protection and cannot be read.
BAD DISC/PLEASE CHECK/OWNERS MANUAL/PUSH EJECT	• CD label jammed in the mechanism. • The wrong type disc is inserted. • CD eject mechanism or motor is inoperative. • CD spindle motor won't spin up the CD.	• Eject CD and insert a known-good CD. • If flashing the PUSH EJECT, press the EJECT button and hold it for 5 seconds. If the disc does not eject, try again. If the disc still won't eject, replace the unit.
HEAT ERROR	Disc player is hot. This error can happen if the vehicle is parked out in the hot sun all day.	Park the vehicle in a cooler place for a while and play the disc again. If the error code is still present, try another disc. If the error code is still present, replace the audio unit.

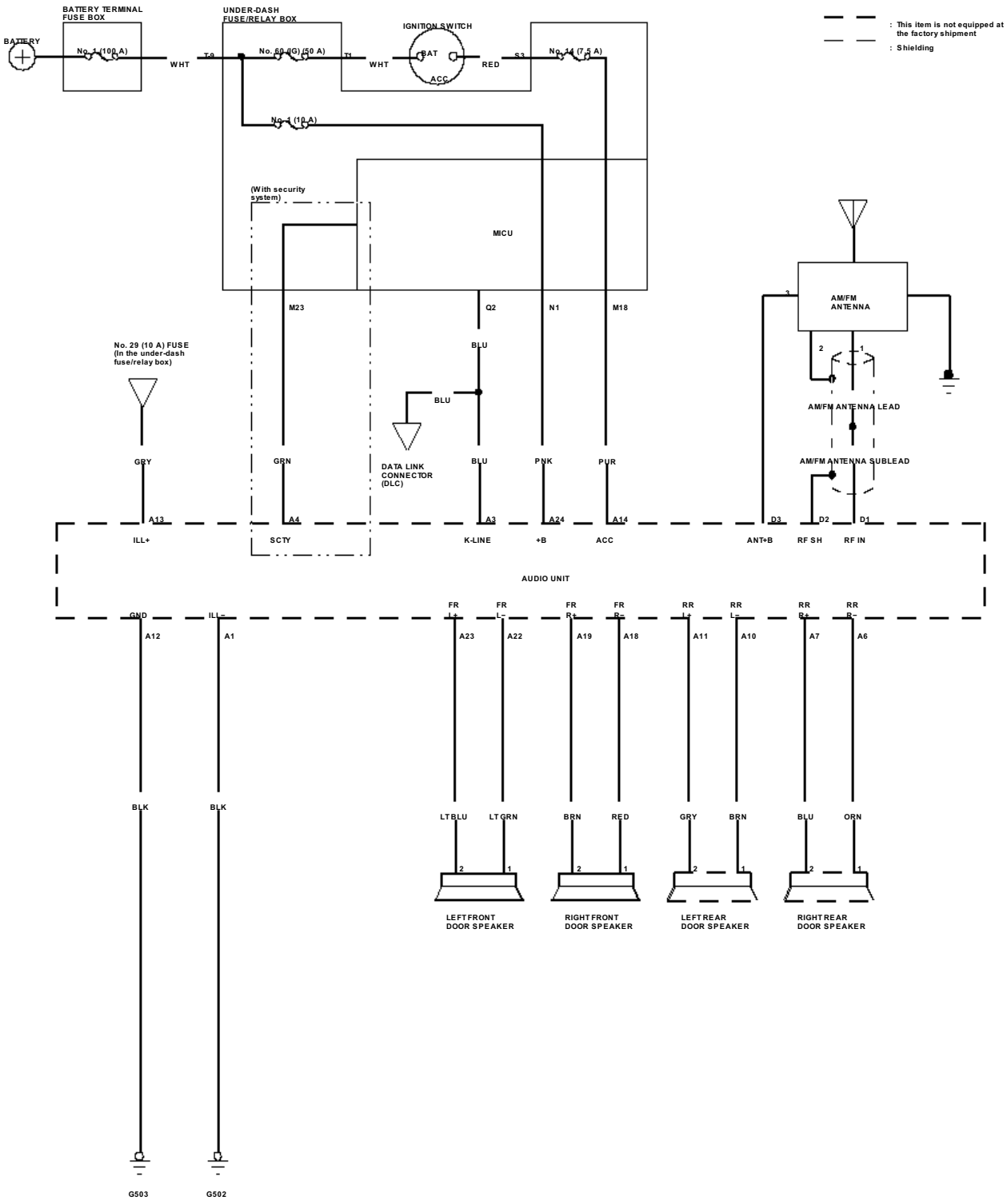
Audio System Component Location Index



RHD model is shown, LHD model is similar.
Part of items are not equipped for some models.

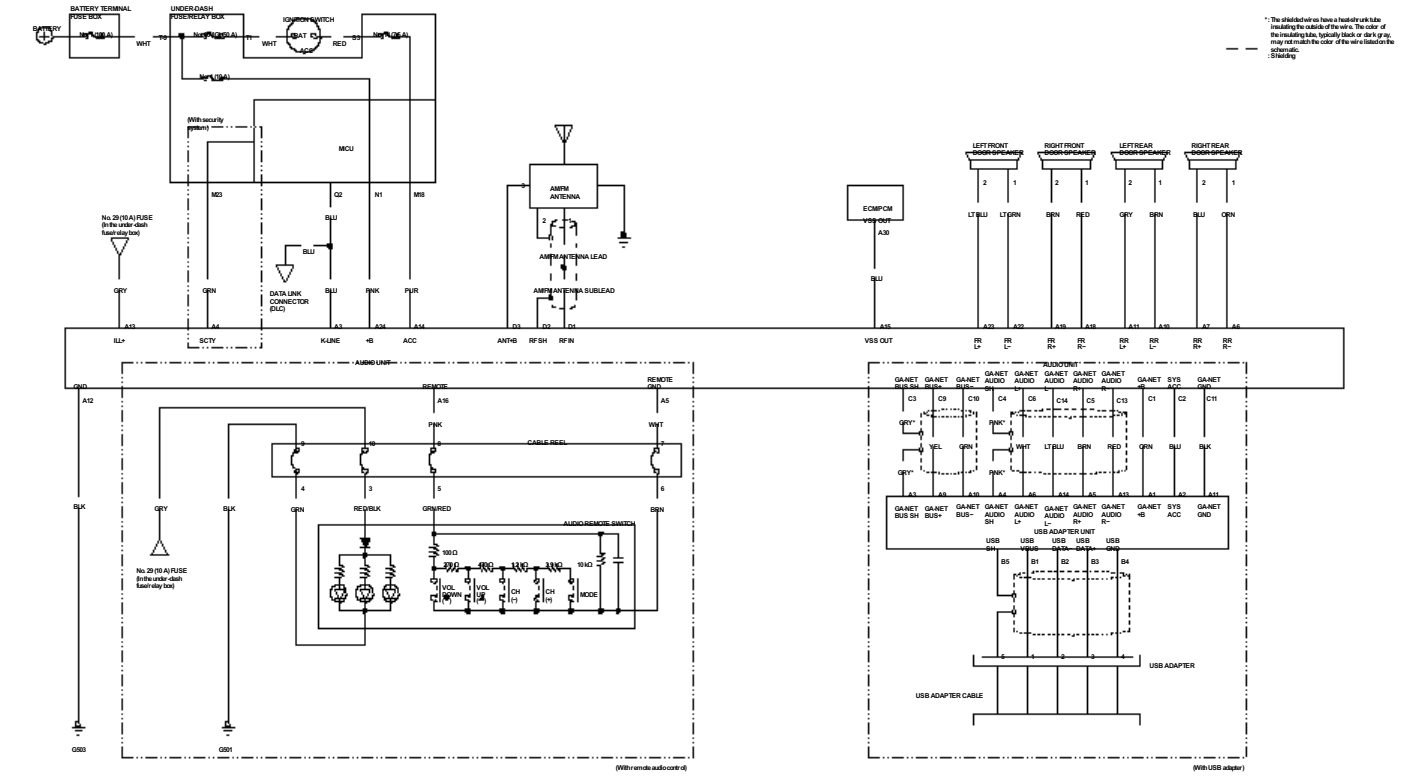
Audio System Circuit Diagram - Without Audio

Without Audio



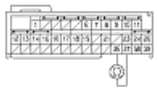
Audio System Circuit Diagram - With Audio

With Audio



SRS DTC Troubleshooting: 43-11

DTC 43-11:
No Signal From the Left Side Impact Sensor (first)
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

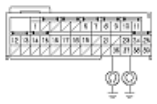
1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 43-11 indicated?
   YES -
   - If DTC 43-11 is indicated alone, go to Step 4 .
   - If DTC 43-11 and 45-11 are indicated, faulty left side impact sensor (first); replace the left side impact sensor (first). ■

   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Check the connections between SRS unit connector B (39P) and the SRS unit, between the floor wire harness 4P connector and the left side impact sensor (first), and at floor wire harness 4P connector.

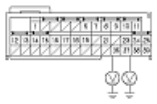
   Are the connections OK?
   YES - Go to Step 7 .
   NO - Repair the poor connections and retest.
7. Disconnect SRS unit connector B (39P) from the SRS unit.
8. Disconnect the floor wire harness 4P connector from the left side impact sensor (first).
9. Measure the resistance between No. 36 and No. 37 terminals of SRS unit connector B (39P). There should be an open circuit or at least 1 MΩ.

   Is the resistance as specified?
   YES - Go to Step 10 .
   NO - Short in the floor wire harness; replace the floor wire harness.■



10. Measure the resistance between No. 36 terminal of SRS unit connector B (39P) and body ground, and between the No. 37 terminal and body ground. There should be an open circuit or at least 1 MΩ.

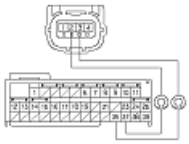
    Is the resistance as specified?
    YES - Go to Step 11 .
    NO - Short to ground in the floor wire harness; replace the floor wire harness.■
11. Do the battery terminal reconnection procedure.
12. Turn the ignition switch to ON (II).



13. Measure the voltage between No. 36 terminal of SRS unit connector B (39P) and body ground, and between the No. 37 terminal and body ground. There should be less than 1.0 V.

    Is the voltage as specified?
    YES - Go to Step 14 .
    NO - Short to power in the floor wire harness; replace the floor wire harness.■
14. Turn the ignition switch to LOCK (0).

15. Measure the resistance between the No. 2 terminal of the floor wire harness 4P connector and the No. 37 terminal of the SRS unit connector B (39P), and between the No. 3 terminal of the floor wire harness 4P connector and the No. 36 terminal of the SRS unit connector B (39P). There should be 0−1.0 Ω.



Is the resistance as specified?
YES - Go to Step 16 .
NO - Open in the floor wire harness; replace the floor wire harness.■

16. Substitute a known-good left side impact sensor (first) and recheck.

17. Connect SRS unit connector B (39P) to the SRS unit.

18. Clear the DTC memory.

19. Turn the ignition switch to ON (II), then wait for 10 seconds.

20. Read the DTC.

Is DTC 43-11 indicated?
YES - Faulty SRS unit; replace the SRS unit. ■
NO - Faulty left side impact sensor (first); replace the left side impact sensor (first). ■

SRS DTC Troubleshooting: 44-11

DTC 44-11:
No Signal From the Right Side Impact Sensor (first)
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

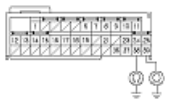
1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 44-11 indicated?
   YES -
   - If DTC 44-11 is indicated alone, go to Step 4 .
   - If DTC 44-11 and 46-11 are indicated, faulty right side impact sensor (first); replace the right side impact sensor (first). ■

   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure, then wait for 3 minutes.
6. Check the connections between SRS unit connector B (39P) and the SRS unit, between the floor wire harness 4P connector and the right side impact sensor (first), and at floor wire harness 4P connector.

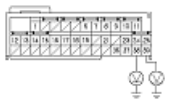
   Are the connections OK?
   YES - Go to Step 7 .
   NO - Repair the poor connections and retest.
7. Disconnect SRS unit connector B (39P) from the SRS unit.
8. Disconnect the floor wire harness 4P connector from the right side impact sensor (first).
9. Measure the resistance between the No. 38 and No. 39 terminals of SRS unit connector B (39P). There should be an open circuit or at least 1 MΩ.

   Is the resistance as specified?
   YES - Go to Step 10 .
   NO - Short in the floor wire harness; replace the floor wire harness.■



10. Measure the resistance between No. 38 terminal of SRS unit connector B (39P) and body ground, and between the No. 39 terminal and body ground. There should be an open circuit at least 1 MΩ.

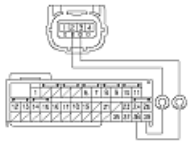
    Is the resistance as specified?
    YES - Go to Step 11 .
    NO - Short to ground in the floor wire harness; replace the floor wire harness.■
11. Do the battery terminal reconnection procedure.
12. Turn the ignition switch to ON (II).



13. Measure the voltage between No. 38 terminal of SRS unit connector B (39P) and body ground, and between the No. 39 terminal and body ground. There should be less than 1.0 V.

    Is the voltage as specified?
    YES - Go to Step 14 .
    NO - Short to power in the floor wire harness; replace the floor wire harness.■
14. Turn the ignition switch to LOCK (0).

15. Measure the resistance between the No. 2 terminal of the floor wire harness 4P connector and the No. 39 terminal of the SRS unit connector B (39P), and between the No. 3 terminal of the floor wire harness 4P connector and the No. 38 terminal of the SRS unit connector B (39P). There should be 0−1.0 Ω.



Is the resistance as specified?
YES - Go to Step 16 .
NO - Open in the floor wire harness; replace the floor wire harness.■

16. Substitute a known-good right side impact sensor (first) and recheck.

17. Connect SRS unit connector B (39P) to the SRS unit.

18. Clear the DTC memory.

19. Turn the ignition switch to ON (II), then wait for 10 seconds.

20. Read the DTC.

Is DTC 44-11 indicated?
YES - Faulty SRS unit; replace the SRS unit. ■
NO - Faulty right side impact sensor (first); replace the right side impact sensor (first). ■

Safety Messages

Safety Messages

Your safety, and the safety of others, is very important. To help you make informed decisions, we have provided safety messages, and other safety information throughout this manual. Of course, it is not practical or possible to warn you about all the hazards associated with servicing this vehicle. You must use your own good judgement.
You will find important safety information in a variety of forms including:

- **Safety Labels –** on the vehicle.
- **Safety Messages –** preceded by a safety alert symbol and one of three signal words, DANGER, WARNING, or CAUTION.
  These signal words mean:

  You WILL be KILLED or SERIOUSLY HURT if you don't follow instructions.
  You CAN be KILLED or SERIOUSLY HURT if you don't follow instructions.
  You CAN be HURT if you don't follow instructions.

- **Instructions –** how to service this vehicle correctly and safely.

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As you read this manual, you will find information that is preceded by a symbol. The purpose of this message is to help prevent damage to your vehicle, other property, or the environment.
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HONDA MOTOR CO., LTD.
Service Publication Office

Seat Heater

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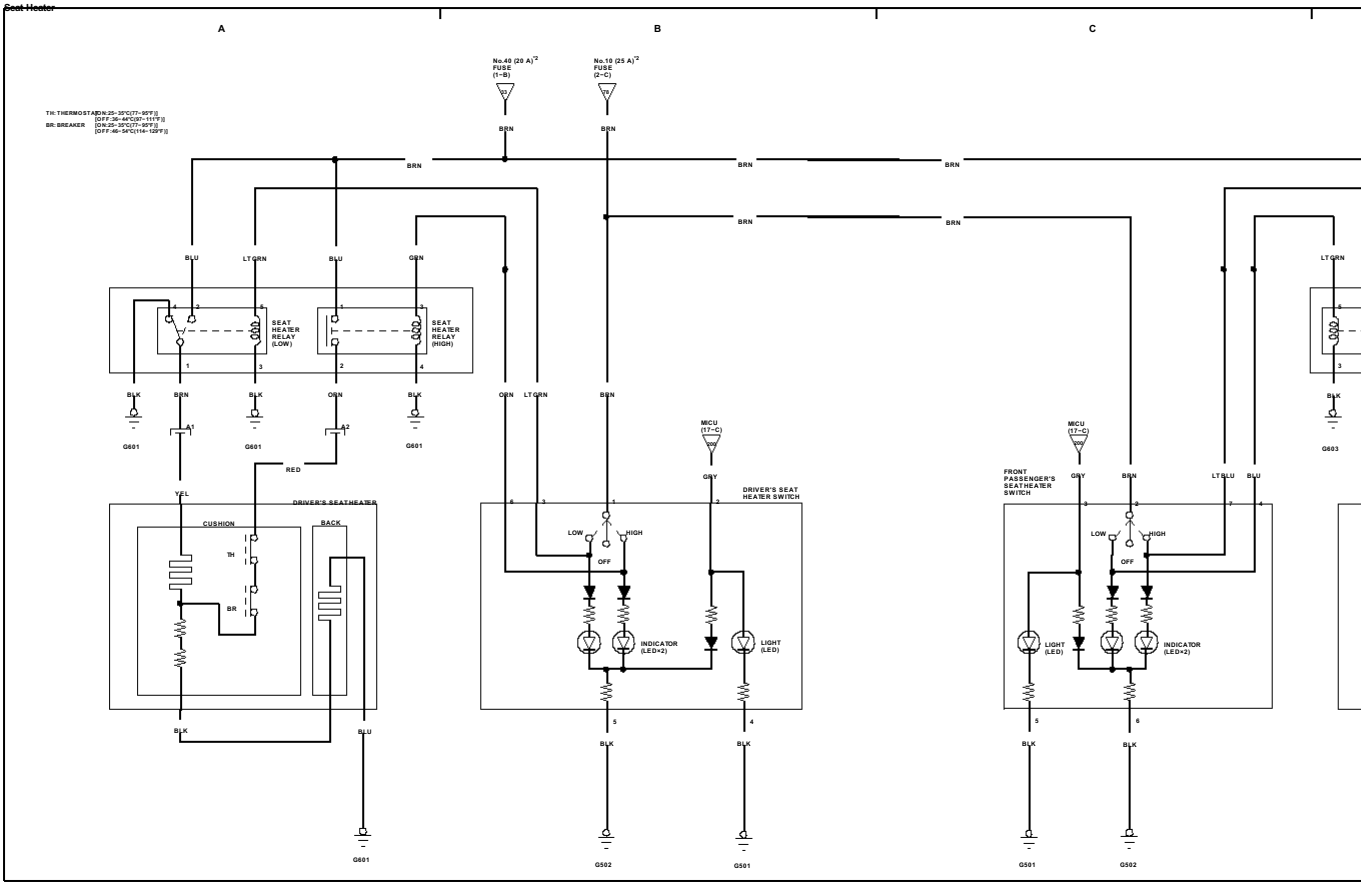


Service Reminder System Maintenance Items - for applicable EU countries

Symbol	Maintenance Items
A	Replace engine oil and oil filter
B	Inspect front and rear brakes • Check the brake pad and disc thickness. Check for damage. • Check the calipers for damage, leaks, and tightness.
	Check parking brake adjustment Check the number of clicks when the parking brake lever is pulled with 196 N (20 kgf, 44 lbf) of force. • Rear disc brake : 6 to 8 clicks • Rear drum in disc brake : 5 to 7 clicks
	Inspect tie-rod ends, steering gearbox, and boots • Check steering linkage. • Check the boot for damage and leaking grease.
	Inspect suspension components • Check the bolts for tightness. • Check all dust covers for deterioration and damage.
	Inspect driveshaft boots • Check the boot and boot band for cracks. • Check boots for leaking grease.
	Inspect brake hoses and lines including ABS/VSA lines Check the master cylinder and ABS/VSA modulator-control unit for damage or leakage.
	Inspect all fluid levels and condition of fluids • Engine coolant • M/T • i-SHIFT • Brake fluid • Clutch fluid M/T , i-SHIFT • Windshield washer fluid
	Inspect exhaust system • KE, KG model • Except KE, KG model Check the exhaust pipe and muffler for damage, leaks, and tightness.
	Inspect fuel lines and connections • Check fuel lines for loose connections, cracks, and deterioration. • Retighten loose connections and replace any damaged parts.
	Inspect tyre condition
	Check expiration date for TRK (Temporary Repair Kit) bottle
	Test drive (noise, stability, dashboard operation)
	Check lights alignment Check the position of the headlights.
	Inspect vehicle corrosion: refer to the Body Repair Manual If the symbol B appears before one year has passed, inspect for the vehicle corrosion every year. • External Paintwork and Panel Corrosion Check • Under Body Corrosion Check

Number	Maintenance Items
2	Replace dust and pollen filter • If the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 20,000 km (12,500 miles) or 1 year. • Replace the filter whenever airflow from the heating and air conditioning system is less than normal.
	Inspect drive belt Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.

Number	Maintenance Items
3	Replace transmission fluid • Driving in mountainous areas at very low vehicle speeds or towing trailer results in higher transmission temperatures. This requires transmission fluid changes more frequently than recommended by the service reminder system. If the vehicle is driven under these conditions, have the Manual Transmission Fluid changed at 60,000 km (37,500 miles) or 4 years. • For automatic transmission, have the Automatic Transmission Fluid changed at 60,000 km (37,500 miles) or after the first 4 years, then every 40,000 km (25,000 miles) or 2 years. Capacity: • M/T : 1.5 L (1.6 US qt, 1.3 Imp qt); always use genuine Honda MTF. • i-SHIFT : 1.4 L (1.5 US qt, 1.2 Imp qt); always use genuine Honda MTF.
4	Replace fuel filter
	Inspect idle speed
	Replace spark plugs Use IZFR6K-13 (NGK) or SKJ20DR-M13 (DENSO).
5	Replace engine coolant Capacity (including the reservoir): • L12B1 (M/T, RHD): 4.42 L (1.168 US gal, 0.972 Imp gal) • L12B1 (M/T, LHD Manufactured in Japan model): 4.42 L (1.168 US gal, 0.972 Imp gal) • L12B1 (M/T, LHD Manufactured in China model): 4.46 L (1.178 US gal, 0.981 Imp gal) • L13Z1 (A/T): 4.52 L (1.194 US gal, 0.994 Imp gal) • L13Z1 (M/T, LHD): 4.42 L (1.168 US gal, 0.972 Imp gal) • L13Z1 (M/T, RHD): 4.46 L (1.178 US gal, 0.981 Imp gal) • L15A7 (M/T): 4.43 L (1.170 US gal, 0.975 Imp gal) • L15A7 (A/T): 4.53 L (1.197 US gal, 0.997 Imp gal) Always use genuine Honda All Season Antifreeze/Coolant Type 2.
7	Replace brake fluid • Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid. • Check the brake fluid level is between upper and lower marks on the reservoir.
8	Replace air cleaner element If the vehicle is driven in dusty conditions, replace every 30,000 km (18750 miles).
9	Inspect valve clearance Intake: 0.15−0.19 mm (0.006−0.007 in.), Exhaust: 0.26−0.30 mm (0.010−0.012 in.)

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first	km x 1,000	20	40	60	80	100	120	140	160	180	200	220	240
	miles x 1,000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0	137.5	150
	months	12	24	36	48	60	72	84	96	108	120	132	144
Replace engine oil		•	•	•	•	•	•	•	•	•	•	•	•
Replace engine oil filter													
Replace air cleaner element		Every 60,000 km (37,500 miles)											
Inspect valve clearance		Every 100,000 km (62,500 miles)											
Replace fuel filter							•						•
Replace spark plugs		Every 120,000 km (75,000 miles)											
Inspect drive belt Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.			•		•		•		•		•		•
Inspect idle speed							•						•
Replace engine coolant Use genuine Honda All Season Antifreeze/Coolant Type 2.		At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years											
Replace Manual Transmission Fluid • M/T • i-SHIFT Use genuine Honda MTF.		Every 120,000 km (75,000 miles) or 8 years											
Check front and rear brakes • Check the brake pad and disc thickness. Check for damage. • Check the calipers for damage, leaks, and tightness.		•	•	•	•	•	•	•	•	•	•	•	•
Replace brake fluid • Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid. • Check the brake fluid level is between upper and lower marks on the reservoir.		Every 3 years											
Check parking brake adjustment Check the parking brake operation.		•	•		•		•		•		•		•
Replace dust and pollen filter • If the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 20,000 km (12,500 miles) or 1 year. • Replace the filter whenever airflow from the heating and air conditioning system is less than normal.			•		•		•		•		•		•
Check lights alignment Check the position of the headlights.		•	•	•	•	•	•	•	•	•	•	•	•
Test drive (noise, stability, dashboard operation)													
Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)													

Service at the indicated distance or time whichever comes first	km x 1,000	20	40	60	80	100	120	140	160	180	200	220	240
	miles x 1,000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0	137.5	150
	months	12	24	36	48	60	72	84	96	108	120	132	144
Inspect vehicle corrosion: refer to the Body Repair Manual • External Paintwork and Panel Corrosion Check • Under Body Corrosion Check		Every year											
Visually inspect the following items: • Check for correct installation and position, check for cracks, deterioration, rust, and leaks. • Check tightness of screws, nuts, and joints. If necessary, retighten.													
Tie-rod ends, steering gearbox, and boots • Check steering linkage. • Check the boot for damage and leaking grease.		•	•	•	•	•	•	•	•	•	•	•	•
Suspension components • Check the bolts for tightness. • Check all dust covers for deterioration and damage.													
Driveshaft boots • Check the boot and boot band for cracks. • Check boots for leaking grease.													

Service at the indicated distance or time whichever comes first	km x 1,000	20	40	60	80	100	120	140	160	180	200	220	240
	miles x 1,000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0	137.5	150
	months	12	24	36	48	60	72	84	96	108	120	132	144
Brake hoses and lines (including ABS/VSA lines) Check the master cylinder and ABS/VSA modulator- control unit and leakage.													
All fluid levels and condition of fluids Check levels and check for leaks. If necessary, add. • Engine coolant • MTF • M/T • i-SHIFT • Brake fluid • Clutch fluid M/T , i-SHIFT • Windshield washer fluid													
Exhaust system • KE, KG model • Except KE, KG model Check the exhaust pipe and muffler for damage, leaks, and tightness.													
Fuel lines and connections • Check fuel lines for loose connections, cracks, and deterioration. • Retighten loose connections and replace any damaged parts.													
Tyre condition													

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first	km x 1,000	20	40	60	80	100	120	140	160	180	200	220	240
	miles x 1,000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0	137.5	150
	months	12	24	36	48	60	72	84	96	108	120	132	144
Replace engine oil		Replace every 10,000 km (6,250 miles) or 6 months											
Replace engine oil filter		●	●	●	●	●	●	●	●	●	●	●	●
Replace air cleaner element Use normal conditions except in dusty conditions.		Every 30,000 km (18,750 miles)											
Inspect valve clearance		Every 100,000 km (62,500 miles)											
Replace fuel filter							●						●
Replace spark plugs		Every 120,000 km (75,000 miles)											
Inspect drive belt Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.			●		●		●		●		●		●
Inspect idle speed							●						●
Replace engine coolant Use genuine Honda All Season Antifreeze/Coolant Type 2.		At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years											
Replace Manual Transmission Fluid • M/T • i-SHIFT Use genuine Honda MTF.		Every 60,000 km (37,500 miles) or 4 years											
Check front and rear brakes • Check the brake pad and disc thickness. Check for damage. • Check the calipers for damage, leaks, and tightness.		Every 10,000 km (6,250 miles) or 6 months											
Replace brake fluid • Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid. • Check the brake fluid level is between upper and lower marks on the reservoir.		Every 3 years											
Check parking brake adjustment Check the parking brake operation.		●	●	●	●	●	●	●	●	●	●	●	●
Replace dust and pollen filter When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.													
Check lights alignment Check the position of the headlights.													

Service at the indicated distance or time whichever comes first	km x 1,000	20	40	60	80	100	120	140	160	180	200	220	240
	miles x 1,000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0	137.5	150
	months	12	24	36	48	60	72	84	96	108	120	132	144
Test drive (noise, stability, dashboard operation)		●	●	●	●	●	●	●	●	●	●	●	●
Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)													
Inspect vehicle corrosion: refer to the Body Repair Manual • External Paintwork and Panel Corrosion Check • Under Body Corrosion Check		Every year											
Visually inspect the following items: • Check for correct installation and position, check for cracks, deterioration, rust, and leaks. • Check tightness of screws, nuts, and joints. If necessary, retighten.													
Tie-rod ends, steering gearbox, and boots • Check steering linkage. • Check the boot for damage and leaking grease.		Every 10,000 km (6,250 miles) or 6 months											
Suspension components • Check the bolts for tightness. • Check all dust covers for deterioration and damage.													

Service at the indicated distance or time whichever comes first	km x 1,000	20	40	60	80	100	120	140	160	180	200	220	240
	miles x 1,000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0	137.5	150
	months	12	24	36	48	60	72	84	96	108	120	132	144
Driveshaft boots • Check the boot and boot band for cracks. • Check boots for leaking grease.													
Brake hoses and lines (including ABS/VSA lines) Check the master cylinder and ABS/VSA modulator- control unit and leakage.		•	•	•	•	•	•	•	•	•	•	•	•
All fluid levels and condition of fluids Check levels and check for leaks. If necessary, add. • Engine coolant • MTF • M/T • i-SHIFT • Brake fluid • Clutch fluid M/T , i-SHIFT • Windshield washer fluid													
Exhaust system • KE, KG model • Eexcept KE, KG model Check the exhaust pipe and muffler for damage, leaks, and tightness.													
Fuel lines and connections • Check fuel lines for loose connections, cracks, and deterioration. • Retighten loose connections and replace any damaged parts.													
Tyre condition													

Maintenance Schedule for Normal and Severe Conditions - New Zealand

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for “severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first		km x 1,000	20	40	60	80	100	120	140	160	180	200
		miles x 1,000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0
		months	12	24	36	48	60	72	84	96	108	120
Replace engine oil *	Normal Conditions		Every 10,000 km (6,250 miles) or 1 year									
	Severe Conditions		Every 5,000 km (3,125 miles) or 6 months									
Replace engine oil filter *	Normal Conditions		●	●	●	●	●	●	●	●	●	●
	Severe Conditions		Every 10,000 km (6,250 miles) or 6 months									
Replace air cleaner element			Every 30,000 km (18,750 miles)									
Inspect valve clearance			Every 40,000 km (25,000 miles)									
Replace fuel filter						●				●		
Replace spark plugs			Every 100,000 km (62,500 miles)									
Inspect drive belt Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.				●		●		●		●		●
Inspect idle speed								●				
Replace engine coolant Use genuine Honda All Season Antifreeze/Coolant Type 2.			At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years									
Replace Manual Transmission Fluid Use genuine Honda MTF.	Normal Conditions							●				
	Severe Conditions				●			●			●	
Replace Automatic Transmission Fluid Use genuine Honda ATF-Z1.	Normal Conditions							●				●
	Severe Conditions				●		●		●		●	

Service at the indicated distance or time whichever comes first	km x 1,000	20	40	60	80	100	120	140	160	180	200
	miles x 1,000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0
	months	12	24	36	48	60	72	84	96	108	120
Check front and rear brakes • Check the brake pad and disc thickness. Check for damage. • Check the calipers for damage, leaks, and tightness.	Every 10,000 km (6,250 miles)										
Replace brake fluid • Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid. • Check the brake fluid level is between upper and lower marks on the reservoir.	Every 3 years										
Check parking brake adjustment Check the parking brake operation.	●	●		●		●		●		●	
Replace dust and pollen filter	●	●	●	●	●	●	●	●	●	●	
Rotate tyres Check tyre inflation and condition at least once per month.	Every 10,000 km (6,250 miles)										
Visually inspect the following items: • Check for correct installation and position, check for cracks, deterioration, rust, and leaks. • Check tightness of screws, nuts, and joints. If necessary, retighten.											
Tie-rod ends, steering gearbox, and boots • Check steering linkage. • Check the boot for damage and leaking grease.	Every 10,000 km (6,250 miles) or 6 months										
Suspension components • Check the bolts for tightness. • Check all dust covers for deterioration and damage.											

Service at the indicated distance or time whichever comes first	km x 1,000	20	40	60	80	100	120	140	160	180	200
	miles x 1,000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0
	months	12	24	36	48	60	72	84	96	108	120
Driveshaft boots • Check the boot and boot band for cracks. • Check boots for leaking grease.											
Brake hoses and lines (including ABS lines) Check the master cylinder and ABS modulator-control unit and leakage.		•	•	•	•	•	•	•	•	•	•
All fluid levels and condition of fluids Check levels and check for leaks. If necessary, add. • Engine coolant • M/T • ATF • Brake fluid • Clutch fluid • Windshield washer fluid											
Exhaust system Check the exhaust pipe and muffler for damage, leaks, and tightness.											
Fuel lines , and connections • Check fuel lines for loose connections, cracks, and deterioration. • Retighten loose connections and replace any damaged parts.											

Maintenance Schedule for Normal Conditions - South Africa

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first	km x 1,000	15	30	45	60	75	90	105	120	135	150
	miles x 1,000	9.4	18.8	28.1	37.5	46.9	56.3	65.6	75.0	84.4	93.8
	months	12	24	36	48	60	72	84	96	108	120
Replace engine oil		●	●	●	●	●	●	●	●	●	●
Replace engine oil filter			●		●		●		●		●
Replace air cleaner element		Every 15,000 km									
Inspect valve clearance		Every 45,000 km									
Replace fuel filter Replace fuel filter every 45,000 km or 3 years, if the fuel the customer uses is suspected to be contaminated.							●				
Replace spark plugs		Every 105,000 km									
Inspect drive belt Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.				●			●			●	
Inspect idle speed								●			
Replace engine coolant Use genuine Honda All Season Antifreeze/Coolant Type 2.		At 200,000 km or 10 years, then every 100,000 km or 5 years									
Replace Manual Transmission Fluid										●	
Replace Automatic Transmission Fluid Use genuine Honda ATF-Z1. Replace 120,000 km or 8 years, then every 75,000 km or 4 years										●	
Check front and rear brakes • Check the brake pad and disc thickness. Check for damage. • Check the calipers for damage, leaks, and tightness.		Every 10,000 km or 6 months									
Replace brake fluid • Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid. • Check that brake fluid level between upper and lower marks on the reservoir.		Every 3 years									
Check parking brake adjustment Check the parking brake operation.		●	●		●		●		●		●

Service at the indicated distance or time whichever comes first	km x 1,000	15	30	45	60	75	90	105	120	135	150
	miles x 1,000	9.4	18.8	28.1	37.5	46.9	56.3	65.6	75.0	84.4	93.8
	months	12	24	36	48	60	72	84	96	108	120
Replace dust and pollen filter • If the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 km or 1 year. • Replace the filter whenever airflow from the heating and air conditioning system is less than normal.		Every 30,000 km or 1 year									
Rotate tyres Check tyre inflation and condition at least once per month.		Every 15,000 km									
Visually inspect the following items: • Check for correct installation and position, check for cracks, deterioration, rust, and leaks. • Check tightness of screws, nuts, and joints. If necessary, retighten.											
Tie-rod ends, steering gearbox, and boots • Check steering linkage. • Check the boot for damage and leaking grease.		●	●	●	●	●	●	●	●	●	●
Suspension components • Check the bolts for tightness. • Check all dust cover for deterioration and damage.											
Driveshaft boots • Check the boot and boot band for cracks. • Check boots for leaking grease.											
Brake hoses and lines (including ABS lines) Check the master cylinder and ABS modulator-control unit and leakage.											

Service at the indicated distance or time whichever comes first	km x 1,000	15	30	45	60	75	90	105	120	135	150
	miles x 1,000	9.4	18.8	28.1	37.5	46.9	56.3	65.6	75.0	84.4	93.8
	months	12	24	36	48	60	72	84	96	108	120
All fluid levels and condition of fluids Check levels and check for leaks. If necessary, add. • Engine coolant • M/T • ATF • Brake fluid • Clutch fluid • Windshield washer fluid											
Exhaust system Check the exhaust pipe and muffler for damage, leaks, and tightness.											
Fuel lines and connections • Check fuel lines for loose connections, cracks, and deterioration. • Retighten loose connections and replace any damaged parts.											

Maintenance Schedule for Severe Conditions - South Africa

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km per trip or, in freezing temperatures, driving less than 16 km per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first	km x 1,000	15	30	45	60	75	90	105	120	135	150
	miles x 1,000	9.4	18.8	28.1	37.5	46.9	56.3	65.6	75.0	84.4	93.8
	months	12	24	36	48	60	72	84	96	108	120
Replace engine oil		Every 7,500 km									
Replace engine oil filter		●	●	●	●	●	●	●	●	●	●
Replace air cleaner element		Every 15,000 km									
Inspect valve clearance		Every 45,000 km									
Replace fuel filter Replace fuel filter every 45,000 km or 3 years, if the fuel the customer uses is suspected to be contaminated.							●				
Replace spark plugs		Every 105,000 km									
Inspect drive belt Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.				●			●			●	
Inspect idle speed								●			
Replace engine coolant Use genuine Honda All Season Antifreeze/Coolant Type 2.		At 200,000 km or 10 years, then every 100,000 km or 5 years									
Replace Manual Transmission Fluid Use genuine Honda MTF.					●				●		
Replace Automatic Transmission Fluid Use genuine Honda ATF-Z1. Replace 60,000 km or 4 years, then every 45,000 km or 3 years					●			●			●
Check front and rear brakes • Check the brake pad and disc thickness. Check for damage. • Check the calipers for damage, leaks, and tightness.		Every 7,500 km or 6 months									
Replace brake fluid • Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid. • Check the brake fluid level between upper and lower marks on the reservoir.		Every 3 years									
Check parking brake adjustment Check the parking brake operation.		●	●		●		●		●		●

Service at the indicated distance or time whichever comes first	km x 1,000	15	30	45	60	75	90	105	120	135	150
	miles x 1,000	9.4	18.8	28.1	37.5	46.9	56.3	65.6	75.0	84.4	93.8
	months	12	24	36	48	60	72	84	96	108	120
Replace dust and pollen filter When the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating.		●	●	●	●	●	●	●	●	●	●
Rotate tyres Check tyre inflation and condition at least once per month.		Every 15,000 km									
Visually inspect the following items: • Check for correct installation and position, check for cracks, deterioration, rust, and leaks. • Check tightness of screws, nuts, and joints. If necessary, retighten.											
Tie-rod ends, steering gearbox, and boots • Check steering linkage. • Check the boot for damage and leaking grease.		Every 7,500 km or 6 months									
Suspension components • Check the bolts for tightness. • Check all dust cover for deterioration and damage.											
Driveshaft boots • Check the boot and boot band for cracks. • Check boots for leaking grease.											
Brake hoses and lines (including ABS lines) Check the master cylinder and ABS modulator-control unit and leakage.		●	●	●	●	●	●	●	●	●	●

Service at the indicated distance or time whichever comes first	km x 1,000	15	30	45	60	75	90	105	120	135	150
	miles x 1,000	9.4	18.8	28.1	37.5	46.9	56.3	65.6	75.0	84.4	93.8
	months	12	24	36	48	60	72	84	96	108	120
All fluid levels and condition of fluids Check levels and check for leaks. If necessary, add. • Engine coolant • M/T • ATF • Brake fluid • Clutch fluid • Windshield washer fluid											
Exhaust system Check the exhaust pipe and muffler for damage, leaks, and tightness.											
Fuel lines and connections • Check fuel lines for loose connections, cracks, and deterioration. • Retighten loose connections and replace any damaged parts.											

Maintenance Schedule for Normal and Severe Conditions - Except EU, New Zealand, and South Africa

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first		km x 1,000	20	40	60	80	100	120	140	160	180	200
		miles x 1,000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0
		months	12	24	36	48	60	72	84	96	108	120
Replace engine oil *	Normal Conditions		Every 10,000 km (6,250 miles) or 1 year									
	Severe Conditions		Every 5,000 km (3,125 miles) or 6 months									
Replace engine oil filter *	Normal Conditions		●	●	●	●	●	●	●	●	●	●
	Severe Conditions		Every 10,000 km (6,250 miles) or 6 months									
Replace air cleaner element			Every 30,000 km (18,750 miles)									
Inspect valve clearance			Every 40,000 km (25,000 miles)									
Replace fuel filter						●				●		
Replace spark plugs			Every 100,000 km (62,500 miles)									
Inspect drive belt Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.				●		●		●		●		●
Inspect idle speed								●				
Replace engine coolant Use genuine Honda All Season Antifreeze/Coolant Type 2.			At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years									
Replace Manual Transmission Fluid • M/T • i-SHIFT Use genuine Honda MTF.	Normal Conditions							●				
	Severe Conditions				●			●			●	
Replace Automatic Transmission Fluid Use genuine Honda ATF-Z1.	Normal Conditions							●				●
	Severe Conditions				●		●		●		●	

Service at the indicated distance or time whichever comes first	km x 1,000	20	40	60	80	100	120	140	160	180	200
	miles x 1,000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0
	months	12	24	36	48	60	72	84	96	108	120
Check front and rear brakes • Check the brake pad and disc thickness. Check for damage. • Check the calipers for damage, leaks, and tightness.	Every 10,000 km (6,250 miles)										
Replace brake fluid • Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid. • Check the brake fluid level is between upper and lower marks on the reservoir.	Every 3 years										
Check parking brake adjustment Check the parking brake operation.		●	●		●		●		●		●
Replace dust and pollen filter		●	●	●	●	●	●	●	●	●	●
Rotate tyres Check tyre inflation and condition at least once per month.	Every 10,000 km (6,250 miles)										
Visually inspect the following items: • Check for correct installation and position, check for cracks, deterioration, rust, and leaks. • Check tightness of screws, nuts, and joints. If necessary, retighten.											
Tie-rod ends, steering gearbox, and boots • Check steering linkage. • Check the boot for damage and leaking grease.	Every 10,000 km (6,250 miles) or 6 months										
Suspension components • Check the bolts for tightness. • Check all dust covers for deterioration and damage.											

Service at the indicated distance or time whichever comes first	km x 1,000	20	40	60	80	100	120	140	160	180	200
	miles x 1,000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0
	months	12	24	36	48	60	72	84	96	108	120
Driveshaft boots • Check the boot and boot band for cracks. • Check boots for leaking grease.											
Brake hoses and lines (including ABS lines) Check the master cylinder and ABS modulator-control unit and leakage.		●	●	●	●	●	●	●	●	●	●
All fluid levels and condition of fluids Check levels and check for leaks. If necessary, add. • Engine coolant • M/T • i-SHIFT • ATF • Brake fluid • Clutch fluid M/T , i-SHIFT • Windshield washer fluid											
Exhaust system • KE, KG model • Except KE, KG model Check the exhaust pipe and muffler for damage, leaks, and tightness.											
Fuel lines, and connections • Check fuel lines for loose connections, cracks, and deterioration. • Retighten loose connections and replace any damaged parts.											

Mileage / Year

km mile

20,000km/1year

Mileage / Year

km mile

20,000km/1year

Mileage / Year

km mile

20,000km/1year

Mileage / Year

km mile

15,000km/1year

Mileage / Year

km mile

15,000km/1year

Mileage / Year

km mile

20,000km/1year

Design Specifications

Item	Measurement		Qualification	Specification
DIMENSION	Overall length			3,900−3,920 mm (153.5−154.3 in.)
	Overall width			1,695 mm (66.7 in.)
	Overall height			1,525 mm (60.0 in.)
	Wheelbase			2,500 mm (98.4 in.)
	Track	15 inch wheel model	Front	1,490 mm (58.7 in.)
			Rear	1,475 mm (58.1 in.)
		16 inch wheel model	Front	1,475 mm (58.1 in.)
			Rear	1,460 mm (57.5 in.)
	Ground clearance			150 mm (5.9 in.)
	Seating capacity			Five (5)
	WEIGHT (except KQ)	Curb weight	M/T	1,045 kg (2,304 lbs)
			A/T	1,070 kg (2,359 lbs)
	WEIGHT (KQ)	Curb weight (L13Z1)	M/T	1,025−1,040 kg (2,260−2,293 lbs)
			A/T	1,070−1,093 kg (2,359−2,410 lbs)
		Curb weight (L15A7)	M/T	1,048−1,060 kg (2,310−2,337 lbs)
			A/T	1,075−1,085 kg (2,370−2,392 lbs)
ENGINE	Type			Water-cooled, 4-stroke SOHC i-VTEC engine
	Cylinder arrangement			Inline 4-cylinder, transverse
	Bore and stroke		L12B1	73 x 71.58 mm (2.87 x 2.82 in.)
			L13Z1	73 x 80 mm (2.87 x 3.15 in.)
			L15A7	73 x 89.4 mm (2.87 x 3.52 in.)
	Displacement		L12B1	1.198 cm^3 (73 cu in.)
			L13Z1	1,339 cm^3 (82 cu in.)
			L15A7	1,496 cm^3 (91 cu in.)
	Compression ratio		L12B1	10.8
			L13Z1	10.5
			L15A7	10.4
	Valve train			Chain drive, SOHC 2 valves per cylinder
	Lubrication system			Forced, wet sump, with trochoid pump
	Oil pump displacement		at 6,300 engine rpm (min^{-1})	45.3 L (47.9 US qt, 39.9 Imp qt)
	Water pump displacement		at 6,000 engine rpm (min^{-1})	120 L (127 US qt, 106 Imp qt)
STARTER	Type			Gear reduction
	Normal output		Except L13Z1 KQ	0.7 kW
			L13Z1 KQ	0.6 kW, 0.7 kW
	Hour rating			30 seconds
	Rotation direction			Clockwise as viewed from drive end
CLUTCH (Except i-SHIFT)	Type			Single plate dry, diaphragm spring
CLUTCH (i-SHIFT)	Type			Single plate dry, diaphragm spring
MANUAL TRANSMISSION (i-SHIFT)	Type			Synchronized, six-speed forward, one reverse
	Primary reduction			Direct 1:1
	Gear ratio		1st	3.461
			2nd	1.869
			3rd	1.235
			4th	0.948
			5th	0.809
			6th	0.727
			Reverse	3.307
			Final	4.294
	Final reduction		Type	Single helical gear
			Gear ratio	4.294

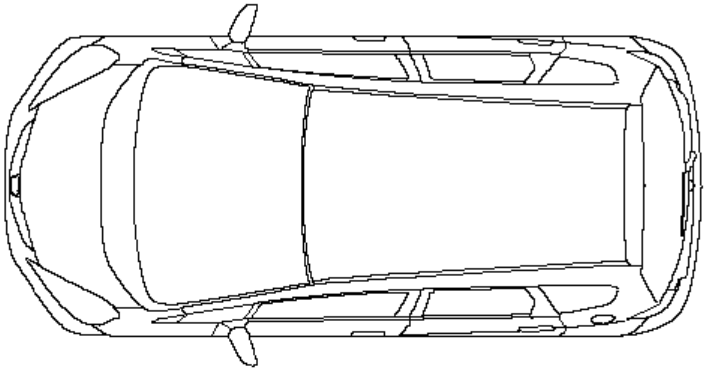
Item	Measurement	Qualification	Specification
MANUAL TRANSMISSION	Type		Synchronized, five-speed forward, one reverse
	Primary reduction		Direct 1:1
	Gear ratio (L12B1: 12S, 12LS, 12LSR)	1st	3.307
		2nd	1.869
		3rd	1.171
		4th	0.853
		5th	0.727
		Reverse	3.307
		Final	4.625

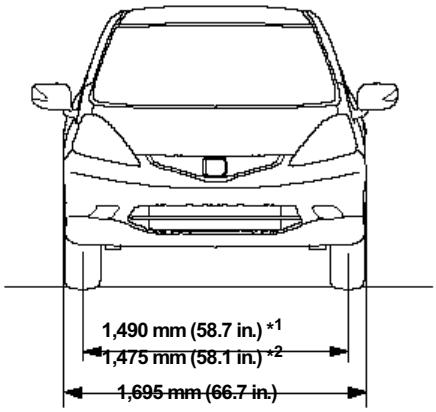
Item	Measurement	Qualification	Specification
	Gear ratio (L12B1: KE, KG (12SE, 12LSE, 12LSRE))	1st	3.307
		2nd	1.750
		3rd	1.171
		4th	0.853
		5th	0.727
		Reverse	3.307
		Final	4.625
	Gear ratio (L13Z1: KE, KG)	1st	3.307
		2nd	1.750
		3rd	1.235
		4th	0.948
		5th	0.809
		Reverse	3.307
		Final	4.294
	Gear ratio (L13Z1: Except KE, KG)	1st	3.461
		2nd	1.869
		3rd	1.235
		4th	0.948
		5th	0.809
		Reverse	3.307
		Final	4.294
	Gear ratio (L15A7)	1st	3.461
		2nd	1.869
		3rd	1.303
		4th	1.054
		5th	0.853
		Reverse	3.307
		Final	4.294
	Final reduction	Type	Single helical gear
AUTOMATIC TRANSMISSION	Type		Electronically controlled automatic, five-speed forward, one reverse, three-element torque converter with lock-up clutch
	Primary reduction		Direct 1:1
	Gear ratio	1st	2.995
		2nd	1.678
		3rd	1.066
		4th	0.760
		5th	0.551
		Reverse	1.956
		Final	4.562
	Final reduction	Type	Single helical gear
STEERING	Type		Electrical power-assisted rack and pinion
	Overall ratio		16.09
	Turns, lock-to-lock		3.29
	Steering wheel diameter		370 mm (14.6 in.)
SUSPENSION	Type	Front	Independent strut with stabilizer, coil spring
		Rear	Torsion beam, coil spring
	Shock absorber	Front and rear	Telescopic, hydraulic, nitrogen gas-filled
TYRES	Size		See tyre information label attached to the doorjambs
BRAKES	Type of service brake	Front	Power-assisted self-adjusting ventilated disc
		Rear (disc)	Power-assisted self-adjusting solid disc
		Rear (drum)	Power-assisted self-adjusting solid drum
	Type of parking brake		Mechanical actuating, rear wheels
	Pad friction surface area (swept area)	Front	40.8 cm^2 (6.32 sq in.) x 2
		Rear	21.0 cm^2 (3.26 sq in.) x 2
	Shoe friction surface area	Rear	57.6 cm^2 (8.93 sq in.) x 2
AIR CONDITIONING	Compressor	Type	Scroll
		Capacity	77.1 mL (4.7 cu in.)/rev.
		Maximum speed	10,000 rpm (min^{-1})
		Lubricant capacity	80 mL (2 2/3 fl·oz, 2.8 Imp·oz)
		Lubricant type	SP-10
	Condenser	Type	Corrugated fin
	Evaporator	Type	Corrugated fin
	Blower	Type	Radial
		Motor type	170 W/12 V
		Speed control	4 speed

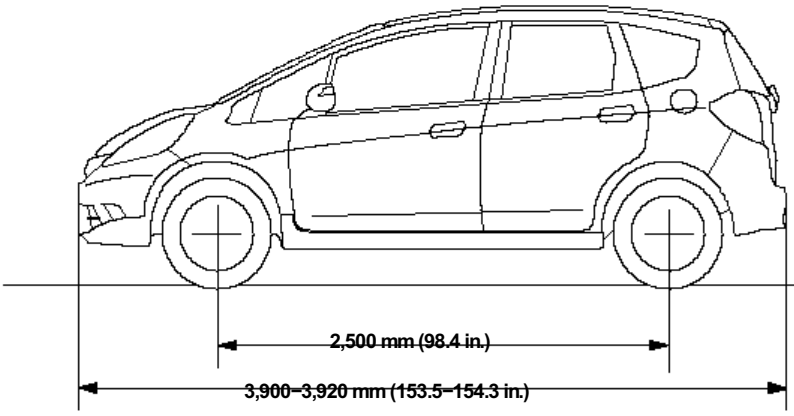
Item	Measurement	Qualification	Specification
		Maximum capacity	400 m^3 (14,126 cu ft)/h
	Temperature control		Air-mix type
	Compressor clutch	Type	Dry, single plate, Poly V-belt drive
		Electrical power consumption at 20 °C (68 °F)	42 W maximum at 12 V
	Refrigerant	Type	HFC-134a (R-134a)
		Capacity	370−420 g (13.1−14.8 oz)

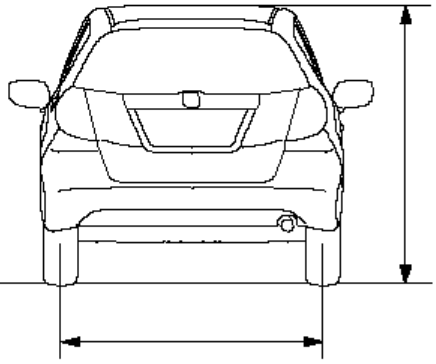
Item	Measurement	Qualification	Specification
ELECTRICAL RATINGS	Battery	KG (with daytime running light)	12 V−40 Ah/20 HR (32 Ah/5 HR)
		KE, KG (without daytime running light), KZ, KQ, KT, KU, KY	12 V−35 Ah/20 HR (12 V−28 Ah/5 HR)
	Fuses	Battery terminal fuse box (with trailer light connector)	100 A, 60 A, 30 A
		Battery terminal fuse box (without trailer light connector)	100 A, 60 A, 20 A
		Under-dash fuse/relay box	50 A, 40 A, 30 A, 20 A, 15 A, 10 A, 7.5 A
		Auxiliary under-dash fuse holder	7.5 A
	Light bulbs	Headlight high/low beam	12 V−60/55 W (without HID)
		Headlight high/low beam	12 V−35 W (with HID and high/low beam switching solenoid)
		Front turn signal lights	12 V−21 W
		Mirror turn signal lights	LED
		Side turn signal lights	12 V−5 W
		Front position lights	12 V−5 W
		Front fog lights	12 V−55 W
		Rear turn signal lights	12 V−21 W
		Brake/taillights	12 V−21/5 W or LED
		Rear fog light	12 V−21 W
		High mount brake light	12 V−21 W or LED
		Back-up lights	12 V−21 W
		License plate lights	12 V−5 W
		Ceiling lights	12 V−8 W
		Cargo area light	12 V−5 W
		Front individual map lights	12 V−8 W
		Gauge lights	LED
		Indicator lights	12 V−0.84 W
	Washer reservoir	Capacity	2.5 L (2.6 US qt, 2.2 Imp qt)

Body Specifications









*1: 15 inch wheel model
*2: 16 inch wheel model

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Engine Electrical

Item	Measurement	Qualification	Standard or New	Service Limit
Ignition coil	Rated voltage		12 V	
	Firing order		1−3−4−2	
Spark plug	Type		NGK: IZFR6K13 DENSO: SKJ20DR-M13	
	Gap		1.2−1.3 mm (0.047−0.051 in.)	———
Ignition timing		At idle (check the *white* mark)	M/T (in neutral): 0±2 ° BTDC	
			A/T (in N or P): 0±2 ° BTDC	
Drive belt	Tension		Auto-tensioner	
Alternator	Output	At 13.5 V and normal engine temperature	95 A	
	Coil (rotor) resistance	At 20 °C (68 °F)	2.1−2.3 Ω	
	Slip ring O.D.		22.7 mm (0.89 in.)	21.2 mm (0.83 in.)
	Brush length		23.0 mm (0.91 in.)	18.0 mm (0.71 in.)
	Brush spring tension		4.1−5.3 N (0.42−0.54 kgf, 0.93−1.19 lbs)	
Starter	Output	Except L13Z1 KQ	0.7 kW	
		L13Z1 KQ	0.6 kW, 0.7 kW	
	Commutator mica depth		0.45−0.75 mm (0.018−0.030 in.)	0.20 mm (0.008 in.)
	Commutator runout		0.05 mm (0.002 in.) max.	0.4 mm (0.02 in.)
	Commutator O.D.		27.9−28.0 mm (1.098−1.102 in.)	27.0 mm (1.06 in.)
	Brush length		9.7−10.3 mm (0.38−0.41 in.)	6.0 mm (0.20 in.)

Engine Assembly

Item	Measurement	Qualification	Standard or New	Service Limit
Compression	Pressure check at 250 rpm (min^{-1}) with wide open throttle. (See Design Specs for ratio)	Minimum	980 kPa (10.0 kgf/cm^2, 142 psi)	———
		Maximum variation	200 kPa (2.0 kgf/cm^2, 28 psi)	———

Cylinder Head

Item	Measurement	Qualification		Standard or New	Service Limit
Head	Warpage			0.07 mm (0.0028 in.)	0.08 mm (0.003 in.)
	Height			119.9−120.1 mm (4.720−4.728 in.)	———
Camshaft	End play			0.05−0.25 mm (0.002−0.010 in.)	0.5 mm (0.02 in.)
	Camshaft-to-holder oil clearance			0.045−0.084 mm (0.0018−0.0033 in.)	0.100 mm (0.004 in.)
	Total runout			0.03 mm (0.001 in.) max.	0.04 mm (0.002 in.)
	Cam lobe height	L12B1	Intake, primary	34.290 mm (1.3500 in.)	
			Intake, secondary	30.529 mm (1.2019 in.)	
			Exhaust	35.047 mm (1.3798 in.)	
		L13Z1	Intake, primary	34.290 mm (1.3500 in.)	———
			Intake, secondary	30.529 mm (1.2019 in.)	———
			Exhaust	35.047 mm (1.3798 in.)	———
		L15A7	Intake, primary	35.241 mm (1.3874 in.)	———
			Intake, secondary	36.173 mm (1.4241 in.)	———
			Exhaust	35.471 mm (1.3964 in.)	———
Valve	Clearance (cold)	Intake		0.15−0.19 mm (0.006−0.007 in.)	———
		Exhaust		0.26−0.30 mm (0.010−0.012 in.)	———
	Stem O.D.	Intake		5.48−5.49 mm (0.216−0.216 in.)	5.45 mm (0.215 in.)
		Exhaust		5.45−5.46 mm (0.215−0.215 in.)	5.42 mm (0.213 in.)
	Stem-to-guide clearance	Intake		0.020−0.050 mm (0.0008−0.0020 in.)	0.08 mm (0.003 in.)
		Exhaust		0.050−0.080 mm (0.0020−0.0031 in.)	0.11 mm (0.004 in.)
Valve seat	Width	Intake		0.850−1.150 mm (0.0335−0.0453 in.)	1.60 mm (0.063 in.)
		Exhaust		1.250−1.550 mm (0.0492−0.0610 in.)	2.00 mm (0.079 in.)
	Stem installed height	Intake		46.1−46.5 mm (1.815−1.831 in.)	46.8 mm (1.843 in.)
		Exhaust		46.2−46.6 mm (1.819−1.835 in.)	46.9 mm (1.846 in.)
Valve spring	Free length	L12B1	Intake	51.17 mm (2.014 in.)	
			Exhaust	57.26 mm (2.254 in.)	
		L13Z1	Intake	51.17 mm (2.014 in.)	———
			Exhaust	57.26 mm (2.254 in.)	———
		L15A7	Intake	48.55 mm (1.911 in.)	———
			Exhaust	54.52 mm (2.146 in.)	———
Valve guide	I.D.	Intake		5.51−5.53 mm (0.217−0.218 in.)	5.55 mm (0.219 in.)

Item	Measurement	Qualification	Standard or New	Service Limit
		Exhaust	5.51–5.53 mm (0.217–0.218 in.)	5.55 mm (0.219 in.)
	Installed height	Intake	15.85–16.35 mm (0.624–0.644 in.)	———
		Exhaust	15.85–16.35 mm (0.624–0.644 in.)	———
Rocker arm	Arm-to-shaft clearance	Intake	0.019–0.058 mm (0.0007–0.0023 in.)	0.08 mm (0.003 in.)
		Exhaust	0.019–0.058 mm (0.0007–0.0023 in.)	0.08 mm (0.003 in.)

Engine Block

Item	Measurement	Qualification	Standard or New	Service Limit
Block	Warpage of deck		0.07 mm (0.003 in.) max.	0.10 mm (0.004 in.)
	Bore diameter		73.000–73.015 mm (2.8740–2.8746 in.)	73.065 mm (2.8776 in.)
	Bore taper		———	0.05 mm (0.002 in.)
	Reboring limit		———	0.25 mm (0.01 in.)
Piston	Skirt O.D. at 16 mm (0.6 in.) from bottom of skirt	L12B1	72.975–72.985 mm (2.8730–2.8734 in.)	72.97 mm (2.8728 in.)
		L13Z1	72.972–72.982 mm (2.8729–2.8733 in.)	72.97 mm (2.8728 in.)
		L15A7	72.980–72.990 mm (2.8732–2.8736 in.)	72.97 mm (2.8728 in.)
	Clearance in cylinder	L12B1	0.015–0.040 mm (0.0006–0.0015 in.)	0.05 mm (0.002 in.)
		L13Z1	0.018–0.043 mm (0.0007–0.0017 in.)	0.05 mm (0.002 in.)
		L15A7	0.010–0.035 mm (0.0004–0.0014 in.)	0.05 mm (0.002 in.)
	Ring groove width	Top	1.050–1.060 mm (0.0413–0.0417 in.)	1.080 mm (0.0425 in.)
		Second	1.020–1.030 mm (0.0401–0.0405 in.)	1.050 mm (0.0413 in)
		Oil	2.005–2.020 mm (0.0789–0.0795 in.)	2.050 mm (0.0807 in.)
Piston ring	Ring-to-groove clearance	Top	0.065–0.090 mm (0.0026–0.0035 in.)	0.15 mm (0.006 in.)
		Second	0.030–0.055 mm (0.0012–0.0022 in.)	0.12 mm (0.005 in.)
	Ring end gap	Top	0.15–0.30 mm (0.006–0.012 in.)	0.60 mm (0.024 in.)
		Second	0.30–0.42 mm (0.012–0.017 in.)	0.65 mm (0.026 in.)
		Oil	0.20–0.70 mm (0.008–0.028 in.)	0.80 mm (0.031 in.)
Piston pin	O.D.		17.996–18.000 mm (0.7085–0.7087 in.)	———
	Pin-to-piston clearance		0.010–0.017 mm (0.0004–0.0007 in.)	———
Connecting rod	Pin-to-rod interference		0.019–0.036 mm (0.007–0.0014 in.)	———
	Small-end bore diameter		17.964–17.977 mm (0.707–0.708 in.)	———
	Large-end bore diameter		43.0 mm (1.69 in.)	———
	End play installed on crankshaft		0.15–0.35 mm (0.006–0.014 in.)	0.40 mm (0.016 in.)
Crankshaft	Main journal diameter		49.976–50.000 mm (1.9676–1.9685 in.)	———
	Rod journal diameter		39.976–40.000 mm (1.5739–1.5748 in.)	———
	Rod/main journal taper		0.005 mm (0.0002 in.)	0.010 mm (0.0004 in.)
	Rod/main journal out-of-round		0.005 mm (0.0002 in.)	0.010 mm (0.0004 in.)
	End play		0.10–0.35 mm (0.004–0.014 in.)	0.45 mm (0.018 in.)
	Runout		0.03 mm (0.0012 in.) max.	0.04 mm (0.0016 in.)
Crankshaft bearing	Main bearing-to-journal oil clearance		0.018–0.036 mm (0.0007–0.0014 in.)	0.050 mm (0.0020 in.)
	Rod bearing clearance	L15A7	0.020–0.038 mm (0.0008–0.0015 in.)	0.050 mm (0.0020 in.)
		L13Z1	0.026–0.044 mm (0.0010–0.0017 in.)	0.050 mm (0.0020 in.)
		L12B1	0.026–0.044 mm (0.0010–0.0017 in.)	0.050 mm (0.0020 in.)

Engine Lubrication

Item	Measurement	Qualification	Standard or New	Service Limit
Engine oil	Capacity	Engine overhaul	4.2 L (4.4 US qt, 3.7 Imp qt)	———
		Oil change including oil filter	3.6 L (3.8 US qt, 3.2 Imp qt)	———
		Oil change without oil filter	3.4 L (3.6 US qt, 3.0 Imp qt)	———
Oil pump	Inner rotor-to-outer rotor clearance		0.06–0.16 mm (0.002–0.006 in.)	0.20 mm (0.008 in.)
	Pump housing-to-outer rotor clearance		0.100–0.175 mm (0.0039–0.0069 in.)	0.20 mm (0.008 in.)
	Pump housing-to-rotor axial clearance		0.02–0.06 mm (0.001–0.002 in.)	0.15 mm (0.006 in.)
Relief valve	Relief valve, oil pressure with oil temperature at 80°C (176°F)	At idle	70 kPa (0.7 kgf/cm ^{2}, 10 psi) min.	———
		At 3,000 rpm (min $^{-1}$)	340 kPa (3.5 kgf/cm ^{2}, 50 psi) min.	———

Cooling System

Item	Measurement	Qualification				Standard or New
Radiator	Coolant capacity (Includes engine, heater, hoses, and reservoir) Use genuine Honda All Season Antifreeze/Coolant Type 2	L12B1	RHD	M/T	Engine overhaul	4.91 L (1.297 US gal, 1.080 Imp gal)
					Coolant change	4.42 L (1.168 US gal, 0.972 Imp gal)
			LHD	M/T	Engine overhaul (Manufactured in Japan model)	4.91 L (1.297 US gal, 1.080 Imp gal)

Item	Measurement	Qualification				Standard or New
					Engine overhaul (Manufactured in China model)	4.95 L (1.308 US gal, 1.089 Imp gal)
					Coolant change (Manufactured in Japan model)	4.42 L (1.168 US gal, 0.972 Imp gal)
					Coolant change (Manufactured in China model)	4.46 L (1.178 US gal, 0.981 Imp gal)
		L13Z1	RHD	M/T	Engine overhaul	4.95 L (1.308 US gal, 1.089 Imp gal)
					Coolant change	4.46 L (1.178 US gal, 0.981 Imp gal)
				A/T	Engine overhaul	5.01 L (1.324 US gal, 1.102 Imp gal)
					Coolant change	4.52 L (1.194 US gal, 0.994 Imp gal)
			LHD	M/T	Engine overhaul	4.91 L (1.297 US gal, 1.080 Imp gal)
					Coolant change	4.42 L (1.168 US gal, 0.972 Imp gal)
				A/T	Engine overhaul	5.01 L (1.324 US gal, 1.102 Imp gal)
					Coolant change	4.52 L (1.194 US gal, 0.994 Imp gal)
		L15A7	M/T		Engine overhaul	4.92 L (1.300 US gal, 1.082 Imp gal)
					Coolant change	4.43 L (1.170 US gal, 0.975 Imp gal)
			A/T		Engine overhaul	5.02 L (1.326 US gal, 1.104 Imp gal)
					Coolant change	4.53 L (1.197 US gal, 0.997 Imp gal)
Coolant reservoir	Coolant capacity				0.44 L (0.116 US qt, 0.097 Imp qt)	
Radiator cap	Opening pressure				93−123 kPa (0.95−1.25 kgf/cm ^{2}, 14−18 psi)	
Thermostat	Opening temperature	Begins to open			76−80 °C (169−176 °F)	
		Fully open			90 °C (194 °F)	
	Valve lift at fully open				8.0 mm (0.31 in.) min.	

Fuel and Emissions

Item	Measurement	Qualification	Standard or New
Fuel pressure regulator	Pressure with fuel pressure gauge connected		320−370 kPa (3.3−3.8 kgf/cm ^{2}, 47−54 psi)
Fuel tank	Capacity		42 L (11.0 US gal, 9.2 Imp gal)
Engine idle	Idle speed without load (L12B1)	M/T (in neutral)	700±50 rpm (min $^{-1}$)
	Idle speed without load (L13Z1)	M/T (in neutral)	650±50 rpm (min $^{-1}$)
		A/T (in N or P)	700±50 rpm (min $^{-1}$)
		i-SHIFT (in neutral)	650±50 rpm (min $^{-1}$)
	Idle speed without load (L15A7)	M/T (in neutral), A/T (in N or P)	700±50 rpm (min $^{-1}$)
	Idle speed with high electrical load (A/C switch ON, temperature set to max cool, blower fan on High, rear window defogger ON, and headlights on high beam)	M/T (in neutral), A/T (in N or P), i-SHIFT (in neutral)	790±50 rpm (min $^{-1}$)
	Idle CO		0.1 % max.

Clutch (Except i-SHIFT)

Item	Measurement	Qualification	Standard or New	Service Limit
Clutch pedal	Height from the floor	RHD	145 mm (5.71 in.)	———
		LHD	150 mm (5.91 in.)	———
	Stroke		120−130 mm (4.72−5.12 in.)	———
Flywheel	Runout on clutch mating surface		0.05 mm (0.002 in.) max.	0.15 mm (0.006 in.)
Clutch disc	Rivet head depth		1.00−1.50 mm (0.039−0.059 in.)	0.2 mm (0.008 in.)
	Thickness		7.25−7.95 mm (0.285−0.313 in.)	5.0 mm (0.20 in.)
Pressure plate	Warpage		0.03 mm (0.001 in.) max.	0.15 mm (0.006 in.)
	Height difference of diaphragm spring fingers measured with dial indicator		0.6 mm (0.02 in.) max.	1.0 mm (0.04 in.)

Clutch (i-SHIFT)

Item	Measurement	Qualification	Standard or New	Service Limit
Flywheel	Runout on clutch mating surface		0.05 mm (0.002 in.) max.	———
Clutch disc	Rivet head depth		1.1 mm (0.043 in.)	0.3 mm (0.012 in.)
	Thickness		7.6−8.0 mm (0.299−0.315 in.)	6.0 mm (0.236 in.)
Pressure plate	Warpage		0.03 mm (0.001 in.) max.	0.15 mm (0.006 in.)

Item	Measurement	Qualification	Standard or New	Service Limit
	Height of diaphragm spring fingers measured with feeler gauge and special tool		0.8 mm (0.03 in.)	1.0 mm (0.04 in.)

Steering

Item	Measurement	Qualification	Standard or New
Steering wheel	Rotational play measured at outside edge with engine running		0−10 mm (0−0.39 in.)
	Initial load measured at outside edge with engine running		29 N (3.0 kgf, 6.6 lbf)
Gearbox	Angle of rack guide screw loosened from locked position		10±3 °

Suspension

Item	Measurement	Qualification	Standard or New	Service Limit
Wheel alignment (except KY 1.5LXE, 1.5EXE models)	Camber	Front	0 ° 00 ′±1 °	
		Rear	−1 ° 00 ′±1 °	
	Caster	Front	3 ° 20 ′±1 °	
	Total toe-in	Front	0±3 mm (0±0.12 in.)	
		Rear	2.5±2.5 mm (0.10±0.10 in.)	
	Front wheel turning angle (except 16 inch wheel model and KE 1.2SE model and KG 1.4ES, 1.4ESH models)	Inward	42 ° 51 ′±2 °	
		Outward (reference)	34 ° 42 ′±1 °	
	Front wheel turning angle (16 inch wheel model and KE 1.2SE model and KG 1.4ES, 1.4ESH models)	Inward	40 ° 18 ′±2 °	
		Outward (reference)	33 ° 19 ′±1 °	
Wheel alignment (KY 1.5LXE, 1.5EXE models)	Camber	Front	0 ° 07 ′±1 °	
		Rear	−1 ° 00 ′±1 °	
	Caster	Front	3 ° 13 ′±1 °	
	Total toe-in	Front	0±3 mm (0±0.12 in.)	
		Rear	2.5±2.5 mm (0.10±0.10 in.)	
	Front wheel turning angle	Inward	40 ° 38 ′±2 °	
		Outward (reference)	33 ° 30 ′±1 °	
Wheel	Steel wheel runout	Axial	0−1.0 mm (0−0.04 in.)	2.0 mm (0.08 in.)
		Radial	0−1.0 mm (0−0.04 in.)	1.5 mm (0.06 in.)
	Aluminium wheel runout	Axial	0−0.7 mm (0−0.03 in.)	2.0 mm (0.08 in.)
		Radial	0−0.7 mm (0−0.03 in.)	1.5 mm (0.06 in.)
Wheel bearing	End play	Front	0−0.05 mm (0−0.002 in.)	
		Rear	0−0.05 mm (0−0.002 in.)	

Brakes

Item	Measurement	Qualification	Standard or New	Service Limit
Parking brake	Distance traveled when lever pulled with 196 N (20 kgf, 44 lbf) of force	Disc	6 to 8 clicks	
		Drum	5 to 7 clicks	
Brake pedal	Pedal height (carpet moved aside)	M/T	139 mm (5.5 in.)	
		A/T	138 mm (5.4 in.)	
	Free play		1−5 mm (0.04−0.20 in.)	
Brake disc	Thickness	Front	20.9−21.1 mm (0.82−0.83 in.)	19.0 mm (0.75 in.)
		Rear	8.9−9.1 mm (0.35−0.36 in.)	8.0 mm (0.31 in.)
	Runout		———	0.04 mm (0.0016 in.)
	Parallelism		———	0.015 mm (0.0006 in.)
Brake pad	Thickness	Front	KE, KG: 9.3−10.2 mm (0.36−0.41 in.)	1.6 mm (0.06 in.)
			Except KE, KG: 9.5−10.2 mm (0.37−0.41 in.)	1.6 mm (0.06 in.)
		Rear	6.8−7.5 mm (0.27−0.30 in.)	1.6 mm (0.06 in.)
Rear brake (drum brake)	Brake drum I.D.		199.9−200 mm (7.870−7.874 in.)	201 mm (7.91 in.)
	Brake shoe lining thickness		4.0 mm (0.16 in.)	1.0 mm (0.04 in.)

Brake booster	Master cylinder oil pressure	Vacuum booster vacuum kPa (mmHg, in.Hg)	Brake pedal pressure N (kgf, lbf)	Master cylinder oil pressure kPa (kgf/cm ^{2} , psi)	
		0 (0, 0)	98 (10, 22)	0 (0, 0)	
			196 (20, 11)	Except LHD model of M/T	577 (5.9, 84)
				LHD model of M/T	501 (5.1, 73)
		66.7 (500, 19.7)	98 (10, 22)	KE/KG model of 1.3 L i-SHIFT	5,393 (55, 782)
				KG model of 1.2/1.3 L 5MT	5,153 (52.5, 747)

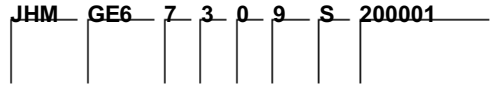
Item	Measurement	Qualification	Standard or New		Service Limit
				Except LHD model of M/T	4,523 (46.1, 656)
				LHD model of M/T	4,235 (43.2, 614)
			196 (20, 11)	KE/KG model of 1.3 L i-SHIFT	8,125 (82.9, 1,178)
				KG model of 1.2/1.3 L 5MT	8,060 (82.2, 1,169)
				Except LHD model of M/T	9,538 (97.3, 1,383)
				LHD model of M/T	9,468 (96.5, 1,373)

Air Conditioning

Item	Measurement	Qualification	Standard or New
Refrigerant	Type		HFC-134a (R-134a)
	Capacity of system		370−420 g (13.1−14.8 oz)
Refrigerant oil	Type		SP-10 (P/N 38897-P13-003, 38898-P13-003, or 38899-P13-A01)
	Capacity of components	Condenser	25 mL (5/6 fl·oz, 0.9 Imp·oz)
		Evaporator	35 mL (1 1/6 fl·oz, 1.2 Imp·oz)
		Each line and hose	10 mL (1/3 fl·oz, 0.4 Imp·oz)
		Receiver/Dryer	10 mL (1/3 fl·oz, 0.4 Imp·oz)
		Compressor	80−90 mL (2 2/3−3 fl·oz, 2.8−3.2 Imp·oz)
Compressor	Field coil resistance	At 20 °C (68 °F)	3.15−3.45 Ω
	Pulley-to-armature plate clearance		0.35−0.65 mm (0.014−0.026 in.)

VIN, Engine, and Transmission Numbers

Vehicle Identification Number



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GG1: Jazz/L12B1
GE6: Jazz/L13Z1
GE8: Jazz/L15A7

c. Body Type and Transmission Type

7: 4-door Hatchback/5-speed Manual
8: 4-door Hatchback/5-speed Automatic
4-door Hatchback/6-speed i-SHIFT (automated manual transmission)

d. Vehicle Grade (Series)

3: 1.2S, 1.2SE
4: 1.2LSE (1.2 Trend), 1.2LSE, 1.2LSRE, 1.4LS, 1.4LS (1.4 Comfort), 1.4LSH, 1.4LSH (1.4 Comfort with HeatedSeat)
5: 1.2LSRE, 1.3LX, 1.3LXA (Sport), 1.3LXR, 1.4LSS, 1.4LSS (1.4 Sports), 1.4LSSH, 1.4LSSH (1.4 Sports with HeatedSeat), 1.5LX (Gulf VIN), 1.5LXE (High Road), 1.5LXT, 1.5VTI, 1.5VTIR
6: 1.4ES, 1.4ES (1.4 Elegance), 1.4ESH, 1.4ESH (1.4 Elegance with HeatedSeat)
8: 1.3EX, 1.4EX (1.4 Exclusive) (KE Model), 1.4EXH (1.4 Exclusive with HeatedSeat), 1.4EXT (1.4 Exclusive with HFT), 1.4EXHT (1.4 Exclusive with HFT & HeatedSeat), 1.5EX, 1.5EX (Gulf VIN), 1.5EXE (High Road), 1.5EXT
9: 1.5LSPO

e. Fixed Code or Check Digit

f. Model Year

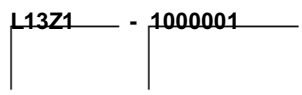
9: '09

g. Factory Code

S: Suzuka Factory in Japan
F: Ping Tung Factory in Taiwan
3: Huangpu Guangzhou Factory in China

h. Serial Number

Engine Number



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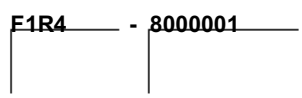

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Applicable Area Code List

MODEL	APPLICABLE AREA CODE	GRADE NAME	ENGINE TYPE	TRANSMISSION TYPE	MANUFACTURER NAME
Jazz	KE	1.2SE	L12B1	5MT	Honda Motor Co., Ltd.
		1.4ES	L13Z1	5MT	
				i-SHIFT *	
		1.4EX (1.4 Exclusive)		5MT	
				i-SHIFT *	
	KN	1.3LX	L13Z1	5MT	
				5AT	
		1.5EX	L15A7	5MT	
				5AT	
		1.5LSPO		5MT	
				5AT	
	KQ	1.3LX	L13Z1	5MT	

MODEL	APPLICABLE AREA CODE	GRADE NAME	ENGINE TYPE	TRANSMISSION TYPE	MANUFACTURER NAME
				5AT	
		1.5VTI	L15A7	5AT	
	KU	1.3LX	L13Z1	5AT	
		1.3EX			
	KZ	1.3LX	L13Z1	5MT	
				5AT	
		1.3LXR		5MT	
				5AT	
		1.5VTI	L15A7	5MT	
				5AT	
		1.5VTIR		5MT	
				5AT	
	KY	1.5LX (Gulf VIN)	L15A7	5MT	
				5AT	
		1.5LXE (High Road)		5MT	
				5AT	
		1.5LXT		5MT	
				5AT	
		1.5EX (Gulf VIN)		5MT	
				5AT	
		1.5EXE (High Road)		5MT	
				5AT	
		1.5EXT		5MT	
				5AT	

*: Automated manual transmission

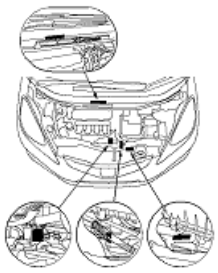
MODEL	APPLICABLE AREA CODE	GRADE NAME	ENGINE TYPE	TRANSMISSION TYPE	MANUFACTURER NAME
Jazz	KG	1.2SE (1.2S)	L12B1	5MT	Honda Motor Co., Ltd.
		1.2LSE (1.2 Trend)			
		1.2LSRE (1.2 for HME-S/HP)			
		1.4LS (1.4 Comfort)	L13Z1	5MT	
				i-SHIFT *	
		1.4LSH (1.4 Comfort with HeatedSeat)		5MT	
				i-SHIFT *	
		1.4LSS (1.4 Sports)		5MT	
				i-SHIFT *	
		1.4LSSH (1.4 Sports with HeatedSeat)		5MT	
				i-SHIFT *	
		1.4ES (1.4 Elegance)		5MT	
				i-SHIFT *	
		1.4ESH (1.4 Elegance with HeatedSeat)		5MT	
				i-SHIFT *	
		1.4EX (1.4 Exclusive)		5MT	
				i-SHIFT *	
		1.4EXT (1.4 Exclusive with HFT)		5MT	
				i-SHIFT *	
		1.4EXH (1.4 Exclusive with HeatedSeat)		5MT	
				i-SHIFT *	
		1.4EXHT (1.4 Exclusive with HFT & HeatedSeat)		5MT	
				i-SHIFT *	
		1.2SE	L12B1	5MT	Honda Automobile (China) Co., Ltd.
		1.2LSE			
		1.2LSRE			
		1.4LS	L13Z1	5MT	
				i-SHIFT *	
		1.4LSS		5MT	
				i-SHIFT *	
		1.4LSH		5MT	
				i-SHIFT *	
		1.4LSSH		5MT	
				i-SHIFT *	
		1.4ES		5MT	

MODEL	APPLICABLE AREA CODE	GRADE NAME	ENGINE TYPE	TRANSMISSION TYPE	MANUFACTURER NAME
				i-SHIFT *	
		1.4ESH		5MT	
				i-SHIFT *	
Fit	KT	1.3LX	L13Z1	5MT	Honda Motor Co., Ltd.
				5AT	
		1.3LXA (Sport)		5MT	
				5AT	
	FO	1.5VTI	L15A7	5AT	Honda Taiwan Co., Ltd.
		1.5VTIS			

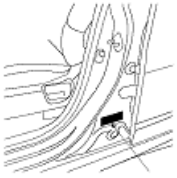
*: Automated manual transmission

VIN, Engine, and Transmission Number Locations

NOTE: The illustration shows the RHD model, LHD model is similar.

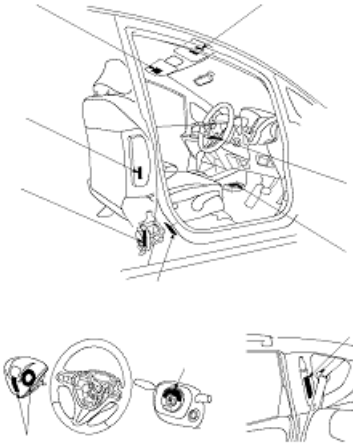


Left side doorjamb:

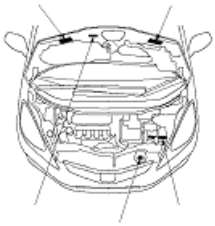


Danger/Warning/Caution Label Locations

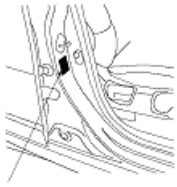
Front Passenger's Compartment:
NOTE: The illustration shows the RHD model, the LHD model is symmetrical.



NOTE: The illustration shows the RHD model, the LHD model is similar.



Driver's doorjamb:
NOTE: The illustration shows the RHD model, the LHD model is symmetrical.



Abbreviations

List of automotive abbreviations which may be used in shop manual.

ABS	Anti-lock Brake System
A/C	Air Conditioning, Air Conditioner
ACC	Adaptive Cruise Control
ACEA	Association des Constructeurs Europeens d' Automobiles
ACL	Air Cleaner
A/F	Air Fuel Ratio
AHB	Advanced Hydraulic Booster
ALR	Automatic Locking Retractor
ALT	Alternator
AMP	Ampere(s)
ANT	Antenna
API	American Petroleum Institute
APP	Accelerator Pedal Position
APPROX	Approximately
ASSY	Assembly
A/T	Automatic Transmission
ATDC	After Top Dead Center
ATF	Automatic Transmission Fluid
ATT	Attachment
AUTO	Automatic
AUX	Auxiliary
BARO	Barometric
BAT	Battery
BCM	Battery Condition Monitor
BDC	Bottom Dead Center
BTDC	Before Top Dead Center
CARB	Carburetor
CAT or CATA	Catalytic Converter
CD	Compact Disc
CHG	Charge
CKF	Crankshaft Speed Fluctuation
CKP	Crankshaft Position
CLV	Calculated Load Value
CMBS	Collision Mitigation Brake System
CMP	Camshaft Position
CO	Carbon Monoxide
COMP	Complete
CPB	Clutch Pressure Back up
CPC	Clutch Pressure Control
CPU	Central Processing Unit
CVT	Continuously Variable Transmission
CVTF	Continuously Variable Transmission Fluid
CYL	Cylinder
CYP	Cylinder Position
DIFF	Differential
DLC	Data Link Connector
DLI	Distributor Less Ignition
DOHC	Double Overhead Camshaft
DOT	Department of Transportation
DPF	Diesel Particulate Filter
DPI	Dual Point Injection
DPSF	Dual Pump System Fluid
DTC	Diagnostic Trouble Code
EBD	Electronic Brake Distribution
ECM	Engine Control Module
ECT	Engine Coolant Temperature
EGR	Exhaust Gas Recirculation
EGT	Exhaust Gas Temperature
ELD	Electrical Load Detector
EPR	Evaporator Pressure Regulator
EPS	Electrical Power Steering
ETCS	Electronic Throttle Control System
EVAP	Evaporative Emission
EX	Exhaust
F	Front
FIA	Fuel Injection Air
FL	Front Left
FP	Fuel Pump
FR	Front Right

FRP	Fuel Rail Pressure
FSR	Fail Safe Relay
FWD	Front Wheel Drive
GAL	Gallon
GND	Ground
GPS	Global Positioning System
H/B	Hatchback
HBA	Hydraulic Brake Assist
HC	Hydrocarbons
HDS	Honda Diagnostic System
HFT	Hands Free Telephone
HID	High Intensity Discharge
HIM	Honda Interface Module
HO2S	Heated Oxygen Sensor
HPS	Hydraulic Power Steering
HVAC	Heating, Ventilation, and Air Conditioning
IAB	Intake Air Bypass
IAC	Idle Air Control
IACV	Idle Air Control Valve
IAR	Intake Air Resonator
IAT	Intake Air Temperature
ICM	Ignition Control Module
ID	Identification
ID or I.D.	Inside Diameter
i-DSI	Intelligent-Dual & Sequential Ignition
IG or IGN	Ignition
IMA	Idle Mixture Adjustment Integrated Motor Assisted
IMMOBI.	Immobilizer (Immobiliser)
IMRC	Intake Manifold Runner Control
IMT	Intake Manifold Tuning
IN	Intake
INJ	Injection
INT	Intermittent
IQA	Injector Quantity Adjustment (Diesel model)
ISV	Intake Shutter Valve
KS	Knock Sensor
L	Left
L/C	Lock-up Clutch
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LEV	Low Emission Vehicle
LF	Left Front
LH	Left Handle
LHD	Left Handle Drive
LR	Left Rear
LSD	Limited Slip Differential
L4	In-line Four Cylinder (engine)
MAF	Mass Air Flow
MAP	Manifold Absolute Pressure
MAX	Maximum
MBS	Mainshaft Brake System
MCK	Motor Check
MCM	Motor Control Module
MCU	Moment Control Unit
MICS	Multiplex Integrated Control System
MICU	Multiplex Integrated Control Unit
MIL	Malfunction Indicator Lamp
MIN.	Minimum
MPI	Multi Point Injection
M/S	Manual Steering
M/T	Manual Transmission
MTF	Manual Transmission Fluid
NOx	Oxides of Nitrogen
OBD	On-board Diagnostic
OD or O.D.	Outside Diameter
OPDS	Occupant Position Detection System
O2S	Oxygen Sensor
PAIR	Pulsed Secondary Air Injection
PCM	Powertrain Control Module
PCV	Positive Crankcase Ventilation Proportioning Control Valve

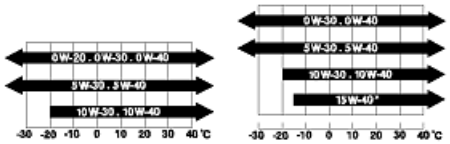
PDU	Power Drive Unit
PGM-FI	Programmed-fuel Injection
PGM-IG	Programmed Ignition
PH	Pressure High
PL	Pilot Light or Pressure Low
PMR	Pump Motor Relay
P/N	Part Number
PRI	Primary
P/S	Power Steering
PSF	Power Steering Fluid
PSP	Power Steering Pressure
PSW	Pressure Switch
Qty	Quantity
R	Right
REF	Reference
RH	Right Handle
RHD	Right Handle Drive
RL	Rear Left
RON	Research Octane Number
RR	Rear Right
SAE	Society of Automotive Engineers
SCS	Service Check Signal
SEC	Second, Secondary
SOHC	Single Overhead Camshaft
SOL	Solenoid
SPEC	Specification
S/R	Sun Roof
SRS	Supplemental Restraint System
STD	Standard
SW	Switch
T	Torque
TB	Throttle Body
T/B	Timing Belt
TC	Torque Converter
TCM	Transmission Control Module
TCS	Traction Control System
TDC	Top Dead Center
TFT	Thin Film Transistor
T/N	Tool Number
TP	Throttle Position
TPMS	Tyre Pressure Monitoring System
TWC	Three Way Catalytic Converter
VC	Viscous Coupling
VCM	Variable Cylinder Management
VIN	Vehicle Identification Number
VSA	Vehicle Stability Assist
VSS	Vehicle Speed Sensor
VTEC	Variable Valve Timing & Valve Lift Electronic Control
VVIS	Variable Volume Intake System
V6	V-engine Six Cylinder (engine)
W	With
W/O	Without
WOT	Wide Open Throttle
2WD	Two Wheel Drive
4WD	Four Wheel Drive
4AT	4-speed Automatic Transmission
5AT	5-speed Automatic Transmission
5MT	5-speed Manual Transmission
6MT	6-speed Manual Transmission
P	Park
R	Reverse
N	Neutral
D4	Drive (1st through 4th gear)
D3	Drive (1st through 3rd gear)
D	Drive
M	Manual mode
S	Second
L	Low
O/D	Over Drive
1ST	Low (gear)
2ND	Second (gear)
3RD	Third (gear)

4TH	Fourth (gear)
5TH	Fifth (gear)
6TH	Sixth (gear)

Lubricants and Fluids

⚠CAUTION

Used engine oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still advisable to thoroughly wash your hands with soap and water as soon as possible after handling used oil.



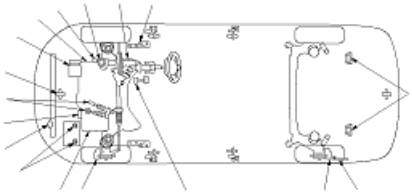
For the details of the lubrication points and the type of lubricants to be applied, refer to the illustrated index and the various work procedures (such as Assembly/Reassembly, Replacement, Overhaul, Installation, etc.) contained in each section.

	Application	Lubricant or Fluid
A	Engine (for Service Reminder System applicable EU countries)	Always use genuine Honda Motor Oil, ACEA A3/B3 or ACEA A5/B5 ACEA/SAE viscosity: See chart.
	Engine (for Service Reminder System non-applicable EU countries)	Always use genuine Honda Motor Oil, ACEA A1/B1 , ACEA A3/B3 or ACEA A5/B5 ACEA/SAE viscosity: See chart.
	Engine (except EU)	Always use API service grade SL or higher SAE viscosity: See chart.
B	Manual transmission	Honda Manual Transmission Fluid (MTF) Always use genuine Honda MTF *. Using motor oil can cause stiffer shifting because it does not contain the proper additives.
	Automatic transmission	Honda ATF-Z1 Always use genuine Honda ATF-Z1. Using a non-Honda ATF can affect shift quality.
C D	Brake system (including VSA lines) Clutch system (manual transmission)	Brake Fluid DOT 3 or DOT 4 We recommend genuine Honda Brake Fluid. Using a non-Honda brake fluid can cause corrosion and decrease the life of the system.
E F G H I J K	Release fork (manual transmission) Battery terminals Brake booster clevis pin Clutch master cylinder clevis pin (manual transmission) Fuel fill door Hood hinges and hood latch Trunk hinges	Multipurpose Grease
L	Caliper piston boot	Rubber Grease
M N	Caliper piston seal, caliper pins and boots Shift cable ends (manual transmission)	Silicone Grease
O	Air conditioning compressor	Compressor Oil:SP-10 (P/N 38897-P13-003 or 38899-P13-A01) for refrigerant HFC-134a (R-134a)
P	Cooling system	Always use genuine Honda All Season Antifreeze/Coolant Type 2

If genuine Honda MTF is not available, use API service SL or higher grade motor oil with a viscosity of SAE 10W-30 or 10W-40 as a temporary replacement.

NOTE:

- Lubricate the following grease using the recommended lubricants and fluids.
- In corrosive area, more frequent lubrication is necessary.
- The illustration shows the RHD model, the LHD model is simillar.

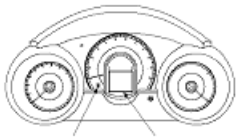


Service Reminder System General Information - for applicable EU countries

Service Reminder Information Display

The service reminder system is an important feature of the multi-information display. Based on engine operating conditions, the Fit/Jazz onboard computer (ECM/PCM) calculates the remaining engine oil life. The system also shows the service reminder information display along with the code for other scheduled maintenance items needing service.

Meter:



Steering Wheel:

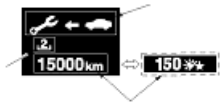
Applicable Countries

The service reminder system will not be applied for all the EU countries. Confirm the countries where the system is applied. The system is not active in default setting. The system needs to be activated by HDS at Honda dealer. If the vehicle is taken to outside of the applicable countries, apply the maintenance schedule for non-applicable countries.
NOTE: If you turn the service reminder system OFF after the first activation, it cannot be reactivated. When one month or more passes after disconnecting battery terminal, adjust the date and time on service reminder system using HDS.

How to Deactivate/Reactivate Service Reminder System with HDS

1. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC).
2. Turn the ignition switch to ON (II).
3. Select GAUGES from the BODY ELECTRICAL system select menu with the HDS.
4. Select ADJUSTMENT, then select SERVICE REMINDER.
5. Select SETTING, then ON/OFF the service reminder system.

Service Information

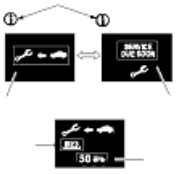


1. The service reminder information display is shown on the multi-information display. When the ignition switch is ON (II), and the remaining days are more than 30 days, the display shows a warning symbol (A), the maintenance item (B), and remaining distance or days (C). To see the service reminder information display, turn the ignition switch to ON (II), then push and release the SEL/RESET switch until the service reminder information display appears.

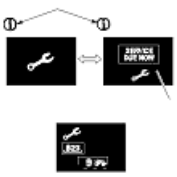
NOTE:

- Depending on the customer's driving condition, the remaining distance may not be always in agreement with the mileage in the odometer.
- The system switches the display between the remaining distance and the remaining days, depending on customer's driving conditions. If the customer does not drive frequently, generally the display shows the remaining days. The system monitors the driving condition, and records the elapsed time and distance from the last maintenance. Based on this data, the system assumes the future driving conditions and selects the appropriate service reminder information display.

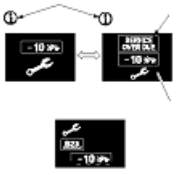
2. When the ignition switch is ON (II), and the remaining days are within 29 to 10 days, the warning symbol (A) or the maintenance service message ‘‘SERVICE DUE SOON" (B) is displayed. The message indicator (C) remains lit until the warning symbol or the message is canceled. To cancel the message or warning symbol, press the INFO or SET/RESET switch. The service reminder information display continues to show the warning symbol and the remaining distance or days (D) along with all the maintenance item(s) currently needing service.
Complete list of maintenance items (E).
NOTE: The language used in the warning message can be changed into several language. Refer to the Owner's Manual for details.



3. When the ignition switch is ON (II), and the remaining days are within 9 to 0 day, the warning symbol or the maintenance service message ‘‘SERVICE DUE NOW" (A) is displayed. The message indicator (B) remains lit until the warning symbol or the message is canceled. To cancel the message or warning symbol, press the INFO or SEL/RESET switch. The service reminder information display continues to show the warning symbol and the remaining distance or days along with all the maintenance item(s) currently needing service.



4. If the indicated maintenance is not done, the ‘‘SERVICE OVER DUE" message (A) or warning symbol appears along with total negative distance or days (B), for example ‘‘−10," on the display. This means the indicated maintenance item should have been done more than 10 days (or 10 km) ago. The message indicator (C) remains lit until the indicated maintenance is done.



Resetting the Service Reminder Information Display

NOTE:

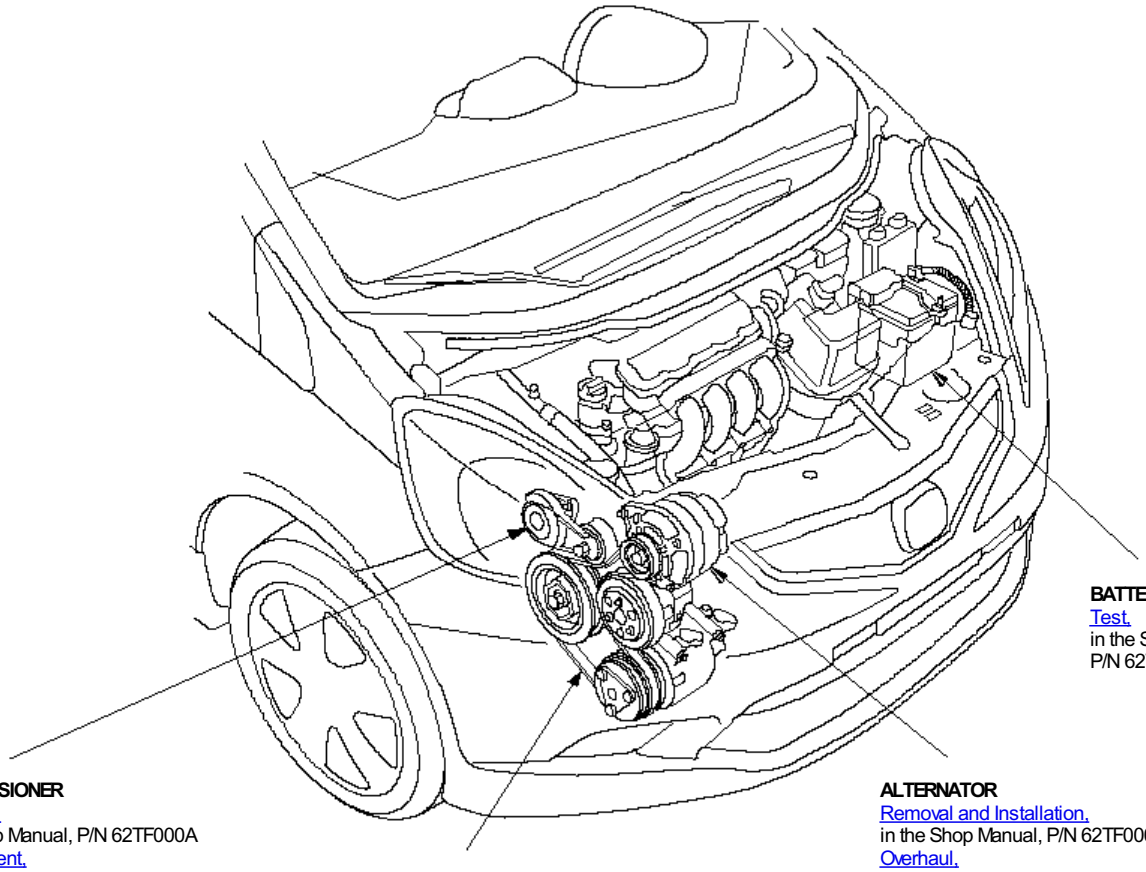
- The vehicle must be stopped to reset the display.
- If a required service is done and the display is not reset, or if the service reminder information display is reset without doing the service the system will not show the proper maintenance timing. This can lead to serious mechanical problems because there will be no accurate record of when the required maintenance is needed.
- Each maintenance item can be independently reset with the HDS.

1. Turn the ignition switch to ON (II).
2. Press the SEL/RESET switch repeatedly until the service reminder information display appears.
3. Press and hold the SEL/RESET button for about 10 seconds, the service reminder reset display appears.
   NOTE:
   - If you are resetting the display when the remaining days are more than 30 days, make sure any maintenance item(s) requiring service are done before resetting the display.
   - To cancel the reset mode, push the SEL/RESET switch.

---

4. To reset the service reminder information display, select reset indicator (A) by pressing the INFO switch, then push the SEL/RESET switch. The maintenance item code(s) will disappear, and the remaining distance or days will also reset.
   The display will return to the service reminder information display, and you will see the next required maintenance item and remaining distance or days.

Charging System Component Location Index



BATTERY
Test,
in the Shop Manual, P/N 62TF000B

AUTO-TENSIONER
Inspection,
in the Shop Manual, P/N 62TF000A
Replacement,
in the Shop Manual, P/N 62TF000A
Tensioner Pulley
Replacement,
in the Shop Manual, P/N 62TF000A

DRIVE BELT
Removal/Installation,
Inspection,
in the Shop Manual, P/N 62TF000A

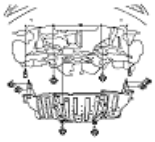
ALTERNATOR
Removal and Installation,
in the Shop Manual, P/N 62TF000A
Overhaul,
in the Shop Manual, P/N 62TF000A

Alternator

Item	Measurement	Qualification	Standard or New	Service Limit
Alternator	Output	At 13.5 V and normal engine temperature	95 A	
	Coil (rotor) resistance	At 20 °C (68 °F)	2.1−2.3 Ω	
	Slip ring O.D.		22.7 mm (0.89 in.)	21.2 mm (0.83 in.)
	Brush length		23.0 mm (0.91 in.)	18.0 mm (0.71 in.)
	Brush spring tension		4.1−5.3 N (0.42−0.54 kgf, 0.93−1.19 lbs)	

Drive Belt Removal/Installation

1. Remove the splash shield.



2. Move the tensioner (A) with a wrench (B) in the direction shown to relieve tension from the drive belt, then remove the drive belt.
3. Install the new belt in the reverse order of removal.

With A/C compressor:

Without A/C compressor:

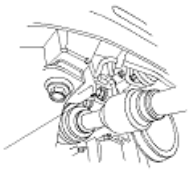
Drive belt

Item	Measurement	Qualification	Standard or New	Service Limit
Drive belt	Tension		Auto-tensioner	

Coolant Replacement

1. Start the engine. Set the heater temperature control dial to maximum heat, then turn the ignition switch to LOCK (0). Make sure the engine and radiator are cool to the touch.
2. Remove the radiator cap.
3. Remove the undercover.
4. Loosen the drain plug (A), and drain the coolant.

5. Remove the drain bolt (A) located at the rear of the engine block.
6. After the coolant has drained, then reinstall the bolt with a new washer and tighten it securely.
7. Tighten the radiator drain plug securely.
8. Remove, drain, and reinstall the coolant reservoir.



9. Fill the coolant reservoir to the MAX mark (A) with genuine Honda Long Life Antifreeze/Coolant Type 2 (P/N OL999-9001).

10. Pour genuine Honda Long Life Antifreeze/Coolant Type 2 into the radiator up to the base of the filler neck.

NOTE:
    - Always use genuine Honda Long Life Antifreeze/Coolant Type 2 (P/N OL999-9001). Using a non-Honda coolant can result in corrosion, causing the cooling system to malfunction or fail.
    - Genuine Honda Long Life Antifreeze/Coolant Type 2 is a mixture of 50 % antifreeze and 50 % water. Do not add water.

    Engine Coolant Capacities (Including the coolant reservoir capacity of 0.44 L (0.116 US gal, 0.097 Imp gal)):
    L15A7 engine: M/T model: At Coolant Change: 4.43L (1.170 US gal, 0.975 Imp gal)
    After Engine Overhaul: 4.92L (1.300 US gal, 1.082 Imp gal)
    A/T model: At Coolant Change: 4.53L (1.197 US gal, 0.997 Imp gal)
    After Engine Overhaul: 5.02L (1.326 US gal, 1.104 Imp gal)
    L13Z1 engine: RHD M/T model: At Coolant Change: 4.46L (1.178 US gal, 0.981 Imp gal)
    After Engine Overhaul: 4.95L (1.308 US gal, 1.089 Imp gal)
    A/T model: At Coolant Change: 4.52L (1.194 US gal, 0.994 Imp gal)
    After Engine Overhaul: 5.01L (1.324 US gal, 1.102 Imp gal)
    L13Z1 engine: LHDM/T model: At Coolant Change: 4.42L (1.168 US gal, 0.972 Imp gal)
    After Engine Overhaul: 4.91L (1.297 US gal, 1.080 Imp gal)
    A/T model: At Coolant Change: 4.52L (1.194 US gal, 0.994 Imp gal)
    After Engine Overhaul: 5.01L (1.324 US gal, 1.102 Imp gal)
    L12B1 engine: RHD M/T model: At Coolant Change: 4.42L (1.168 US gal, 0.972 Imp gal)
    After Engine Overhaul: 4.91L (1.297 US gal, 1.080 Imp gal)
    L12B1 engine: LHD M/T model (JHM): At Coolant Change: 4.42L (1.168 US gal, 0.972 Imp gal)
    After Engine Overhaul: 4.91L (1.297 US gal, 1.080 Imp gal)
    L12B1 engine: LHD M/T model (RKT): At Coolant Change: 4.46L (1.178 US gal, 0.981 Imp gal)
    After Engine Overhaul: 4.95L (1.308 US gal, 1.089 Imp gal)

11. Loosely install the radiator cap.
12. Start the engine, and let it run until it warms up (the radiator fan comes on at least twice).
13. Turn off the engine. Check the level in the radiator and add genuine Honda Long Life Antifreeze/ Coolant Type 2, if needed.
14. Put the radiator cap on tightly, then start the engine again, and check for leaks.
15. Clean up any spilled engine coolant.
16. Without service reminder system, this procedure is complete.
17. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC).
18. Turn the ignition switch to ON (II).
19. Make sure the HDS communicates with the vehicle and the engine control module (ECM)/powertrain control module (PCM). If it doesn't communicate, troubleshoot the DLC circuit.
20. Select BODY ELECTRICAL with the HDS.
21. Select ADJUSTMENT in GAUGE MENU with the HDS.
22. Select SERVICE REMINDER in the EU MAINTENANCE MINDER with the HDS.
23. Select SERVICE REMINDER ITEM 5 with the HDS.
24. Install the undercover.

Coolant reservoir

Item	Measurement	Qualification	Standard or New
Coolant reservoir	Coolant capacity		0.44 L (0.116 US qt, 0.097 Imp qt)

Radiator

Item	Measurement	Qualification				Standard or New
Radiator	Coolant capacity (Includes engine, heater, hoses, and reservoir) Use genuine Honda All Season Antifreeze/Coolant Type 2	L12B1	RHD	M/T	Engine overhaul	4.91 L (1.297 US gal, 1.080 Imp gal)
					Coolant change	4.42 L (1.168 US gal, 0.972 Imp gal)
			LHD	M/T	Engine overhaul (Manufactured in Japan model)	4.91 L (1.297 US gal, 1.080 Imp gal)
					Engine overhaul (Manufactured in China model)	4.95 L (1.308 US gal, 1.089 Imp gal)
					Coolant change (Manufactured in Japan model)	4.42 L (1.168 US gal, 0.972 Imp gal)
					Coolant change (Manufactured in China model)	4.46 L (1.178 US gal, 0.981 Imp gal)
		L13Z1	RHD	M/T	Engine overhaul	4.95 L (1.308 US gal, 1.089 Imp gal)
					Coolant change	4.46 L (1.178 US gal, 0.981 Imp gal)
				A/T	Engine overhaul	5.01 L (1.324 US gal, 1.102 Imp gal)
					Coolant change	4.52 L (1.194 US gal, 0.994 Imp gal)
			LHD	M/T	Engine overhaul	4.91 L (1.297 US gal, 1.080 Imp gal)
					Coolant change	4.42 L (1.168 US gal, 0.972 Imp gal)
				A/T	Engine overhaul	5.01 L (1.324 US gal, 1.102 Imp gal)
					Coolant change	4.52 L (1.194 US gal, 0.994 Imp gal)
		L15A7	M/T		Engine overhaul	4.92 L (1.300 US gal, 1.082 Imp gal)
					Coolant change	4.43 L (1.170 US gal, 0.975 Imp gal)
			A/T		Engine overhaul	5.02 L (1.326 US gal, 1.104 Imp gal)
					Coolant change	4.53 L (1.197 US gal, 0.997 Imp gal)

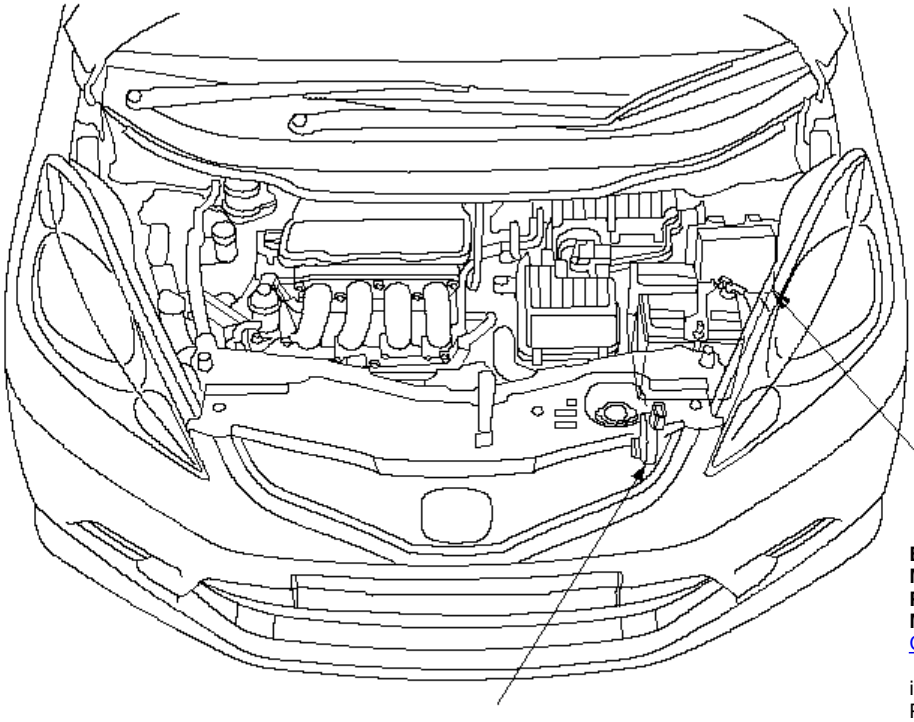
Radiator cap

Item	Measurement	Qualification	Standard or New
Radiator cap	Opening pressure		93−123 kPa (0.95−1.25 kgf/cm ^{2}, 14−18 psi)

Thermostat

Item	Measurement	Qualification		Standard or New
Thermostat	Opening temperature	Begins to open	76−80 °C (169−176 °F)	
		Fully open	90 °C (194 °F)	
	Valve lift at fully open		8.0 mm (0.31 in.) min.	

Cruise Control Component Location Index

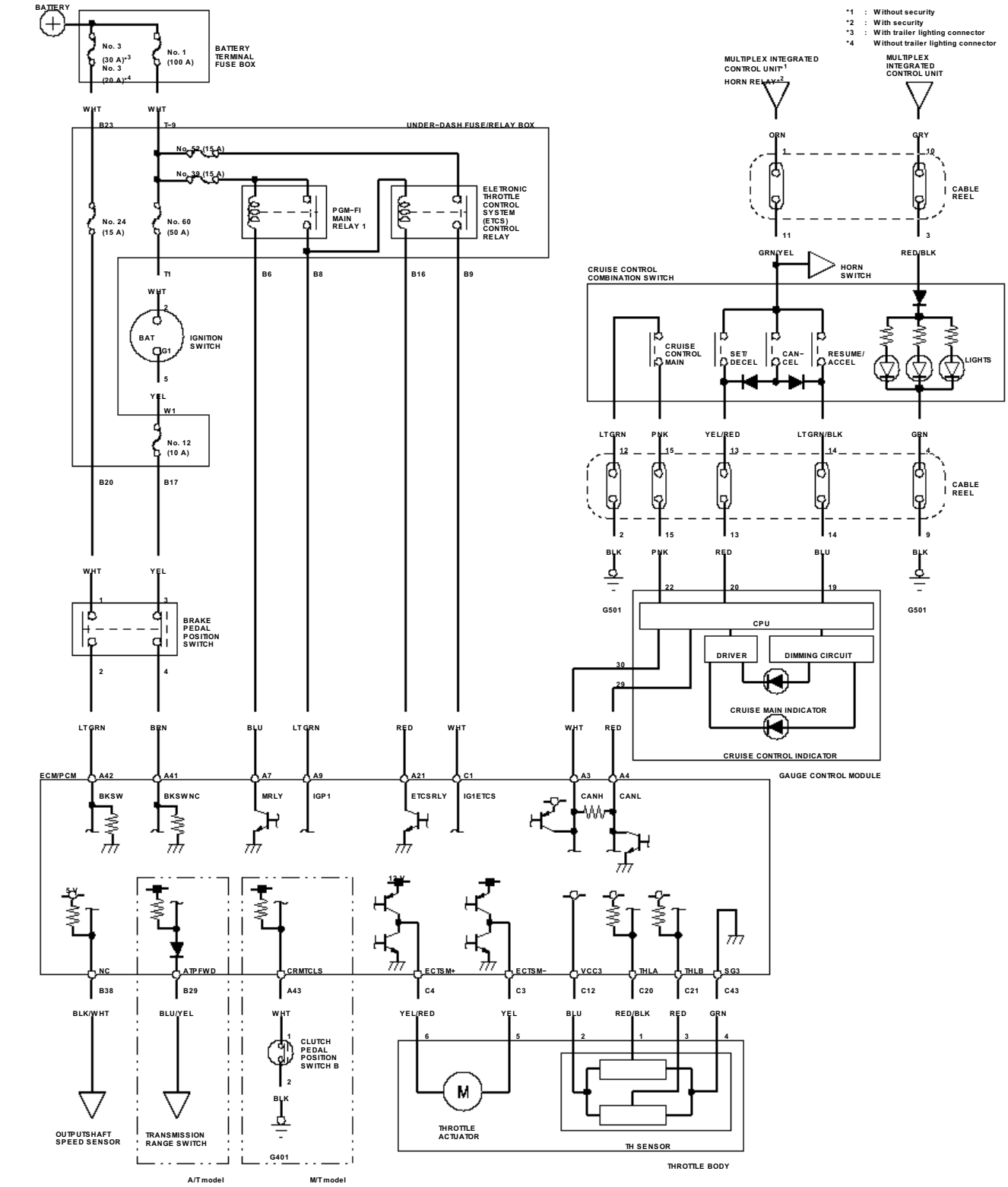


ENGINE CONTROL MODULE (ECM)/ POWERTRAIN CONTROL MODULE (PCM)
Cruise Control Input Test,

in the Shop Manual, P/N 62TF000A

TRANSMISSION RANGE SWITCH (A/T model)
Test,
in the Shop Manual, P/N 62TF000A
Replacement,
in the Shop Manual, P/N 62TF000A

Cruise Control Circuit Diagram



Cruise control cannot be set

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Check the No. 24 (10 A) fuse in the under-dash fuse/relay box.
3. Do the cruise control combination switch test.
4. Do the cruise control input test.

Also check for

- Poor ground G101 (A/T model) or G401 (M/T model)

Cruise control can be set, but the cruise main indicator does not come on

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Do the gauge control module self-diagnostic function procedure.
3. Do the cruise control input test. Test the cruise control main switch signal input.

Also check for

- Faulty gauge control module

Cruise control can be set, but the cruise control indicator does not come on

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Do the gauge control module self-diagnostic function procedure.
3. Do the cruise control input test. Test the cruise control indicator signal input.

Also check for

- Faulty gauge control module

Vehicle does not decelerate or accelerate accordingly when the set/decel or resume/accel switch is pressed

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Do the cruise control combination switch test.
3. Do the cruise control input test. Test the cruise control set/decel and resume/accel switch signal input.

Also check for

- Open circuit, loose or disconnected terminals: YEL/RED, RED or LT GRN/BLK, BLU wire

Set speed does not cancel when the brake pedal is pressed

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Do the brake pedal position switch test.
3. Do the cruise control input test. Test the brake pedal position switch signal input.

Also check for

- Short to power on the BRN wire
- Faulty brake pedal position switch

Set speed does not cancel when the cruise control main switch is pressed

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Do the cruise control combination switch test.
3. Do the cruise control input test. Test the cruise control main switch signal input.

Also check for

- Short to power on the PNK wire

Set speed does not cancel when the cancel switch is pressed

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Do the cruise control combination switch test.
3. Do the cruise control input test. Test the cruise control cancel switch signal input.

Also check for

- Open circuit, loose or disconnected terminals: YEL/RED, RED or LT GRN/BLK, BLU wire

Set speed will not resume when the resume/accel switch is pressed (with the cruise control main switch turned on, and set speed temporarily canceled by pressing the brake pedal)

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Check the brake pedal position switch adjustment.
3. Do the cruise control combination switch test.
4. Do the cruise control input test. Test the cruise control resume/accel switch signal input. Test the brake pedal position switch signal input.

Also check for

- Faulty brake pedal position switch
- Open circuit, loose or disconnected terminals: LT GRN/BLK, BLU wire

With the ignition switch in ON (II), and the lighting switch turned on, the cruise control combination switch illumination does not come on

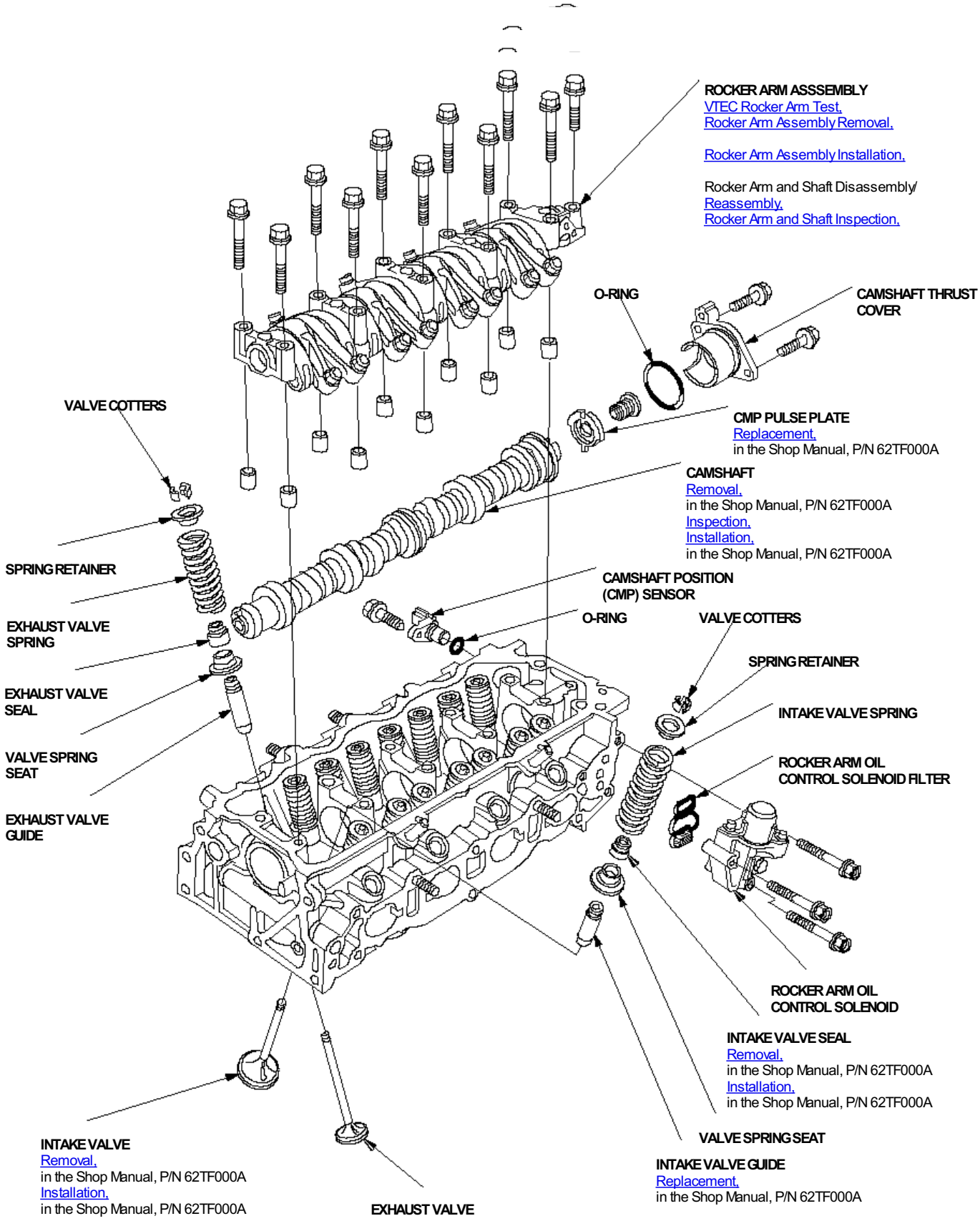
Diagnostic procedure

1. Do the cruise control combination switch test.

Cruise Control Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Cruise control cannot be set	1. Check for PGM-FI DTCs. 2. Check the No. 24 (10 A) fuse in the under-dash fuse/relay box. 3. Do the cruise control combination switch test. 4. Do the cruise control input test.	Poor ground G101 (A/T model) or G401 (M/T model)
Cruise control can be set, but the cruise main indicator does not come on	1. Check for PGM-FI DTCs. 2. Do the gauge control module self-diagnostic function procedure. 3. Do the cruise control input test. Test the cruise control main switch signal input.	Faulty gauge control module
Cruise control can be set, but the cruise control indicator does not come on	1. Check for PGM-FI DTCs. 2. Do the gauge control module self-diagnostic function procedure. 3. Do the cruise control input test. Test the cruise control indicator signal input.	Faulty gauge control module
Vehicle does not decelerate or accelerate accordingly when the set/decel or resume/accel switch is pressed	1. Check for PGM-FI DTCs. 2. Do the cruise control combination switch test. 3. Do the cruise control input test. Test the cruise control set/decel and resume/accel switch signal input.	Open circuit, loose or disconnected terminals: YEL/RED, RED or LT GRN/BLK, BLU wire
Set speed does not cancel when the brake pedal is pressed	1. Check for PGM-FI DTCs. 2. Do the brake pedal position switch test. 3. Do the cruise control input test. Test the brake pedal position switch signal input.	• Short to power on the BRN wire • Faulty brake pedal position switch
Set speed does not cancel (engine rpm stays high) when the clutch pedal is pressed	1. Check for PGM-FI DTCs. 2. Do the clutch pedal position switch B test. 3. Do the cruise control input test. Test the clutch pedal position switch B signal input.	• Short to ground on the WHT wire • Faulty clutch pedal position switch B
Set speed does not cancel when the cruise control main switch is pressed	1. Check for PGM-FI DTCs. 2. Do the cruise control combination switch test. 3. Do the cruise control input test. Test the cruise control main switch signal input.	Short to power on the PNK wire
Set speed does not cancel when the cancel switch is pressed	1. Check for PGM-FI DTCs. 2. Do the cruise control combination switch test. 3. Do the cruise control input test. Test the cruise control cancel switch signal input.	Open circuit, loose or disconnected terminals: YEL/RED, RED or LT GRN/BLK, BLU wire
Set speed will not resume when the resume/accel switch is pressed (with the cruise control main switch turned on, and set speed temporarily canceled by pressing the brake pedal)	1. Check for PGM-FI DTCs. 2. Check the brake pedal position switch adjustment. 3. Do the cruise control combination switch test. 4. Do the cruise control input test. Test the cruise control resume/accel switch signal input. Test the brake pedal position switch signal input.	• Faulty brake pedal position switch • Open circuit, loose or disconnected terminals: LT GRN/BLK, BLU wire
Set speed will not resume when the resume/accel switch is pressed (with the cruise control main switch turned on, and set speed temporarily canceled by pressing the clutch pedal)	1. Check for PGM-FI DTCs. 2. Check the clutch pedal position switch B adjustment. 3. Do the cruise control combination switch test. 4. Do the cruise control input test. Test the cruise control resume/accel switch B signal input. Test the clutch pedal position switch B signal input.	• Faulty clutch pedal position switch B • Open circuit, loose or disconnected terminals: LT GRN/BLK, BLU wire
With the ignition switch in ON (II), and the lighting switch turned on, the cruise control combination switch illumination does not come on	Do the cruise control combination switch test.	

Cylinder Head Component Location Index



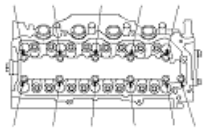
Head

Item	Measurement	Qualification	Standard or New	Service Limit
Head	Warpage		0.07 mm (0.0028 in.)	0.08 mm (0.003 in.)
	Height		119.9−120.1 mm (4.720−4.728 in.)	———

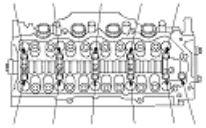
Camshaft Inspection

1. Remove the camshaft sprocket.
2. Remove the rocker arm assembly, then disassemble the rocker arm.
3. Put the rocker shaft holder bridge/rocker shaft holders on the cylinder head, then tighten the bolts to the specified torque.
   Specified Torque
   6 x 1.0 mm
   (1)–(10): 15 N·m (1.5 kgf·m, 11 lbf·ft)
   (11): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
4. Seat the camshaft by pushing it toward the rear of the cylinder head.

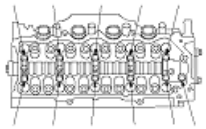
L15A7 engine



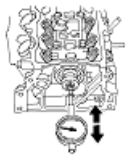
L13Z1 engine



L12B1 engine

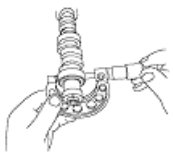


5. Zero the dial indicator against the end of the camshaft. Push the camshaft back and forth, and read the end play. If the end play is beyond the service limit, replace the thrust cover and recheck. If it is still beyond the service limit, replace the camshaft.
   Camshaft End Play
   Standard (New): 0.05–0.25 mm (0.002–0.010 in.)
   Service Limit: 0.5 mm (0.02 in.)



6. Remove the camshaft.
7. Wipe the camshaft clean, then inspect the lift ramps. Replace the camshaft if any lobes are pitted, scored, or excessively worn.

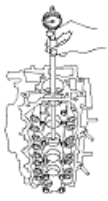
8. Measure the diameter of each camshaft journal.



9. Zero the gauge to the journal diameter.

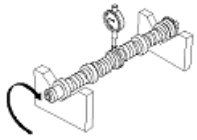
10. Clean the camshaft bearing surfaces in the cylinder head. Measure the inside diameter of each camshaft bearing surface, and check for an out-of-round condition.
    - If the camshaft-to-holder clearance is within limits, go to Step 12 .
    - If the camshaft-to-holder clearance is beyond the service limit, and the camshaft has been replaced, replace the cylinder head.
    - If the camshaft-to-holder clearance is beyond the service limit, and the camshaft has not been replaced, go to Step 11 .

    Camshaft-to-Holder Oil Clearance
    Standard (New): 0.045–0.084 mm (0.0018–0.0033 in.)
    Service Limit: 0.100 mm (0.004 in.)

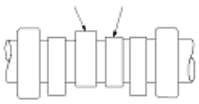


11. Check the total runout with the camshaft supported on V-blocks.
    - If the total runout of the camshaft is within the service limit, replace the cylinder head.
    - If the total runout is beyond the service limit, replace the camshaft, and recheck the oil clearance. If the oil clearance is still out of tolerance, replace the cylinder head.

    Camshaft Total Runout
    Standard (New): 0.03 mm (0.001 in.) max.
    Service Limit: 0.04 mm (0.002 in.)



12. Measure the cam lobe height.



Cam Lobe Height Standard (New):

		INTAKE	EXHAUST
L15A7 engine	PRI	35.241 mm (1.3874 in.)	35.471 mm (1.3965 in.)
	SEC	36.173 mm (1.4241 in.)	
L13Z1 engine	PRI	34.290 mm (1.3500 in.)	35.047 mm (1.3798 in.)
	SEC	30.529 mm (1.2019 in.)	
L12B1 engine	PRI	34.290 mm (1.3500 in.)	35.047 mm (1.3798 in.)
	SEC	30.529 mm (1.2019 in.)	

PRI: Primary SEC: Secondary IN: Intake
EX: Exhaust C/C: Cam Chain

Camshaft

Item	Measurement	Qualification		Standard or New	Service Limit
Camshaft	End play			0.05−0.25 mm (0.002−0.010 in.)	0.5 mm (0.02 in.)
	Camshaft-to-holder oil clearance			0.045−0.084 mm (0.0018−0.0033 in.)	0.100 mm (0.004 in.)
	Total runout			0.03 mm (0.001 in.) max.	0.04 mm (0.002 in.)
	Cam lobe height	L12B1	Intake, primary	34.290 mm (1.3500 in.)	
			Intake, secondary	30.529 mm (1.2019 in.)	
			Exhaust	35.047 mm (1.3798 in.)	
		L13Z1	Intake, primary	34.290 mm (1.3500 in.)	———
			Intake, secondary	30.529 mm (1.2019 in.)	———
			Exhaust	35.047 mm (1.3798 in.)	———
		L15A7	Intake, primary	35.241 mm (1.3874 in.)	———
			Intake, secondary	36.173 mm (1.4241 in.)	———
			Exhaust	35.471 mm (1.3964 in.)	———

VTEC Rocker Arm Test

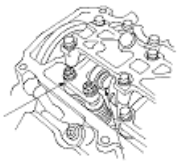
Special Tools Required

Air supply, 3/8
07LAJ-PR30102

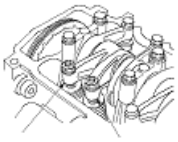
Air adapter, M10 x 1.0
070AJ-0010101

1. Start the engine, and let it run for 5 minutes, then turn the ignition switch to LOCK (0).
2. Remove the cylinder head cover.
3. Rotate the crankshaft clockwise, and visually check that all the primary rocker arms (A) and secondary rocker arms (B) move freely.
   - If the primary rocker arm and secondary rocker arm move together, remove the primary and secondary rocker arms as an assembly, and check that the pistons in the primary and secondary rocker arms move smoothly. If any rocker arm needs replacing, replace the primary and secondary rocker arms as an assembly, then retest.
   - If all the primary rocker arms and secondary rocker arms move freely, go to Step 4 .
4. Check that the air pressure on the shop air compressor gauge indicates over 400 kPa (4 kgf/cm ^{2}, 57 psi).
5. Inspect the valve clearance.

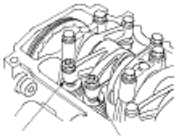
L15A7 engine



L13Z1 engine



L12B1 engine



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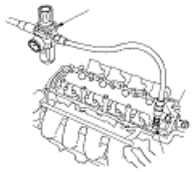
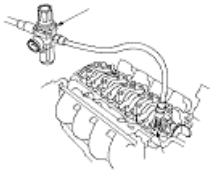
6. Install the air adapter (A) to the inspection hole, then connect the valve inspection set (B).
7. Loosen the valve on the regulator, and apply the specified air pressure.
   Specified Air Pressure:
   340 kPa (3.5 kgf/cm ^{2}, 50 psi)

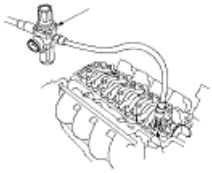
L15A7 engine



L13Z1 engine



L12B1 engine



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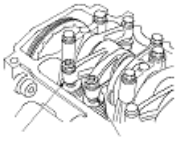
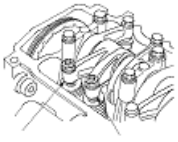
8. With the specified air pressure applied, rotate the crankshaft clockwise, and visually check that all the primary rocker arms (A) and secondary rocker arms (B) move together.
   If the primary rocker arm and secondary rocker arm move freely and independently of each other, remove the primary and secondary rocker arms as an assembly, and check that the pistons in the primary and secondary rocker arms move smoothly. If any rocker arm needs replacing, replace the primary and secondary rocker arms as an assembly, and test.
9. Remove the air supply and the VTEC adapter.
10. Install the cylinder head cover.

L15A7 engine

L13Z1 engine



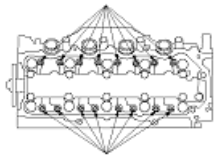
L12B1 engine



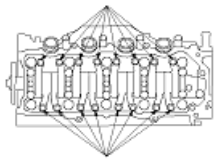
Cylinder Head Rocker Arm Assembly Removal

1. Remove the cylinder head cover.
2. Loosen the rocker arm adjusting screws (A).

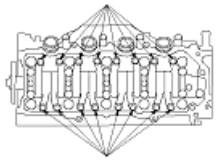
L15A7 engine



L13Z1 engine

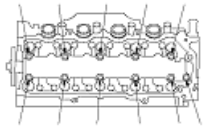


L12B1 engine

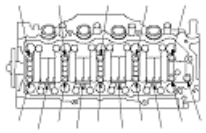


3. Unscrew the rocker shaft mounting bolts two turns at a time, in sequence below.
   NOTE: With L13Z1 engine, L12B1 engine: Bundle the intake rocker arms with rubber bands (A) to keep them together as a set.

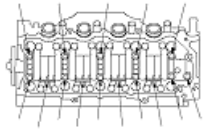
L15A7 engine



L13Z1 engine

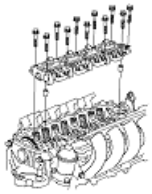


L12B1 engine

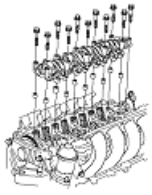


4. Remove the rocker shaft mounting bolts, then remove the rocker arm assembly (A).

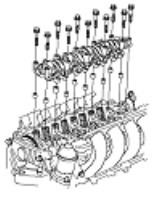
L15A7 engine



L13Z1 engine



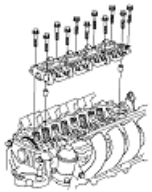
L12B1 engine



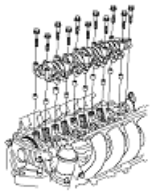
Cylinder Head Rocker Arm Assembly Installation

1. Install the rocker arm assembly (A).

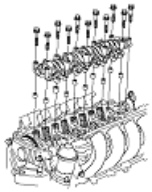
L15A7 engine



L13Z1 engine

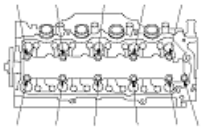


L12B1 engine

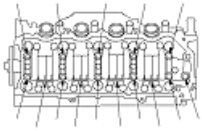


2. Tighten each bolts two turns at a time in sequence.
   NOTE: With L13Z1 engine, L12B1 engine: Remove the rubber bands (A) from the intake rocker arms.
   Specified Torque
   6 x 1.0 mm
   (1)–(10): 15 N·m (1.5 kgf·m, 11 lbf·ft)
   (11): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)

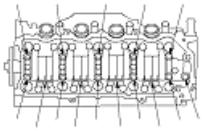
L15A7 engine



L13Z1 engine



L12B1 engine



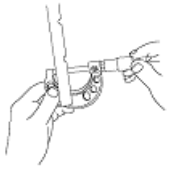
3. Adjust the valve clearance.
4. Install the cylinder head cover.

Rocker arm

Item	Measurement	Qualification	Standard or New	Service Limit
Rocker arm	Arm-to-shaft clearance	Intake	0.019–0.058 mm (0.0007–0.0023 in.)	0.08 mm (0.003 in.)
		Exhaust	0.019–0.058 mm (0.0007–0.0023 in.)	0.08 mm (0.003 in.)

Cylinder Head Rocker Arm and Shaft Inspection

1. Remove the rocker arm assembly.
2. Disassemble the rocker arm assembly.
3. Measure the diameter of the shaft at the first rocker location.



4. Zero the gauge (A) to the shaft diameter.

5. Measure the inside diameter of the rocker arm, and check it for an out-of-round condition.

Rocker Arm-to-Shaft Clearance

L15A7 engine:	
Intake:	
Standard (New):	**0.017–0.048 mm (0.0007–0.0019 in.)**
Service Limit:	**0.08 mm (0.0031 in.)**
Exhaust:	
Standard (New):	**0.019–0.050 mm (0.0007–0.0020 in.)**
Service Limit:	**0.08 mm (0.0031 in.)**
Intake:	
Standard (New):	**0.019–0.050 mm (0.0007–0.0020 in.)**
Service Limit:	**0.08 mm (0.0031 in.)**
Exhaust:	
Standard (New):	**0.019–0.050 mm (0.0007–0.0020 in.)**
Service Limit:	**0.08 mm (0.0031 in.)**
Intake:	
Standard (New):	**0.019–0.050 mm (0.0007–0.0020 in.)**
Service Limit:	**0.08 mm (0.0031 in.)**
Exhaust:	
Standard (New):	**0.019–0.050 mm (0.0007–0.0020 in.)**
Service Limit:	**0.08 mm (0.0031 in.)**

6. Repeat for all rockers and shaft. If the clearance is beyond the service limit, replace the rocker shaft and all out of service limit rocker arms. If any VTEC rocker arm needs replacement, replace the rocker arms as an assembly.

VTEC Rocker Arms

7. Inspect the rocker arm pistons (B). Push on them manually. If they do not move smoothly, replace the rocker arm set.
   NOTE:
   - Apply new engine oil to the rocker arm pistons when reassembling.
   - When reassembling the secondary rocker arm A, carefully apply air pressure to the oil passage of the rocker arm.
8. Reassemble the rocker arm assembly.
9. Install the rocker arm assembly.

L15A7 engine

L13Z1 engine

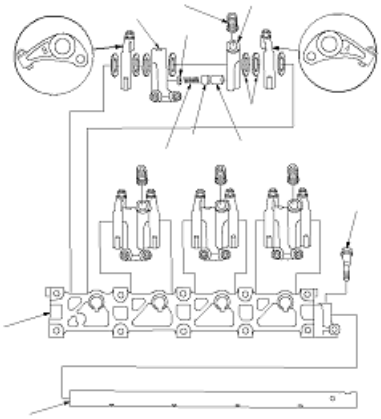
L12B1 engine

Cylinder Head Rocker Arm and Shaft Disassembly/Reassembly

L15A7 engine

NOTE:

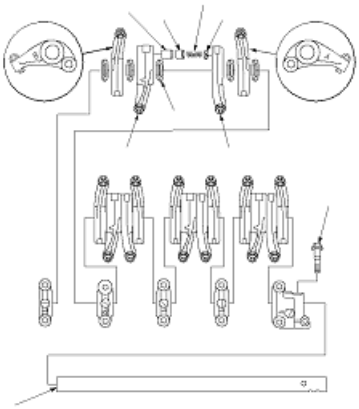
- Identify each part as it is removed so that each item can be reinstalled in its original position.
- Inspect the rocker arm shaft and the rocker arms.
- If reused, the rocker arms must be installed in the their original location.
- Remove the rocker shaft bolt before removing the rocker shaft from the rocker shaft holder bridge.
- Prior to reassembling, clean all the parts in solvent, dry them, and apply new engine oil to any contact points.
- When replacing the rocker arm assembly, remove the fastening hardware from the new rocker arm assembly.



L13Z1 engine

NOTE:

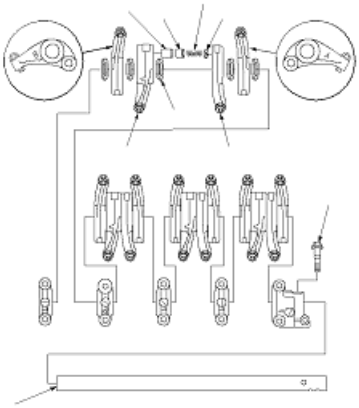
- Identify each part as it is removed so that each item can be reinstalled in its original position.
- Inspect the rocker arm shaft and the rocker arms.
- If reused, the rocker arms must be installed in the their original location.
- Remove the rocker shaft bolt before removing the rocker shaft from the No. 5 rocker shaft holder.
- Prior to reassembling, clean all the parts in solvent, dry them, and apply new engine oil to any contact points.
- When replacing the rocker arm assembly, remove the fastening hardware from the new rocker arm assembly.
- When reassembling the rocker arm and shaft assembly, position the arrows on the rocker shaft holders facing the cam chain side.



L12B1 engine

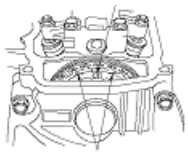
NOTE:

- Identify each part as it is removed so that each item can be reinstalled in its original position.
- Inspect the rocker arm shaft and the rocker arms.
- If reused, the rocker arms must be installed in the their original location.
- Remove the rocker shaft bolt before removing the rocker shaft from the No. 5 rocker shaft holder.
- Prior to reassembling, clean all the parts in solvent, dry them, and apply new engine oil to any contact points.
- When replacing the rocker arm assembly, remove the fastening hardware from the new rocker arm assembly.
- When reassembling the rocker arm and shaft assembly, position the arrows on the rocker shaft holders facing the cam chain side.

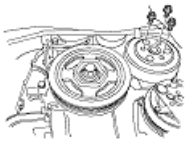


Cam Chain Removal

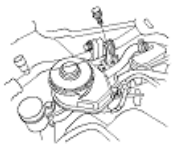
NOTE: Keep the cam chain away from magnetic fields.



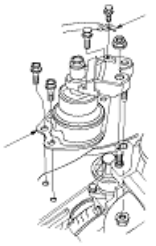
1. Remove the cylinder head cover.
2. Set the No. 1 piston at top dead center (TDC). The ‘‘UP" mark (A) on the camshaft sprocket should be at the top, and the TDC grooves (B) on the camshaft sprocket should line up with the top edge of the head.
3. Remove the right front wheel.
4. Remove the right side splash shield.
5. Loosen the water pump pulley mounting bolts.
6. Remove the drive belt.



7. Remove the water pump pulley.
8. Remove the crankshaft pulley.
9. Remove the drive belt auto-tensioner.



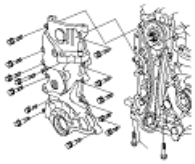
10. Remove the A/C line bracket mounting bolt.
11. Support the engine with a jack and wood block under the oil pan.



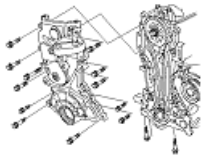
12. Remove the ground cable (A), then remove the side engine mount/bracket assembly (B).

13. Remove the chain case.

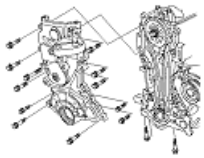
L15A7 engine



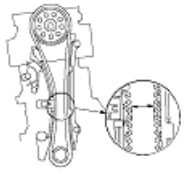
L13Z1 engine



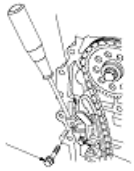
L12B1 engine



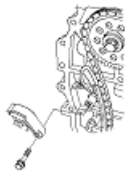
14. Measure the cam chain separation. If the distance is less than the service limit, replace the cam chain and cam chain tensioner.
    Standard Distance: 19 mm (0.75 in.)
    Service Limit: 15 mm (0.59 in.)



15. Apply new engine oil to the sliding surface of the cam chain tensioner slider (A).
16. Hold the cam chain tensioner slider with the screwdriver, then remove the bolt (B), and loosen the bolt (C).



17. Remove the cam chain tensioner slider.



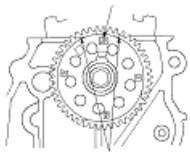
18. Remove the cam chain tensioner (A) and the cam chain guide (B).
19. Remove the cam chain.

Cam Chain Installation

NOTE: Keep the cam chain away from magnetic fields.

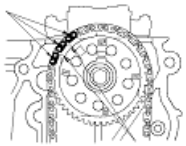
1. Set the crankshaft to top dead center (TDC). Align the TDC mark (A) on the crankshaft sprocket with the pointer (B) on the oil pump.
2. Remove the crankshaft sprocket.

3. Set the camshaft to TDC. The “UP" mark (A) on the camshaft sprocket should be at the top, and the TDC grooves (B) on the camshaft sprocket should line up with the top edge of the head.

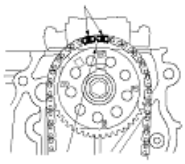


4. Install the cam chain on the crankshaft sprocket with the colored piece (A) aligned with the TDC mark (B) on the crankshaft sprocket, then install the crankshaft sprocket to the crankshaft.

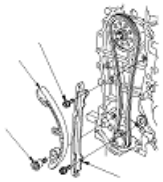
5. With L15A7 engine: Install the cam chain on the camshaft sprocket with the pointers (A) aligned with the three colored pieces (B) as shown.



6. With L13Z1 engine, L12B1 engine: Install the cam chain on the camshaft sprocket with the pointer (A) aligned with the center of the two colored pieces (B).

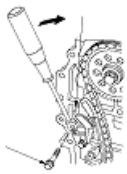


7. Install the cam chain tensioner (A) and the cam chain guide (B).

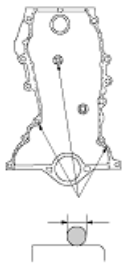


8. Install the cam chain tensioner slider, and tighten the bolt loosely.

9. Apply new engine oil to the sliding surface of the cam chain tensioner slider (A).
10. Rotate the cam chain tensioner slider clockwise to compress the cam chain tensioner, and install the remaining bolt, then tighten the bolts.
11. Check the chain case oil seal for damage. If the oil seal is damaged, replace the chain case oil seal.
12. Remove the all of the old liquid gasket from the chain case mating surfaces, the bolts, and the bolt holes.
13. Clean and dry the chain case mating surfaces.

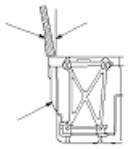


14. Apply liquid gasket (P/N 08C70-K0234M, 08C70-K0334M, or 08C70-X0331S) to the engine block mating surface of the chain case and to the inner threads of the bolt holes.
NOTE: Apply liquid gasket about 2.5 mm (0.098 in.) diameter bead along the broken line (A).



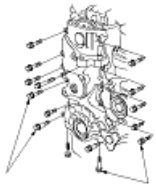
15. Apply liquid gasket (P/N 08C70-K0234M, 08C70-K0334M, or 08C70-X0331S) to the oil pan mating surface of the chain case and to the inner threads of the bolt holes.
NOTE:
    - Apply liquid gasket about 2.5 mm (0.098 in.) diameter bead along the broken line (A).
    - Apply liquid gasket about 5.0 mm (0.20 in.) diameter bead to the shaded area (B).
    - Do not install components if 5 minutes or more have passed after applying the liquid gasket. Instead, remove the old residue and reapply the liquid gasket.

16. Set the edge of the chain case (A) to the edge of the oil pan (B), then install the chain case on the engine block (C).
NOTE:
    - When installing the chain case, do not slide the bottom surface onto the oil pan mounting surface.
    - Wait at least 30 minutes before filling the engine with oil.
    - Do not run the engine for at least 3 hours after installing the chain case.

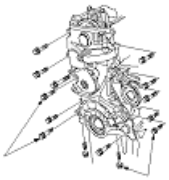


17. Tighten the chain case mounting bolts. Wipe off the excess liquid gasket on the oil pan and the chain case mating area.

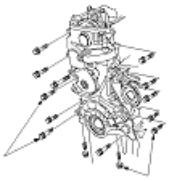
L15A7 engine



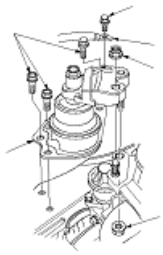
L13Z1 engine



L12B1 engine

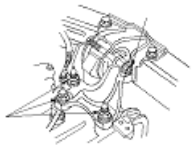


18. Install the side engine mount/bracket assembly (A), then tighten the new side engine mount/bracket assembly mounting bolts (B).
19. Loosely tighten the new side engine mount/bracket assembly mounting nuts (C).
20. Install the ground cable (D).
21. Remove the air cleaner housing assembly.



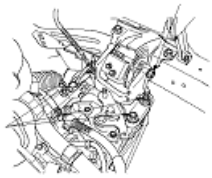
22. Loosen the transmission mount bracket mounting bolts and nuts (A).
23. Raise the vehicle on the lift to full height.

M/T model



A/T model

i-SHIFT model



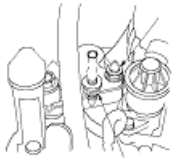
24. Loosen the torque rod mounting bolt and nut (A).
25. Lower the vehicle on the lift.

M/T model

A/T model

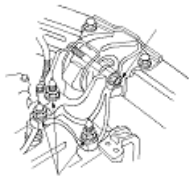
i-SHIFT model

26. Tighten the side engine mount/bracket assembly mounting nuts in the numbered sequence shown.



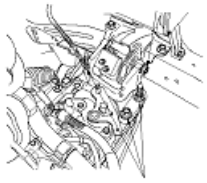
27. Tighten the transmission mount mounting bolts and nuts in the numbered sequence shown.
28. Raise the vehicle on the lift to full height.

M/T model



A/T model

i-SHIFT model



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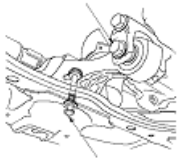
29. Tighten the torque rod mounting bolt and nut in the numbered sequence shown.
30. Lower the vehicle on the lift.
31. Install the air cleaner housing assembly.

M/T model

A/T model

i-SHIFT model



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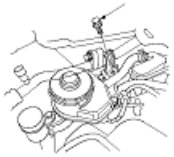
32. Install the A/C line bracket mounting bolt.
33. Install the cylinder head cover.
34. Install the drive belt auto-tensioner.
35. Install the crankshaft pulley.



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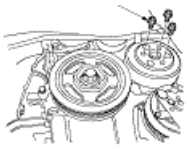
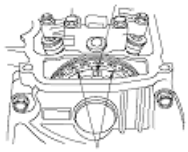
36. Install the water pump pulley.
37. Install the drive belt.
38. Tighten the water pump pulley mounting bolts.
39. Install the right side splash shield.
40. Install the right front wheel.
41. Do the crankshaft position (CKP) pattern clear/CKP pattern learn procedure.



Cylinder Head Valve Clearance Adjustment

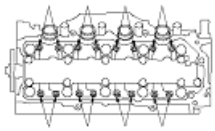
NOTE: Adjust the valves only when the cylinder head temperature is less than 38 °C (100 °F).

1. Remove the cylinder head cover.
2. Set the No. 1 piston at top dead center (TDC). The ‘‘UP" mark (A) on the camshaft sprocket should be at the top, and the TDC grooves (B) on the camshaft sprocket should line up with the top edge of the head.

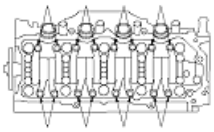


3. Select the correct thickness feeler gauge for the valves you are going to check.
   Valve Clearance
   Intake: 0.15–0.19 mm (0.006–0.007 in.)
   Exhaust: 0.26–0.30 mm (0.010–0.012 in.)

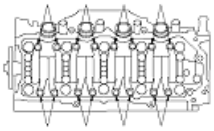
L15A7 engine



L13Z1 engine

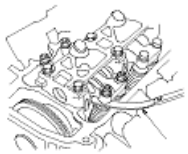


L12B1 engine

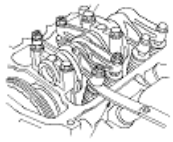


4. Insert the feeler gauge (A) between the adjusting screw and the end of the valve stem on No. 1 cylinder and slide it back and forth; you should feel a slight amount of drag.

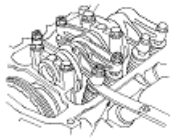
L15A7 engine



L13Z1 engine



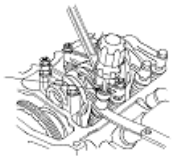
L12B1 engine



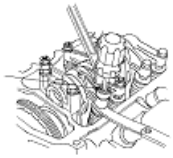
5. If you feel too much or too little drag, loosen the locknut, and turn the adjusting screw (A) until the drag on the feeler gauge is correct.
6. Tighten the locknut and recheck the clearance. Repeat the adjustment, if necessary.
7. Tighten the locknut to the specified torque, and recheck the valve clearance. Repeat the adjustment if necessary.
   Specified Torque
   7 x 0.75 mm 14 N·m (1.4 kgf·m, 10 lbf·ft)
   Apply new engine oil to the nut threads.

L15A7 engine

L13Z1 engine



L12B1 engine



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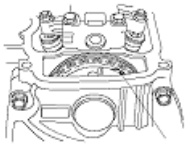
8. Rotate the crankshaft clockwise. Align the No. 3 piston TDC groove (A) on the camshaft sprocket with the top edge of the head.
9. Check, and if necessary, adjust the valve clearance on the No. 3 cylinder.



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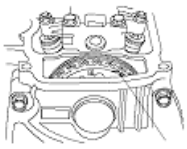
10. Rotate the crankshaft clockwise. Align the No. 4 piston TDC groove (A) on the camshaft sprocket with the top edge of the head.
11. Check, and if necessary, adjust the valve clearance on the No. 4 cylinder.



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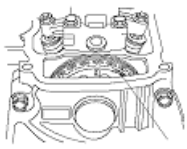
12. Rotate the crankshaft clockwise. Align the No. 2 piston TDC groove (A) on the camshaft sprocket with the top edge of the head.
13. Check, and if necessary, adjust the valve clearance on the No. 2 cylinder.
14. Install the cylinder head cover.
15. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC).
16. Turn the ignition switch to ON (II).
17. Make sure the HDS communicates with the vehicle and the engine control module (ECM)/powertrain control module (PCM). If it does not communicate, troubleshoot the DLC circuit.
18. Select BODY ELECTRICAL with the HDS.
19. Select ADJUSTMENT in GAUGE MENU with the HDS.
20. Select SERVICE REMINDER in the EU MAINTENANCE MINDER with the HDS.
21. Select SERVICE REMINDER ITEM 9 with the HDS.



Valve

Item	Measurement	Qualification	Standard or New	Service Limit
Valve	Clearance (cold)	Intake	0.15−0.19 mm (0.006−0.007 in.)	———
		Exhaust	0.26−0.30 mm (0.010−0.012 in.)	———
	Stem O.D.	Intake	5.48−5.49 mm (0.216−0.216 in.)	5.45 mm (0.215 in.)
		Exhaust	5.45−5.46 mm (0.215−0.215 in.)	5.42 mm (0.213 in.)
	Stem-to-guide clearance	Intake	0.020−0.050 mm (0.0008−0.0020 in.)	0.08 mm (0.003 in.)
		Exhaust	0.050−0.080 mm (0.0020−0.0031 in.)	0.11 mm (0.004 in.)

Valve guide

Item	Measurement	Qualification	Standard or New	Service Limit
Valve guide	I.D.	Intake	5.51−5.53 mm (0.217−0.218 in.)	5.55 mm (0.219 in.)
		Exhaust	5.51−5.53 mm (0.217−0.218 in.)	5.55 mm (0.219 in.)
	Installed height	Intake	15.85−16.35 mm (0.624−0.644 in.)	———
		Exhaust	15.85−16.35 mm (0.624−0.644 in.)	———

Valve spring

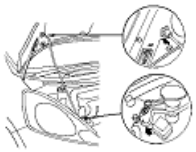
Item	Measurement	Qualification		Standard or New	Service Limit
Valve spring	Free length	L12B1	Intake	51.17 mm (2.014 in.)	
			Exhaust	57.26 mm (2.254 in.)	
		L13Z1	Intake	51.17 mm (2.014 in.)	———
			Exhaust	57.26 mm (2.254 in.)	———
		L15A7	Intake	48.55 mm (1.911 in.)	———
			Exhaust	54.52 mm (2.146 in.)	———

Valve seat

Item	Measurement	Qualification	Standard or New	Service Limit
Valve seat	Width	Intake	0.850−1.150 mm (0.0335−0.0453 in.)	1.60 mm (0.063 in.)
		Exhaust	1.250−1.550 mm (0.0492−0.0610 in.)	2.00 mm (0.079 in.)
	Stem installed height	Intake	46.1−46.5 mm (1.815−1.831 in.)	46.8 mm (1.843 in.)
		Exhaust	46.2−46.6 mm (1.819−1.835 in.)	46.9 mm (1.846 in.)

Engine Removal

Special Tools Required



Engine tilt hanger set
07KAK-SJ40101

Engine hanger stay
07KAK-SJ40200

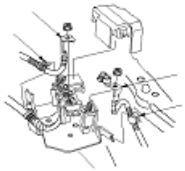
Sub hanger stay
07MAK-PY30100

NOTE:

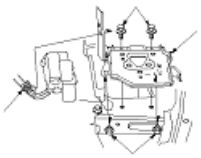
- Use a fender covers to avoid damaging painted surfaces.
- To avoid damaging the wiring and terminals, unplug the wiring connectors carefully while holding the connector portion.
- Mark all wiring and hoses to avoid misconnection. Also, be sure that they do not contact other wiring or hoses, or interfere with other parts.

1. Remove the hood support rod, then use it as shown to prop the hood in the wide-open position.
2. Relieve the fuel pressure.
3. Do the battery terminal disconnect procedure.
4. Remove the battery.
5. Remove the under-cowl panel.
6. Remove the air cleaner housing assembly.

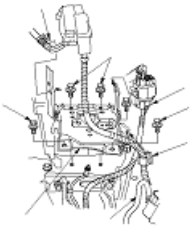
7. Without i-SHIFT model: Remove the battery cables (A) from the battery terminal fuse box.
8. Remove the harness clamps (B).



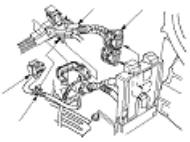
9. With M/T model: Remove the battery harness clamp (A). Remove the two bolts (B) and loosen the two bolts (C), then remove the battery base (D).



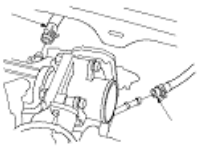
10. With i-SHIFT model: Remove the battery harness clamp (A). Remove the battery bolts (B), and the bracket (C), then release the lock and the bracket, then release the lock and remove the clutch actuator connector (C) and reservoir tube (D), then remove the battery base (E).
11. With i-SHIFT model: Remove the clutch actuator (TCM).



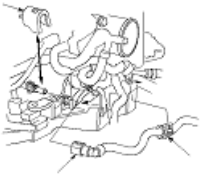
12. Disconnect the engine control module (ECM)/ powertrain control module (PCM) connectors (A) and the engine wire harness connector (B).
13. Remove the harness clamp (C) and harness holder (D).



14. Disconnect the evaporative emission (EVAP) canister hose (A) and brake booster vacuum hose (B).



15. Remove the fuel feed hose clamp (A) and the quick-connect fitting cover (B), then disconnect the fuel feed hose (C).



16. Disconnect the secondary heated oxygen sensor (secondary HO2S) connector (A), then remove the secondary HO2S harness from the clamps (B).
17. M/T model: Remove the shift cable.
18. M/T model: Remove the clutch slave cylinder, and clutch line bracket mounting bolt.
19. With i-SHIFT model: Remove the clutch slave cylinder.
20. Remove the radiator cap.
21. Raise the vehicle on the lift to full height.
22. Remove the front wheels.

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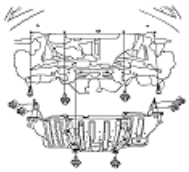
23. Remove the splash shields.
24. Remove the drive belt.
25. Loosen the drain plug in the radiator, and drain the engine coolant.
26. Drain the engine oil.
27. Drain the transmission fluid:
    - Manual transmission
    - Automatic transmission
    - i-SHIFT system transmission



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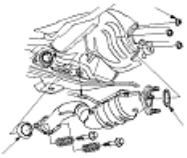
28. Remove the under-floor three way catalytic converter (under-floor TWC).
29. A/T model: Remove the shift cable.
30. Remove the stabilizer links from the stabilizer.
31. With HID lamp model: If removing the left side lower arm, disconnect the suspension stroke sensor, and the lower arm.
32. Separate the knuckles from the lower arms.



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33. Remove the driveshaft heat shield.
34. Remove the driveshafts. Coat all precision-finished surfaces with clean engine oil. Tie a plastic bags over the driveshaft ends.

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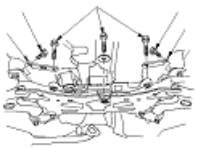
35. Remove the bolts (A) securing the steering gearbox, then remove the steering gearbox stiffeners (B).



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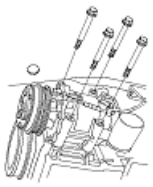
36. Remove the A/C compressor without disconnecting the A/C hoses (with A/C).
37. Lower the vehicle on the lift.
38. Remove the radiator.



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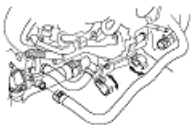
39. Disconnect the heater hoses.
40. Raise the vehicle on the lift to full height.
41. Support the transmission with a jack and wood block under the transmission.



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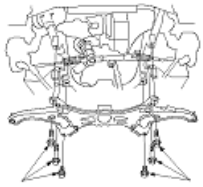
42. Remove the torque rod.
43. Remove the jack.

M/T model

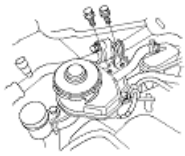
A/T model

i-SHIFT model

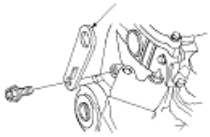
44. Remove the front subframe.
45. Lower the vehicle on the lift.



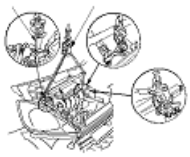
46. With RHD model: Remove the brake fluid reservoir tank bracket mounting bolts.



47. Install the sub hanger stay.

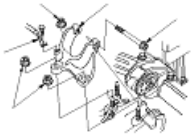


48. Attach the special tools to the engine/transmission as shown.

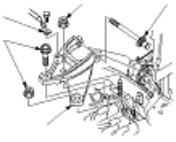


49. Remove the ground cable (A), then remove the transmission mount bracket (B).

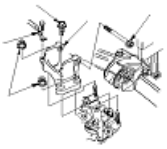
M/T model



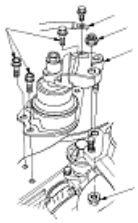
A/T model



i-SHIFT model



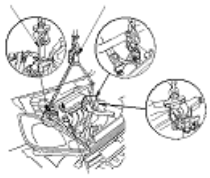
50. Remove the ground cable (A), then remove the side engine mount/bracket assembly (B).



51. Check that the engine/transmission is completely free of vacuum hoses, fuel and coolant hoses, and electrical wiring.
52. Slowly lower the engine/transmission about 150 mm (6 in.). Check once again that all hoses and electrical wiring are disconnected and free from the engine/transmission, then lower it all the way.
53. Disconnect the chain hoist from the engine/transmission.
54. Raise the vehicle, and remove the engine/transmission from under the vehicle.

Engine Installation

Special Tools Required



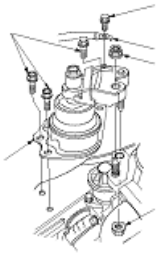
Engine tilt hanger set
07KAK-SJ40101

Engine hanger stay
07KAK-SJ40200

Sub hanger stay
07MAK-PY30100

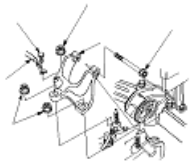
1. Raise the vehicle on the lift, and position the engine/transmission under the vehicle. Lower the vehicle, and attach the special tools to the engine/transmission, then lift the engine/transmission into position in the vehicle.
   NOTE: Reinstall the mounting bolts and support nuts in the sequence given in the following steps. Failure to follow this sequence may cause excessive noise and vibration, and reduce engine mount life.

2. Install the side engine mount/bracket assembly (A), then tighten the new side engine mount/bracket assembly mounting bolts (B) and nuts (C).
3. Loosely tighten the new side engine mount/bracket assembly mounting nuts.
4. Install the ground cable (D).

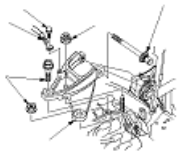


5. Install the transmission mount bracket (A), and loosely tighten the new transmission mount bracket mounting bolts and nuts (B).
6. Install the ground cable (C).
7. Remove the engine tilt hanger set from the engine/transmission

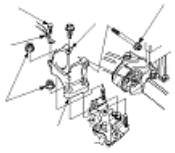
M/T model



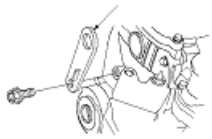
A/T model



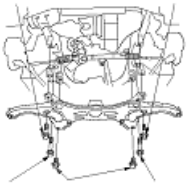
i-SHIFT model



8. Remove the sub hanger stay.
9. Raise the vehicle on the lift to full height.

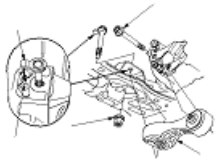


10. Install the front subframe, then tighten the new front subframe mounting bolts in the numbered sequence shown.

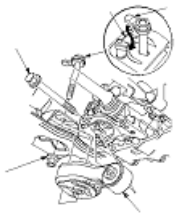


11. Install the torque rod (A). Install the new bolt with the tab (B) on the bolt head aligned with the guide (C) on the front subframe, then loosely tighten the new torque rod mounting bolt and nut (D).
12. Lower the vehicle on the lift.

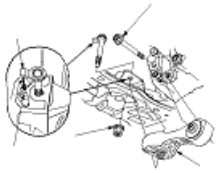
M/T model



A/T model



i-SHIFT model



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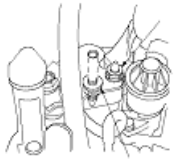
13. Tighten the side engine mount/bracket assembly mounting nuts in the numbered sequence shown.



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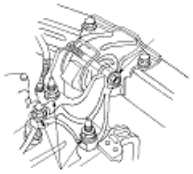
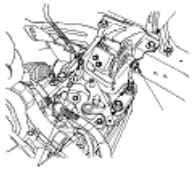
14. Tighten the transmission mount mounting bolts and nuts in the numbered sequence shown.
15. Raise the vehicle on the lift to full height.

M/T model



A/T model

i-SHIFT model



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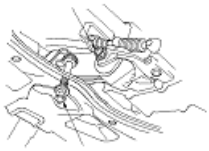
16. Tighten the torque rod mounting bolt and nut in the numbered sequence shown.

M/T model

A/T model



i-SHIFT model

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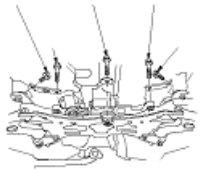
17. Install the securing the steering gearbox and the steering gearbox stiffeners, then tighten the new bolts in the numbered sequence shown.
18. Install a new set ring on the end of each driveshaft, then install the driveshafts. Make sure each ring “clicks" into place in the differential and the intermediate shaft.



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19. Install the driveshaft heat shield.
20. Connect the lower arms to the knuckles.
21. Install the stabilizer links to the stabilizer.
22. A/T model: Install the shift cable.

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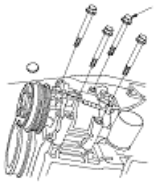
23. Install the A/C compressor (with A/C).
24. Install the drive belt.



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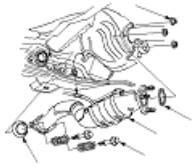
25. Install the under-floor three way catalytic converter (under-floor TWC) (A). Use new gaskets (B) and new self locking nuts (C).



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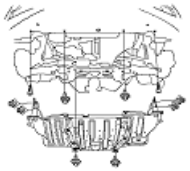
26. Install the splash shields.
27. Lower the vehicle on the lift.



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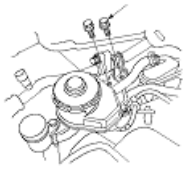
28. With RHD model: Install the brake fluid reservoir tank bracket mounting bolts.



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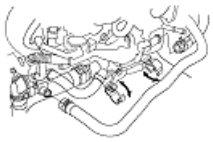
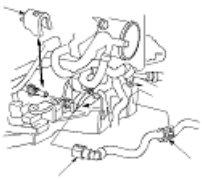
29. Install the heater hoses.
30. Install the radiator.
31. M/T model: Install the clutch slave cylinder, and clutch line bracket mounting bolt.
32. With i-SHIFT model: Install the clutch slave cylinder.
33. M/T model: Install the shift cable.

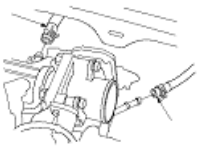


34. Connect the secondary heated oxygen sensor (secondary HO2S) connector (A), then install the secondary HO2S harness to the clamps (B).

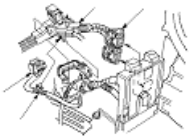
35. Connect the fuel feed hose (A) , then install the quick-connect fitting cover (B) and the fuel feed hose clamp (C).



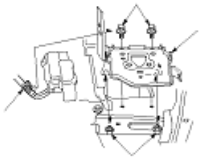
36. Install the evaporative emission (EVAP) canister hose (A) and brake booster vacuum hose (B).



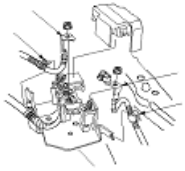
37. Install the harness holder (A), then install the harness clamp (B).
38. Connect the engine wire harness connector (C) and the engine control module (ECM)/powertrain control module (PCM) connectors (D).



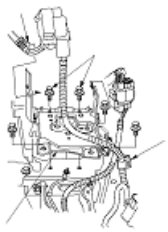
39. With M/T model: Install the battery base (A), then install the battery harness clamp (B).



40. Without i-SHIFT model: Install the battery cables (A) to the battery terminal fuse box.
41. Without i-SHIFT model: Install the harness clamps (B).



42. With i-SHIFT model: Install the battery base (A) and harness clip (B).



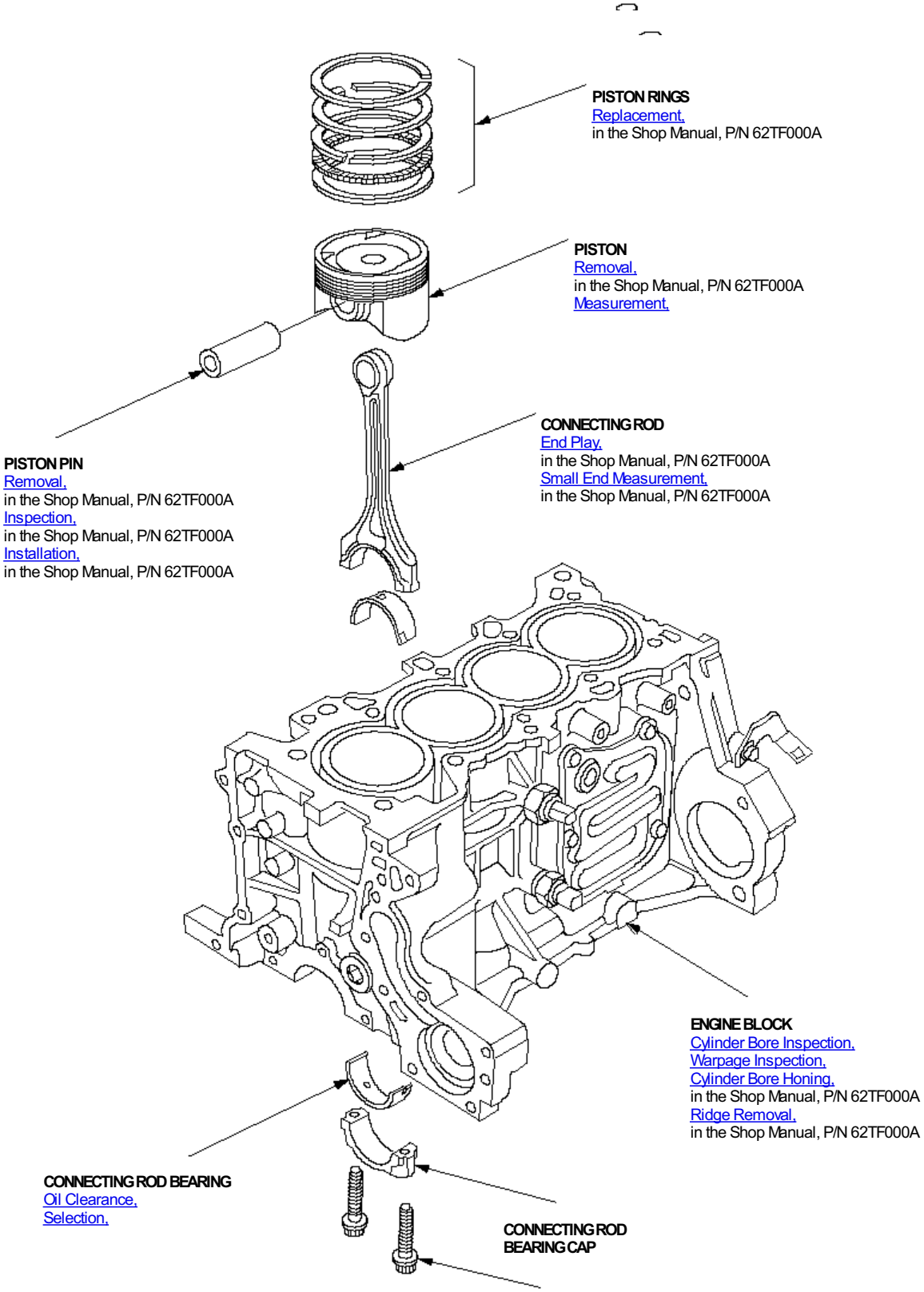
43. With i-SHIFT model: Install the air cleaner stay.
44. Install the front wheels.
45. Install the under-cowl panel.
46. Do the battery reconnection procedure.
47. Do the battery installation procedure.
48. With HID lamp model: If the left side lower arm was removed, do the headlight initial position learning procedure.
49. Refill the transmission with fluid:
    - Manual transmission
    - Automatic transmission
    - i-SHIFT system transmission
50. Install the air cleaner housing assembly.
51. A/T model: Move the shift lever to each gear, and verify that the A/T gear position indicator follows the transmission range switch.
52. M/T model: Check that the transmission shifts into all gear smoothly.
53. With i-SHIFT model: Do the i-SHIFT system learning (static mode).
54. Check the clutch operation.
55. Inspect for fuel leaks. Turn the ignition switch to ON (II) (do not operate the starter) so the fuel pump runs for about 2 seconds and pressurizes the fuel line. Repeat this operation three times, then check for fuel leakage at any point in the fuel line.
56. Refill the radiator with engine coolant, and bleed air from the cooling system with the heater valve open.
57. Refill the engine with engine oil.
58. Do the ECM/PCM reset procedure.
59. Do the crankshaft position (CKP) pattern clear/CKP pattern learn procedure.
60. Inspect the idle speed.
61. Inspect the ignition timing.

Compression

Item	Measurement	Qualification	Standard or New	Service Limit
Compression	Pressure check at 250 rpm (min^{-1}) with wide open throttle. (See Design Specs for ratio)	Minimum	980 kPa (10.0 kgf/cm^2, 142 psi)	———
		Maximum variation	200 kPa (2.0 kgf/cm^2, 28 psi)	———

Engine Block Component Location Index

L15A7 engine



PISTON RINGS
Replacement,
in the Shop Manual, P/N 62TF000A

PISTON
Removal,
in the Shop Manual, P/N 62TF000A
Measurement,

PISTON PIN
Removal,
in the Shop Manual, P/N 62TF000A
Inspection,
in the Shop Manual, P/N 62TF000A
Installation,
in the Shop Manual, P/N 62TF000A

CONNECTING ROD
End Play,
in the Shop Manual, P/N 62TF000A
Small End Measurement,
in the Shop Manual, P/N 62TF000A

ENGINE BLOCK
Cylinder Bore Inspection,
Warpage Inspection,
Cylinder Bore Honing,
in the Shop Manual, P/N 62TF000A
Ridge Removal,
in the Shop Manual, P/N 62TF000A

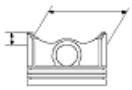
CONNECTING ROD BEARING
Oil Clearance,
Selection,

CONNECTING ROD BEARING CAP

CONNECTING ROD BOLT
Inspection,
in the Shop Manual, P/N 62TF000A

Engine Block and Piston Inspection

1. Remove the crankshaft and the pistons.
2. Check the piston for distortion or cracks.

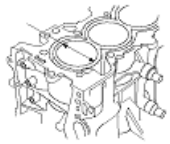


3. Measure the piston diameter (A) at a point 16 mm (0.6 in.) from the bottom of the skirt.

Piston Diameter
L15A7 engine:
Standard (New): 72.980−72.990 mm (2.8732−2.8736 in.)
Service Limit: 72.97 mm (2.8728 in.)
L13Z1 engine:
Standard (New): 72.972−72.982 mm (2.8729−2.8733 in.)
Service Limit: 72.97 mm (2.8728 in.)
L12B1 engine:
Standard (New): 72.972−72.982 mm (2.8729−2.8733 in.)
Service Limit: 72.97 mm (2.8728 in.)

Oversize Piston Diameter
L15A7 engine:
0.25: 73.230−73.240 mm (2.88307−2.88346 in.)
L13Z1 engine:
0.25: 73.222−73.232 mm (2.88275−2.88314 in.)
L12B1 engine:
0.25: 73.225−73.235 mm (2.88287−2.88326 in.)

4. Measure wear and taper in direction Y at three levels in each cylinder as shown. If measurements in any cylinder are beyond the Oversize Bore Service Limit, replace the engine block. If the engine block is to be rebored, refer to Step 7 after reboring.



Cylinder Bore Size

Standard (New): 73.000−73.015 mm (2.8740−2.8746 in.)
Service Limit: 73.065 mm (2.8766 in.)

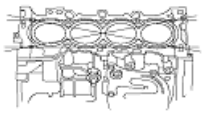
Oversize
0.25: 73.250−73.265 mm (2.8839−2.8844 in.)

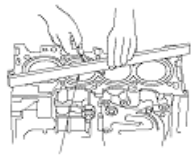
Reboring limit: 0.25 mm (0.01 in.) max.

Bore Taper
Limit: (Difference between first and third measurement) 0.05 mm (0.002 in.)

5. Scored or scratched cylinder bores must be honed.

6. Check the top of the engine block for warpage. Measure along the edges and across the center as shown.

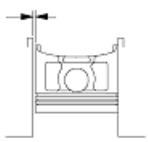




Engine Block Warpage

Standard (New): 0.07 mm (0.003 in.) max.
Service Limit: 0.10 mm (0.004 in.)

7. Calculate the difference between the cylinder bore diameter and the piston diameter. If the clearance is near or exceeds the service limit, inspect the piston and engine block for excessive wear.



Piston-to-Cylinder Clearance

L15A7 engine:
Standard (New): 0.010−0.035 mm (0.0004−0.0014 in.)
Service Limit: 0.05 mm (0.002 in.)
L13Z1 engine:
Standard (New): 0.018−0.043 mm (0.0007−0.0017 in.)
Service Limit: 0.05 mm (0.002 in.)
L12B1 engine:
Standard (New): 0.018−0.043 mm (0.0007−0.0017 in.)
Service Limit: 0.05 mm (0.002 in.)

Block

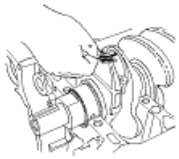
Item	Measurement	Qualification	Standard or New	Service Limit
Block	Warpage of deck		0.07 mm (0.003 in.) max.	0.10 mm (0.004 in.)
	Bore diameter		73.000−73.015 mm (2.8740−2.8746 in.)	73.065 mm (2.8776 in.)
	Bore taper		———	0.05 mm (0.002 in.)
	Reboring limit		———	0.25 mm (0.01 in.)

Connecting rod

Item	Measurement	Qualification	Standard or New	Service Limit
Connecting rod	Pin-to-rod interference		0.019−0.036 mm (0.007−0.0014 in.)	———
	Small-end bore diameter		17.964−17.977 mm (0.707−0.708 in.)	———
	Large-end bore diameter		43.0 mm (1.69 in.)	———
	End play installed on crankshaft		0.15−0.35 mm (0.006−0.014 in.)	0.40 mm (0.016 in.)

Connecting Rod Bearing Replacement

Rod Bearing Clearance Inspection

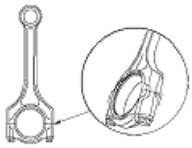


1. To check rod bearing-to-journal oil clearance, remove the bearing cap bridge.
2. Remove the connecting rod cap and bearing half.
3. Clean the crankshaft rod journal and bearing half with a clean shop towel.
4. Place plastigage across the rod journal.
5. Reinstall the bearing half and cap, and torque the bolts to 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft) +90 °.
   NOTE: Do not rotate the crankshaft during inspection.
6. Remove the rod cap and bearing half, and measure the widest part of the plastigage.
   Connecting Rod Bearing-to-Journal Oil Clearance

L15A7 engine:	
Standard (New):	**0.020–0.038 mm (0.0008–0.0015 in.)**
Service Limit:	**0.050 mm (0.0020 in.)**
L13Z1 engine:	
Standard (New):	**0.026–0.044 mm (0.0010–0.0017 in.)**
Service Limit:	**0.050 mm (0.0020 in.)**
L12B1 engine:	
Standard (New):	**0.026–0.044 mm (0.0010–0.0017 in.)**
Service Limit:	**0.050 mm (0.0020 in.)**

7. If the plastigage measures too wide or too narrow, remove the upper half of the bearing, install a new, complete bearing with the same color code(s), and recheck the clearance. Do not file, shim, or scrape the bearings or the caps to adjust clearance.
8. If the plastigage shows the clearance is still incorrect, try the next larger or smaller bearing (the color listed above or below the current one), and check clearance again. If the proper clearance cannot be obtained by using the appropriate larger or smaller bearing, replace the crankshaft and start over.

Rod Bearing Selection



1. Inspect each connecting rod for cracks and heat damage.

Connecting Rod Big End Bore Code Locations

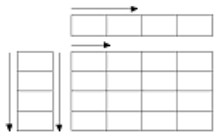
2. Each rod falls into one of four tolerance ranges (from 0 to 0.024 mm (0.0009 in.), in 0.006 mm (0.0002 in.) increments) depending on the size of its big end bore. It's then stamped with a number or bar (1, 2, 3, or 4) indicating the range. You may find any combination of 1, 2, 3, or 4 in any engine.
   If the codes are indecipherable because of an accumulation of dirt and dust, do not scrub them with a wire brush or scraper. Clean them only with solvent or detergent.
   Normal Bore Size: **43.0 mm (1.69 in.)**

Connecting Rod Journal Code Location

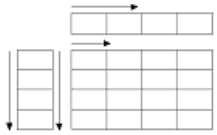
3. The connecting rod journal codes are stamped on the crankshaft.

4. Use the big end bore codes and rod journal codes to select appropriate replacement bearings from the following table.
   NOTE: Color code is on the edge of the bearing.

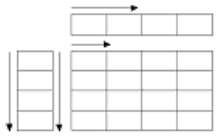
L15A7 engine



L13Z1 engine



L12B1 engine

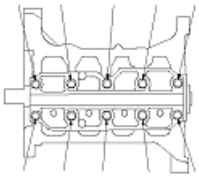


Crankshaft

Item	Measurement	Qualification	Standard or New	Service Limit
Crankshaft	Main journal diameter		49.976−50.000 mm (1.9676−1.9685 in.)	———
	Rod journal diameter		39.976−40.000 mm (1.5739−1.5748 in.)	———
	Rod/main journal taper		0.005 mm (0.0002 in.)	0.010 mm (0.0004 in.)
	Rod/main journal out-of-round		0.005 mm (0.0002 in.)	0.010 mm (0.0004 in.)
	End play		0.10−0.35 mm (0.004−0.014 in.)	0.45 mm (0.018 in.)
	Runout		0.03 mm (0.0012 in.) max.	0.04 mm (0.0016 in.)

Crankshaft Main Bearing Replacement

Main Bearing Clearance Inspection



1. To check main bearing-to-journal oil clearance, remove the bearing cap bridge and bearing halves.
2. Clean each main journal and bearing half with a clean shop towel.
3. Place one strip of plastigage across each main journal.
4. Reinstall the bearings and bearing cap bridge, then tighten the bearing cap bolts to 25 N·m (2.5 kgf·m, 18 lbf·ft) in the proper sequence.
   NOTE: Do not rotate the crankshaft during inspection.
5. Tighten the bearing cap bolts an additional 40 °.

6. Remove the bearing cap bridge and bearings again, and measure the widest part of the plastigage.

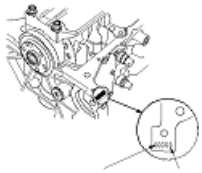
Main Bearing-to-Journal Oil Clearance

Standard (New):	**0.018–0.036 mm (0.0007–0.0014 in.)**
Service Limit:	**0.050 mm (0.0020 in.)**

7. If the plastigage measures too wide or too narrow, remove the crankshaft, and remove the upper half of the bearing. Install a new, complete bearing with the same color code(s), and recheck the clearance. Do not file, shim, or scrape the bearings or the caps to adjust clearance.
8. If the plastigage shows the clearance is still incorrect, try the next larger or smaller bearing (the color listed above or below the current one), and check again. If the proper clearance cannot be obtained by using the appropriate larger or smaller bearings, replace the crankshaft and start over.

Main Bearing Selection

Crankshaft Bore Code Location



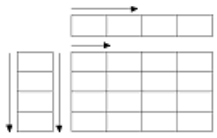
1. Letters have been stamped on the end of the block as a code for the size of each of the five main journal bores. Write down the crank bore codes.
   If you can't read the codes because of accumulated dirt and dust, do not scrub them with a wire brush or scraper. Clean them only with solvent or detergent.

Main Journal Code Location

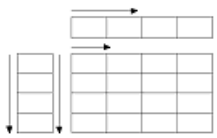
2. The main journal codes are stamped on the crankshaft.

3. Use the crank bore codes and crank journal codes to select the appropriate replacement bearings from the following table.
   NOTE: Color code is on the edge of the bearing.

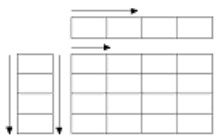
L15A7 engine



L13Z1 engine



L12B1 engine



Crankshaft bearing

Item	Measurement	Qualification	Standard or New	Service Limit
Crankshaft bearing	Main bearing-to-journal oil clearance		0.018−0.036 mm (0.0007−0.0014 in.)	0.050 mm (0.0020 in.)
	Rod bearing clearance	L15A7	0.020−0.038 mm (0.0008−0.0015 in.)	0.050 mm (0.0020 in.)
		L13Z1	0.026−0.044 mm (0.0010−0.0017 in.)	0.050 mm (0.0020 in.)
		L12B1	0.026−0.044 mm (0.0010−0.0017 in.)	0.050 mm (0.0020 in.)

Piston

Item	Measurement	Qualification	Standard or New	Service Limit
Piston	Skirt O.D. at 16 mm (0.6 in.) from bottom of skirt	L12B1	72.975−72.985 mm (2.8730−2.8734 in.)	72.97 mm (2.8728 in.)
		L13Z1	72.972−72.982 mm (2.8729−2.8733 in.)	72.97 mm (2.8728 in.)
		L15A7	72.980−72.990 mm (2.8732−2.8736 in.)	72.97 mm (2.8728 in.)
	Clearance in cylinder	L12B1	0.015−0.040 mm (0.0006−0.0015 in.)	0.05 mm (0.002 in.)
		L13Z1	0.018−0.043 mm (0.0007−0.0017 in.)	0.05 mm (0.002 in.)
		L15A7	0.010−0.035 mm (0.0004−0.0014 in.)	0.05 mm (0.002 in.)
	Ring groove width	Top	1.050−1.060 mm (0.0413−0.0417 in.)	1.080 mm (0.0425 in.)
		Second	1.020−1.030 mm (0.0401−0.0405 in.)	1.050 mm (0.0413 in)
		Oil	2.005−2.020 mm (0.0789−0.0795 in.)	2.050 mm (0.0807 in.)

Piston pin

Item	Measurement	Qualification	Standard or New	Service Limit
Piston pin	O.D.		17.996−18.000 mm (0.7085−0.7087 in.)	———
	Pin-to-piston clearance		0.010−0.017 mm (0.0004−0.0007 in.)	———

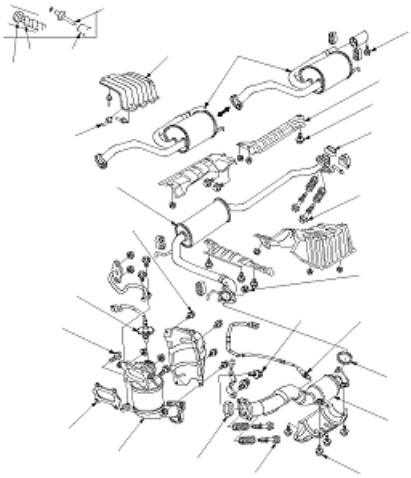
Piston ring

Item	Measurement	Qualification	Standard or New	Service Limit
Piston ring	Ring-to-groove clearance	Top	0.065−0.090 mm (0.0026−0.0035 in.)	0.15 mm (0.006 in.)
		Second	0.030−0.055 mm (0.0012−0.0022 in.)	0.12 mm (0.005 in.)
	Ring end gap	Top	0.15−0.30 mm (0.006−0.012 in.)	0.60 mm (0.024 in.)
		Second	0.30−0.42 mm (0.012−0.017 in.)	0.65 mm (0.026 in.)
		Oil	0.20−0.70 mm (0.008−0.028 in.)	0.80 mm (0.031 in.)

Exhaust Pipe and Muffler Replacement

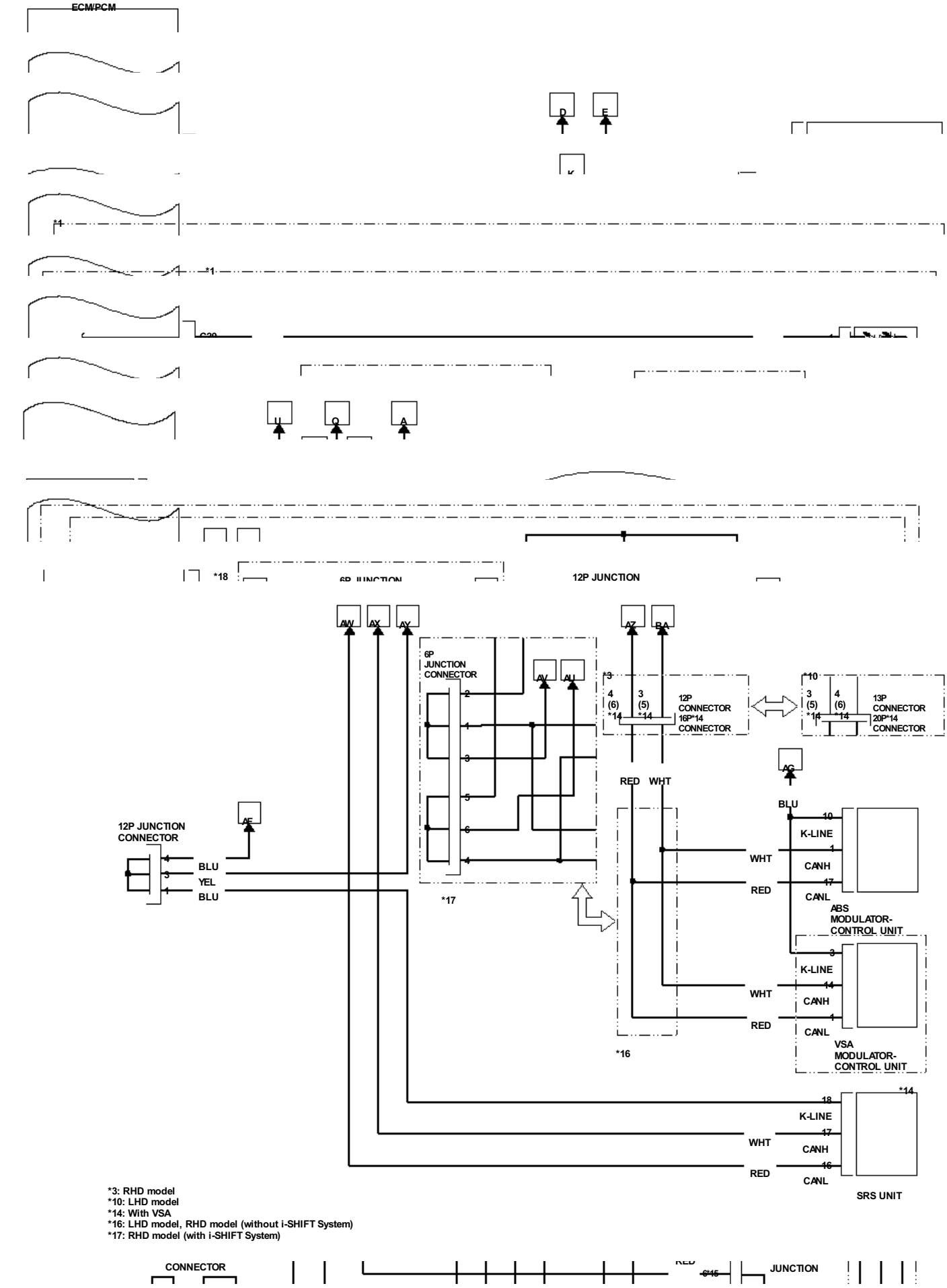
KE, KG models

NOTE: Use new gaskets and self-locking nuts when reassembling.

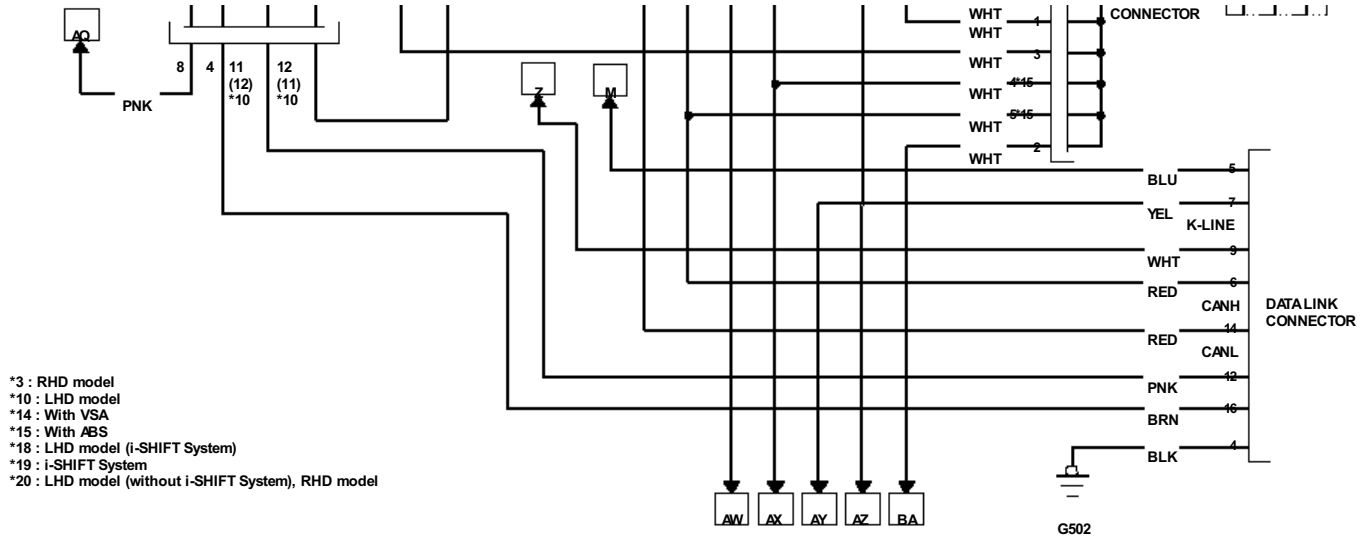


Fuel and Emissions Systems Circuit Diagram

ECM/PCM Circuit Diagram



*3: RHD model
*10: LHD model
*14: With VSA
*16: LHD model, RHD model (without i-SHIFT System)
*17: RHD model (with i-SHIFT System)



*3 : RHD model
*10 : LHD model
*14 : With VSA
*15 : With ABS
*18 : LHD model (i-SHIFT System)
*19 : i-SHIFT System
*20 : LHD model (without i-SHIFT System), RHD model

Engine will not start (MIL works OK, no DTCs set)

Diagnostic procedure

1. Test the battery.
2. Test the starter.
3. Check the fuel pressure.
4. Troubleshoot the fuel pump circuit.

Also check for

- Low compression
- No ignition spark
- Intake vacuum leaks
- Locked up engine
- Broken cam chain
- Fuel contamination

Engine will not start (MIL comes on and stays on, no DTCs set)

Diagnostic procedure

1. Troubleshoot the DLC circuit.

Also check for

- Low compression
- No ignition spark
- Intake vacuum leaks
- Locked up engine
- Broken cam chain
- Fuel contamination
- No power to ECM/PCM
- No ground to ECM/PCM
- Shorted reference voltage

MIL comes on and stays on, or never comes on at all, no DTCs set

Diagnostic procedure

1. Troubleshoot the MIL circuit.

Engine will not start (MIL works OK, no DTCs set, immobilizer indicator stays on or flashes)

Diagnostic procedure

1. Check the immobilizer system.

Engine starts but stalls immediately (MIL works OK, no DTCs set, immobilizer indicator stays on or flashes)

Diagnostic procedure

1. Check the immobilizer system.

Also check for

- Camshaft timing
- Low compression
- Intake vacuum leaks
- Fuel contamination
- Weak spark

Engine is hard to start (MIL works OK, no DTCs set)

Diagnostic procedure

1. Test the battery.
2. Check the fuel pressure.
3. Test the throttle body.

Also check for

- Low compression
- Intake vacuum leaks
- Fuel contamination
- Weak spark

Cold fast idle too low (MIL works OK, no DTCs set)

Diagnostic procedure

1. Do the ECM/PCM idle learn procedure.
2. Check the idle speed.
3. Throttle body cleaning.

Also check for

- Incorrect valve adjustment

Cold fast idle too high (MIL works OK, no DTCs set)

Diagnostic procedure

1. Do the ECM/PCM idle learn procedure.
2. Check the idle speed.
3. Test the throttle body.

Also check for

- Incorrect valve adjustment

After warming up, idle speed is below specifications without load (MIL works OK, no DTCs set)

Diagnostic procedure

1. Troubleshoot the alternator FR signal circuit.
2. Test the throttle body.

Also check for

- Intake vacuum leaks
- Incorrect valve adjustment

After warming up, idle speed is above specifications without load (MIL works OK, no DTCs set)

Diagnostic procedure

1. Troubleshoot the alternator FR signal circuit.
2. Inspect the APP sensor.

Also check for

- Intake vacuum leaks

Idle speed fluctuates (MIL works OK, no DTCs set)

Diagnostic procedure

1. Do the ECM/PCM idle learn procedure.
2. Test the fuel pressure.
3. Except FO, KE, KG, KQ, KU models: Test the injectors.
4. Troubleshoot the alternator FR signal circuit.
5. Inspect the PCV valve.
6. Test the throttle body.
7. Troubleshoot the A/C signal circuit.
8. Troubleshoot the VTEC system oil pressure.

Also check for

- Fuel contamination
- Intake vacuum leaks

Misfire or rough running (MIL works OK, no DTCs set)

Diagnostic procedure

1. Check the spark plugs.
2. Test the fuel pressure.
3. Test the injectors.
4. Troubleshoot the fuel pump circuit.
5. Troubleshoot the VTEC system oil pressure.

Also check for

- Low compression
- Valve clearance
- Fuel contamination

Fails emission test (MIL works OK, no DTCs set)

Diagnostic procedure

1. Except FO, KE, KG, KQ, KU models: Inspect the three way catalytic converter (TWC).
2. Except FO, KE, KG, KQ, KU models: Check the spark plugs.
3. Test the fuel pressure.
4. Except FO, KE, KG, KQ, KU models: Test the injectors.
5. Check the EVAP system.
6. Troubleshoot the VTEC system oil pressure.

Also check for

- Fuel contamination
- Low compression
- Broken cam chain

Low power (MIL works OK, no DTCs set)

Diagnostic procedure

1. Test the fuel pressure.
2. Check the air cleaner element.
3. Test the throttle body.
4. Except FO, KE, KG, KQ, KU models: Inspect the three way catalytic converter (TWC).
5. Except FO, KE, KG, KQ, KU models: Test the injectors.
6. Troubleshoot the VTEC system oil pressure.

Also check for

- Fuel contamination
- Low compression
- Camshaft timing
- Engine oil level

Engine stalls (MIL works OK, no DTCs set)

Diagnostic procedure

1. Do the ECM/PCM idle learn procedure.
2. Test the fuel pressure.
3. Check the idle speed.
4. Troubleshoot the brake pedal position switch signal circuit.
5. Except FO, KE, KG, KQ, KU models: Check the spark plugs.
6. Troubleshoot the VTEC system oil pressure.

Also check for

- Intake vacuum leaks
- Faulty harness and sensor connections
- Fuel contamination

Engine oil level indicator (amber) stays on or flashes, or CHECK SYSTEM (CHECK OIL LEVEL SENSOR) display is on (MIL works OK, no DTCs set)

Diagnostic procedure

1. Inspect the engine oil level sensor.

Difficult to refuel

Diagnostic procedure

1. Inspect the breather line and the suction line.

HDS does not communicate with the ECM/PCM or the vehicle

Diagnostic procedure

1. Troubleshoot the DLC circuit.

Fuel and Emissions Systems Symptom Troubleshooting Index

When the vehicle has one of these symptoms, check for a diagnostic trouble code (DTC) with the HDS. If there is no DTC, do the diagnostic procedure for the symptom, in the sequence listed, until you find the cause.

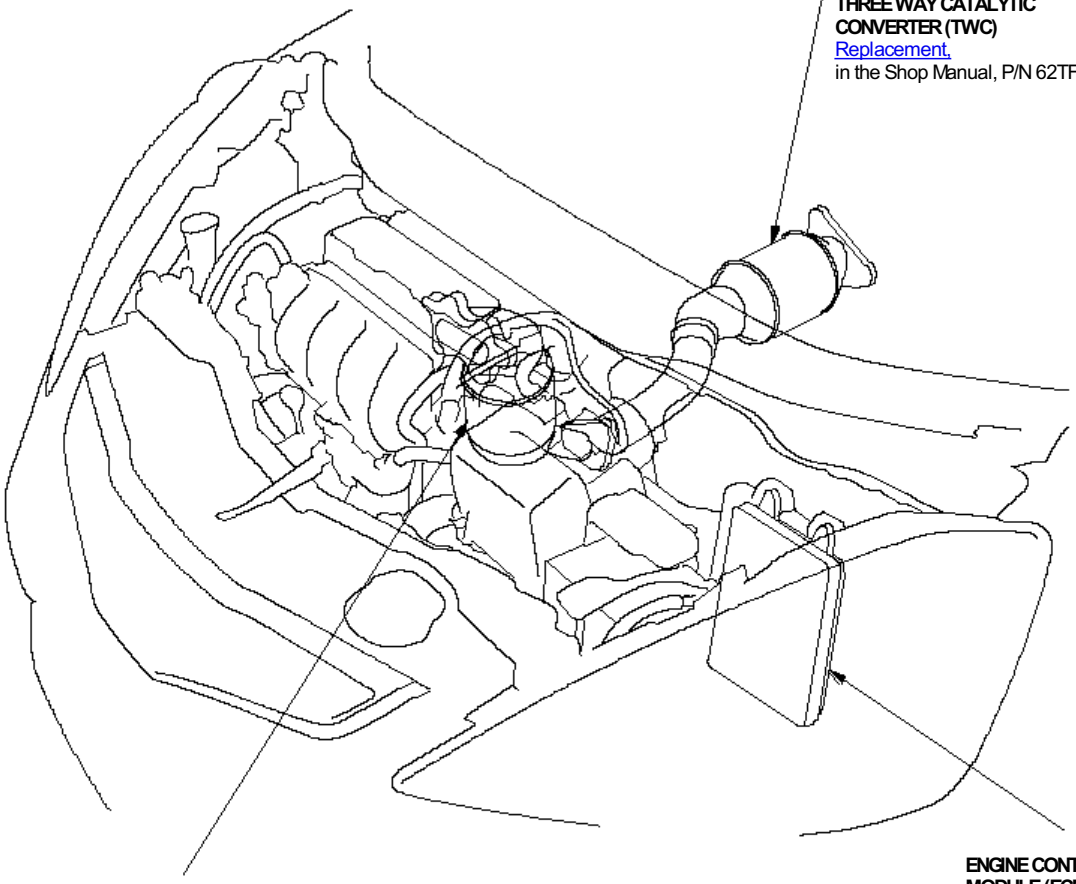
Symptom	Diagnostic procedure	Also check for
Engine will not start (MIL works OK, no DTCs set)	1. Test the battery. 2. Test the starter. 3. Check the fuel pressure. 4. Troubleshoot the fuel pump circuit.	• Low compression • No ignition spark • Intake vacuum leaks • Locked up engine • Broken cam chain • Fuel contamination
Engine will not start (MIL comes on and stays on, no DTCs set)	Troubleshoot the DLC circuit.	• Low compression • No ignition spark • Intake vacuum leaks • Locked up engine • Broken cam chain • Fuel contamination • No power to ECM/PCM • No ground to ECM/PCM • Shorted reference voltage
MIL comes on and stays on, or never comes on at all, no DTCs set	Troubleshoot the MIL circuit.	
Engine will not start (MIL works OK, no DTCs set, immobilizer indicator stays on or flashes)	Check the immobilizer system.	
Engine starts but stalls immediately (MIL works OK, no DTCs set, immobilizer indicator stays on or flashes)	Check the immobilizer system.	• Camshaft timing • Low compression • Intake vacuum leaks • Fuel contamination • Weak spark
Engine is hard to start (MIL works OK, no DTCs set)	1. Test the battery. 2. Check the fuel pressure. 3. Test the throttle body.	• Low compression • Intake vacuum leaks • Fuel contamination • Weak spark
Cold fast idle too low (MIL works OK, no DTCs set)	1. Do the ECM/PCM idle learn procedure. 2. Check the idle speed. 3. Throttle body cleaning.	Incorrect valve adjustment
Cold fast idle too high (MIL works OK, no DTCs set)	1. Do the ECM/PCM idle learn procedure. 2. Check the idle speed. 3. Test the throttle body.	Incorrect valve adjustment
After warming up, idle speed is below specifications without load (MIL works OK, no DTCs set)	1. Troubleshoot the alternator FR signal circuit. 2. Test the throttle body.	• Intake vacuum leaks • Incorrect valve adjustment
After warming up, idle speed is above specifications without load (MIL works OK, no DTCs set)	1. Troubleshoot the alternator FR signal circuit. 2. Inspect the APP sensor.	Intake vacuum leaks
Idle speed fluctuates (MIL works OK, no DTCs set)	1. Do the ECM/PCM idle learn procedure. 2. Test the fuel pressure. 3. Except FO, KE, KG, KQ, KU models: Test the injectors. 4. Troubleshoot the alternator FR signal circuit. 5. Inspect the PCV valve. 6. Test the throttle body. 7. Troubleshoot the A/C signal circuit. 8. Troubleshoot the VTEC system oil pressure.	• Fuel contamination • Intake vacuum leaks
Misfire or rough running (MIL works OK, no DTCs set)	1. Check the spark plugs. 2. Test the fuel pressure. 3. Test the injectors. 4. Troubleshoot the fuel pump circuit. 5. Troubleshoot the VTEC system oil pressure.	• Low compression • Valve clearance • Fuel contamination
Fails emission test (MIL works OK, no DTCs set)	1. Except FO, KE, KG, KQ, KU models: Inspect the three way catalytic 2. converter (TWC). 3. Except FO, KE, KG, KQ, KU models: Check the spark plugs. 4. Test the fuel pressure. 5. Except FO, KE, KG, KQ, KU models: Test the injectors. 6. Check the EVAP system. Troubleshoot the VTEC system oil pressure.	• Fuel contamination • Low compression • Broken cam chain

Symptom	Diagnostic procedure	Also check for
Low power (MIL works OK, no DTCs set)	1. Test the fuel pressure. 2. Check the air cleaner element. 3. Test the throttle body. 4. Except FO, KE, KG, KQ, KU models: Inspect the three way catalytic 5. converter (TWC). 6. Except FO, KE, KG, KQ, KU models: Test the injectors. Troubleshoot the VTEC system oil pressure.	• Fuel contamination • Low compression • Camshaft timing • Engine oil level
Engine stalls (MIL works OK, no DTCs set)	1. Do the ECM/PCM idle learn procedure. 2. Test the fuel pressure. 3. Check the idle speed. 4. Troubleshoot the brake pedal position switch signal circuit. 5. Except FO, KE, KG, KQ, KU models: Check the spark plugs. 6. Troubleshoot the VTEC system oil pressure.	• Intake vacuum leaks • Faulty harness and sensor connections • Fuel contamination
Engine oil level indicator (amber) stays on or flashes, or CHECK SYSTEM (CHECK OIL LEVEL SENSOR) display is on (MIL works OK, no DTCs set)	Inspect the engine oil level sensor.	
Difficult to refuel	Inspect the breather line and the suction line.	
HDS does not communicate with the ECM/PCM or the vehicle	Troubleshoot the DLC circuit.	
SIL never comes on	Troubleshoot shift indicator lamp.	
When the clutch pedal pressed, light out of SIL is slow	Troubleshoot shift indicator lamp.	
SIL does not work once in a while	Troubleshoot shift indicator lamp.	
Shift up indicator lamp does not come on, or shift down indicator lamp does not come on	Check for body electrical system DTCs.	
SIL stays on	Check for body electrical system DTCs.	

Fuel and Emissions System Description - Vacuum Lines

[Vacuum Hose Routing]
[Vacuum Distribution]

Catalytic Converter System Component Location Index



UNDER-FLOOR THREE WAY CATALYTIC CONVERTER (TWC)
Replacement,
in the Shop Manual, P/N 62TF000A

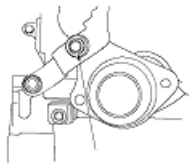
WARM UP THREE WAY CATALYTIC CONVERTER (WU-TWC)
Replacement,

ENGINE CONTROL MODULE (ECM)/ POWERTRAIN CONTROL MODULE (PCM)
General Troubleshooting Information,
Substituting,
Update,
in the Shop Manual, P/N 62TF000A
Replacement,
in the Shop Manual, P/N 62TF000A

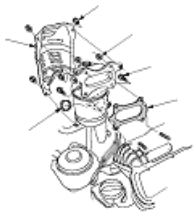
*: This illustration shows RHD model.

TWC (Warm Up) Removal/Installation

1. Lift the vehicle, and support it with jackstands.
2. Remove the bolt (A).
3. Remove the EGR pipe (KE, KG models).
4. Remove the cowl cover and under cowl-cover panel.
5. Remove the A/F sensor (Sensor 1).



6. Remove the cover (A).
7. Remove the bolts (B) and the nuts (C).
8. Remove the WU-TWC from the gaskets (D).



9. Remove the WU-TWC (A).
10. Install the parts in the reverse order of removal with new gaskets.

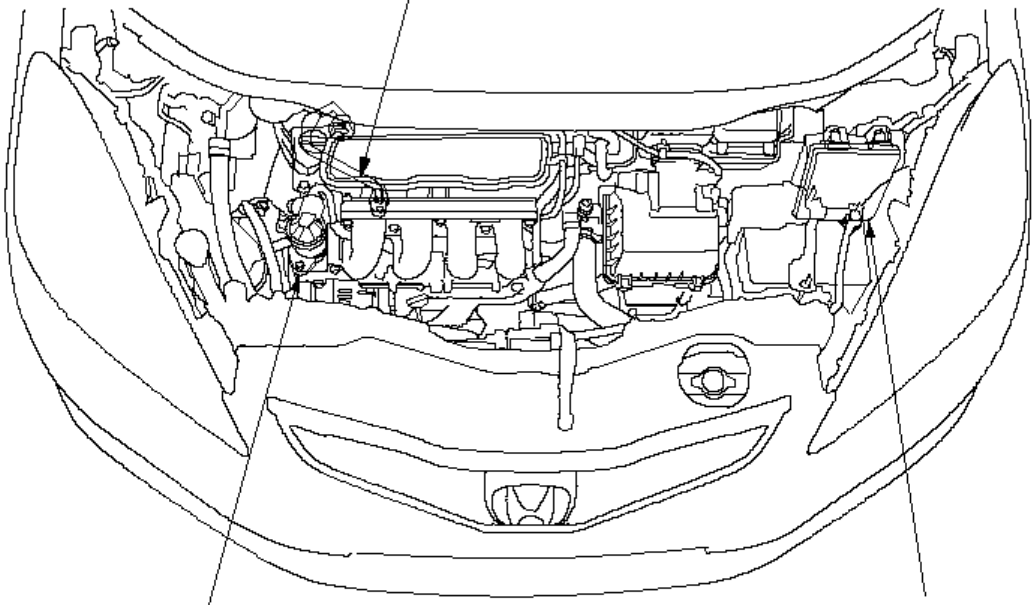
Fuel and Emissions System Description - EGR System

Exhaust Gas Recirculation (EGR) System (KE, KG models)

Fuel and Emissions System Description - EGR System Diagram

Exhaust Gas Recirculation (EGR) System Diagram (KE, KG models)

EGR System Component Location Index



EXHAUST GAS RECIRCULATION (EGR) PIPE
Removal/Installation,

EXHAUST GAS RECIRCULATION (EGR) VALVE
Replacement,

ENGINE CONTROL MODULE (ECM)/ POWERTRAIN CONTROL MODULE (PCM)
General Troubleshooting Information,
Substitution,
Update,
in the Shop Manual, P/N 62TF000A
Replacement,
in the Shop Manual, P/N 62TF000A

*: This illustration shows RHD model.

EGR Pipe Removal/Installation

Removal

1. Lift the vehicle, and support it with jackstands.
2. Remove the engine undercover (KE, KG models).
3. Remove the bolts (A) and nuts (B).
4. Remove the EGR pipe (C).

Installation

1. Install the EGR pipe to the water passage side, tighten the nuts (A) by the hand with a new gasket (B).
2. Install the EGR pipe to the TWC side, tighten the bolts (C) by the hand with a new gasket (D). Then tighten the bolts of TWC side.
3. Tighten the nuts of water passage side.
4. Install the engine undercover (KE, KG models).

EGR Valve Replacement

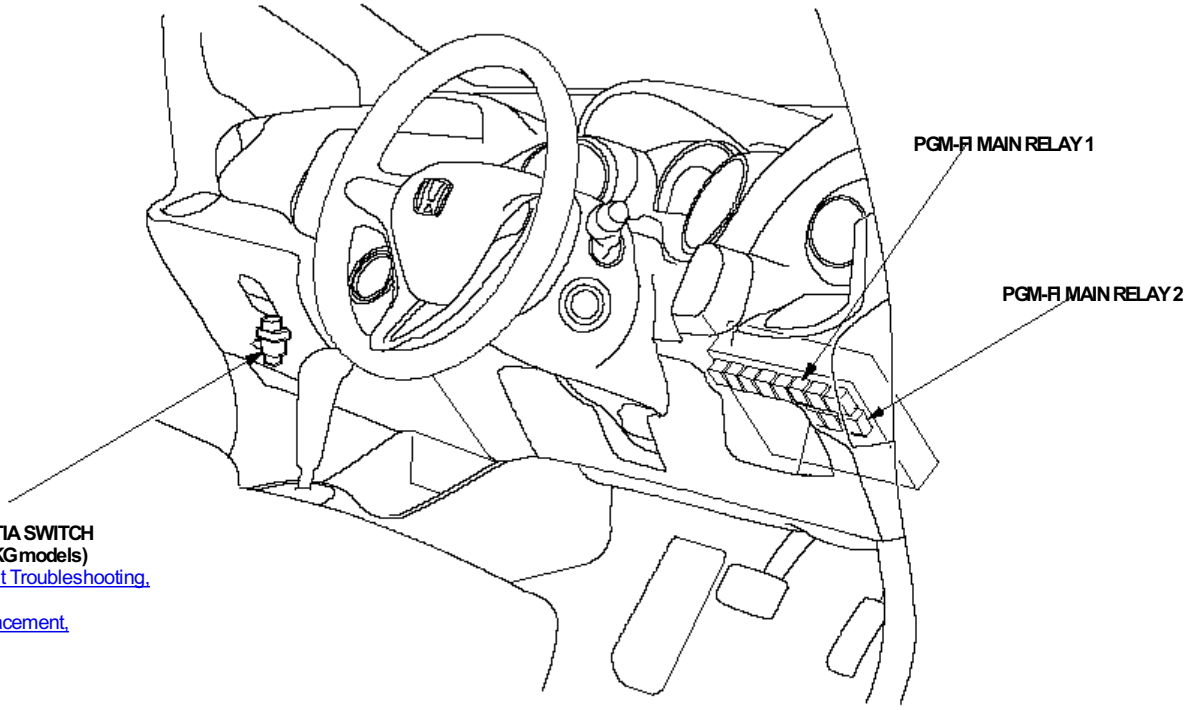
1. Disconnect the EGR valve 6P connector (A).
2. Remove the EGR valve (B).
3. Install the parts in the reverse order of removal with a new gasket (C).

Fuel and Emissions System Description - Fuel Supply System

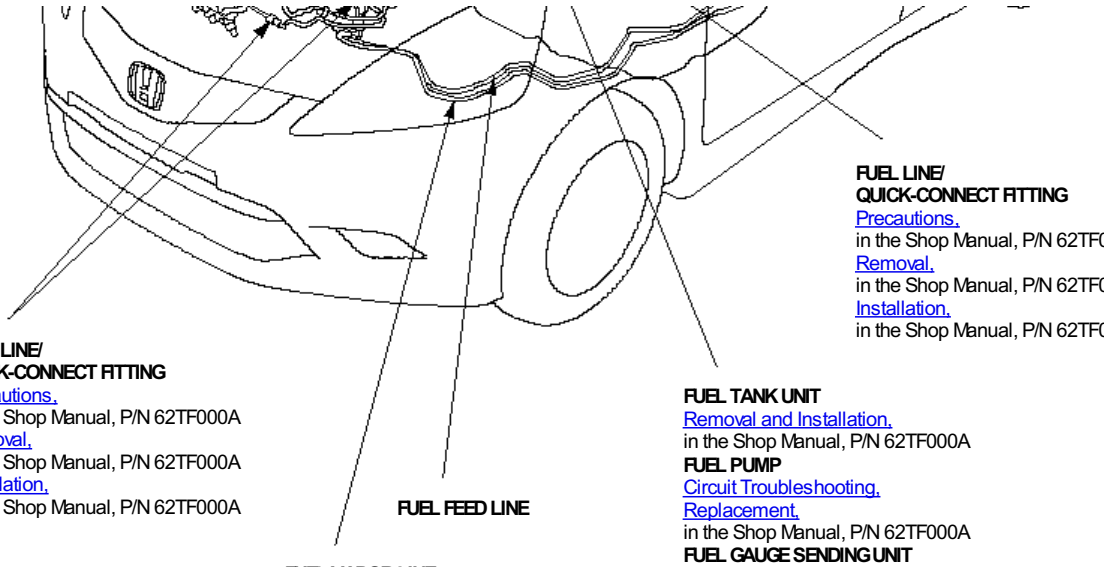
Fuel Supply System

Fuel Supply System Component Location Index

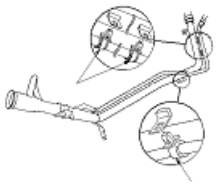
RHD model



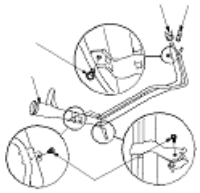
*: This illustration shows RHD model.



Fuel Fill Pipe Removal/Installation



1. Drain the fuel tank.
2. Remove the fuel fill cap.
3. Lift the vehicle, and support it with jackstands.
4. Remove the left rear wheel.
5. Remove the floor undercover (KE, KG models).
6. Remove the axle beam.
7. Remove the EVAP canister filter pipe clamp (A) (LHD model).



8. Disconnect the fuel fill tube (A) and the breather tube (B) from the fuel fill pipe. Slide back the clamp, then twist the hose as you pull to avoid damaging them.
9. Remove the fuel fill pipe (C).
10. Install the parts in the reverse order of removal.

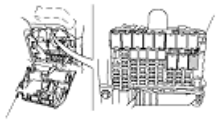
Fuel pressure regulator

Item	Measurement	Qualification	Standard or New
Fuel pressure regulator	Pressure with fuel pressure gauge connected		320−370 kPa (3.3−3.8 kgf/cm ^{2} , 47−54 psi)

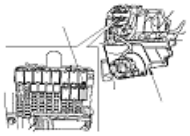
Fuel Pump Circuit Troubleshooting

If you suspect a problem with the fuel pump, check that the fuel pump actually runs; when it is on, you will hear some noise if you listen to the fuel fill port with the fuel fill cap removed. The fuel pump should run for 2 seconds when the ignition switch is turned on. If the fuel pump does not make noise, check as follows:

RHD model



LHD model



1. Turn the ignition switch to LOCK (0).
2. Open the fuse lid (A), then remove PGM-FI main relay 2 (B) from the under-dash fuse/relay box.
3. Turn the ignition switch to ON (II).

---

4. Measure the voltage between PGM-FI main relay 2 4P connector terminal No. 4 and body ground.

Is there battery voltage?
YES - Go to Step 5 .
NO -
- Replace the under-dash fuse/relay box. ■
- Replace the PGM-FI main relay 1 .■

---

5. Measure the voltage between PGM-FI main relay 2 4P connector terminal No. 2 and body ground.

Is there battery voltage?
YES - Go to Step 11 .
NO - KE, KG models: Go to Step 6 .
Except KE, KG models:

- Check the No. 20 FUEL PUMP (15 A) fuse in the under-dash fuse/relay box.■
- If the fuse is OK, replace the under-dash fuse/relay box. ■

6. Turn the ignition switch to LOCK (0).
7. Disconnect the inertia switch 3P connector.

---

8. Connect inertia switch 3P connector terminals No. 1 and No. 3 with a jumper wire.
9. Turn the ignition switch to ON (II).

---

10. Measure the voltage between PGM-FI main relay 2 4P connector terminal No. 2 body ground.

Is there battery voltage?
YES - Replace the inertia switch.
NO -
- Replace the No. 20 FUEL PUMP (15 A) fuse in the under-dash fuse/relay box.■
- Replace the under-dash fuse/relay box. ■
- Repair open in wire between inertia switch and under-dash fuse/relay box.■

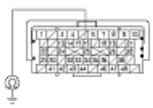
11. Turn the ignition switch to LOCK (0).

---

12. Connect PGM-FI main relay 2 4P connector terminal No. 3 to body ground with a jumper wire.
13. Jump the SCS line with the HDS.
14. Disconnect ECM/PCM connector A (49P).

---

15. Check for continuity between body ground and ECM/PCM connector terminal A16.

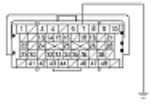


Is there continuity?
YES - Go to Step 11 .
NO - Repair open in the wire between PGM-FI main relay 2 and the ECM/PCM (A16).■

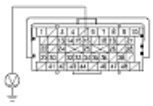
16. Reinstall PGM-FI main relay 2.

---

17. Connect ECM/PCM connector terminal A7 to body ground with a jumper wire.
18. Turn the ignition switch to ON (II).



19. Measure the voltage between ECM/PCM connector terminal A16 and body ground.



Is there battery voltage?

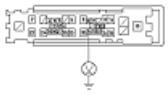
YES - Go to Step 15 .

NO -
- Repair open in the wire between the under-dash fuse/relay box and the ECM/PCM (A7, A16).■
- Replace PGM-FI main relay 2. ■

20. Turn the ignition switch to LOCK (0).

21. Reconnect ECM/PCM connector A (49P).

22. Turn the ignition switch to ON (II), and measure the voltage between under-dash fuse/relay box connector B (36P) terminal No. 31 and body ground within 2 seconds.

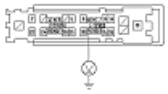


Is there battery voltage?

YES - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■

NO - Go to Step 18 .

23. Turn the ignition switch to ON (II), and measure the voltage between under-dash fuse/relay box connector B (36P) terminal No. 31 and body ground after 2 seconds.



Is there battery voltage?

YES - Go to Step 19 .

NO - If needed, replace the under-dash fuse/relay box, then go to Step 19 .

24. Turn the ignition switch to LOCK (0).

25. Remove the center console.

26. Remove the parking brake lever, then remove the access panel from the floor.

27. Turn the ignition switch to ON (II), and measure the voltage between fuel tank unit 4P connector terminal No. 2 and body ground within 2 seconds.

Is there battery voltage?

YES - Go to Step 27 .

NO - Go to Step 23 .

28. Turn the ignition switch to LOCK (0).

29. Remove PGM-FI main relay 2.

30. Connect PGM-FI main relay 2 4P connector terminals No. 1 and No. 2 with a jumper wire.

31. Turn the ignition switch to ON (II), and measure the voltage between fuel tank unit 4P connector terminal No. 2 and body ground.

Is there battery voltage?

YES - Replace PGM-FI main relay 2 .■

NO - Repair open in the wire between PGM-FI main relay 2 and the fuel tank unit 4P connector.■

32. Turn the ignition switch to LOCK (0).

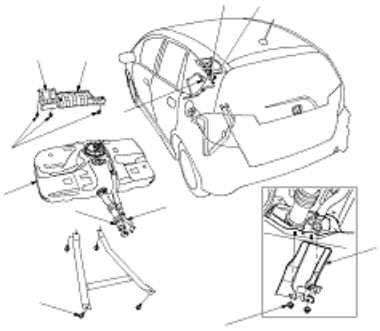
33. Check for continuity between fuel tank unit 4P connector terminal No. 4 and body ground.

Is there continuity?

YES - Replace the fuel pump. ■

NO - Repair open in the wire between the fuel tank unit 4P connector and G502. ■

Fuel Tank Replacement



1. Drain the fuel tank, then disconnect the fuel tank unit 4P connector (A), the fuel vapor hose (B), and the quick-connect fittings (C).
2. Lift the vehicle, and support it with jackstands.
3. Remove the floor undercover (KE, KG models).
4. Remove the fill neck tube cover (D), then disconnect the fuel fill tube (E) and the suction hose (F). Slide back the clamps, then twist the hoses as you pull to avoid damaging them.
5. Remove the fuel tank guard bracket (G) and the fuel tank protector (H).
6. Place a jack or other support under the tank (I).
7. Remove the strap bolts and the straps (J).
8. Remove the fuel tank.
9. Install the parts in the reverse order of removal.

Fuel tank

Item	Measurement	Qualification	Standard or New
Fuel tank	Capacity		42 L (11.0 US gal, 9.2 Imp gal)

Inertia Switch Replacement

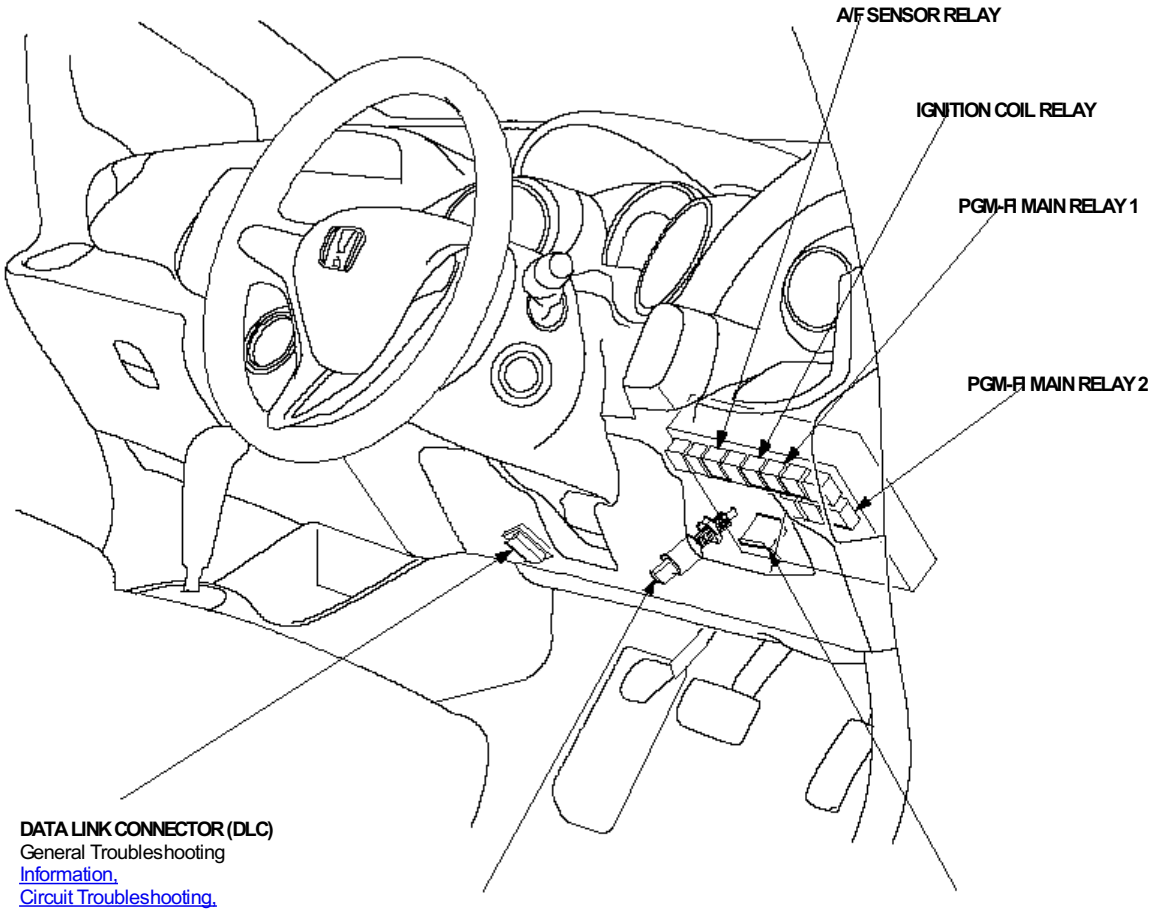
KE, KG models

1. Remove the passenger's side kick panel.
2. Disconnect the inertia switch 3P connector (A).
3. Remove the inertia switch (B).
4. Install the parts in the reverse order of removal.

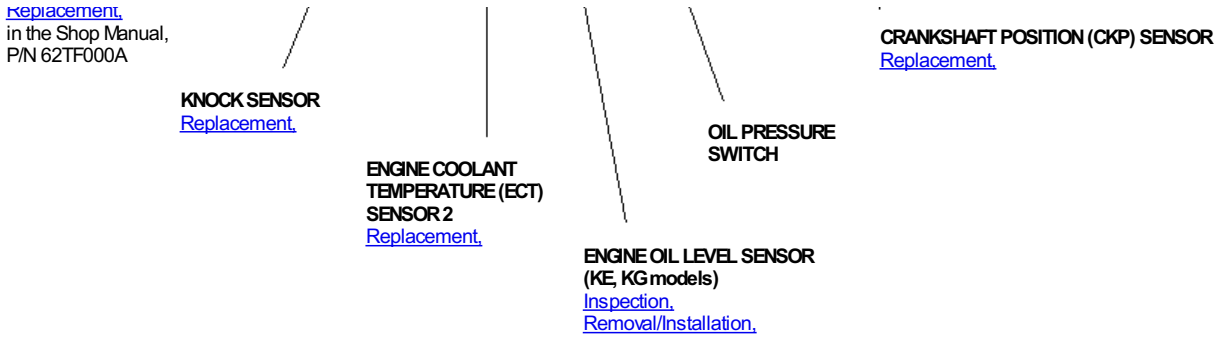
Fuel and Emissions System Description - PGM-FI System: Supplement

PGM-FI System

PGM-FI System Component Location Index



*: This illustration shows RHD model.

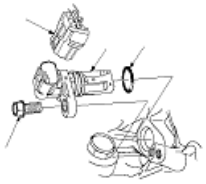


*: This illustration shows RHD model.

CKP Sensor Replacement

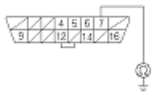
1. Lift the vehicle, and support it with jackstands.
2. Remove the engine undercover (KE, KG models).
3. Remove the CKP sensor cover (A).

4. Disconnect the CKP sensor connector (A).
5. Remove the CKP sensor (B).
6. Install the parts in the reverse order of removal with a new O-ring (C).
7. Do the CKP pattern clear/CKP pattern learn procedure.



DLC Circuit Troubleshooting

NOTE: Make sure the and the DLC cable of the HDS is normal.



1. Turn the ignition switch to LOCK (0).
2. Connect the HDS to the DLC.
   NOTE: Make sure the HDS is properly connected to the DLC.
3. Turn the ignition switch to ON (II), and read the HDS.

   Does the HDS identify the vehicle?
   YES - Go to Step 4 .
   NO - Go to Step 23 .
4. Check for Temporary DTCs or DTCs in the PGM-FI system with the HDS.

   Are any Temporary DTCs or DTCs indicated?
   YES - Go to the indicated DTC's troubleshooting.■
   NO -
   - If the HDS does not communicate with the SRS system, go to Step 5 .
   - If the HDS does not communicate with the VSA system, go to Step 7 .
   - If the HDS does not communicate with the ABS system, go to Step 9 .
   - If the HDS does not communicate with the EPS system, go to Step 11 .
   - If the HDS does not communicate with the IMMOBI (immobilizer) system, go to Step 13 .
   - If the HDS does not communicate with the BODY ELECTRICAL system, go to Step 15 .
5. Turn the ignition switch to LOCK (0).
6. Turn the ignition switch to ON (II), and watch the SRS indicator.

   Does the SRS indicator stay on?
   YES - Go to the SRS system's general troubleshooting information. ■
   NO - Go to Step 15 .
7. Turn the ignition switch to LOCK (0).
8. Turn the ignition switch to ON (II), and watch the VSA indicator.

   Does the VSA indicator stay on?
   YES - Go to the VSA system's general troubleshooting information. ■
   NO - Go to Step 15 .
9. Turn the ignition switch to LOCK (0).
10. Turn the ignition switch to ON (II), and watch the ABS indicator.

    Does the ABS indicator stay on?
    YES - Go to the ABS system's general troubleshooting information. ■
    NO - Go to Step 15 .
11. Turn the ignition switch to LOCK (0).
12. Turn the ignition switch to ON (II), and watch the EPS indicator.

    Does the EPS indicator stay on?
    YES - Go to the EPS system's general troubleshooting information. ■
    NO - Go to Step 15 .
13. Turn the ignition switch to LOCK (0).
14. Turn the ignition switch to ON (II), and watch the immobilizer indicator.

    Does the immobilizer indicator stay on or flash?
    YES - Go to the immobilizer system's troubleshooting. ■
    NO - Go to Step 15 .
15. Do the gauge self-diagnostic function.
16. Check the gauge display.

    Is Error 2 indicated?
    YES - Check for B-CAN system DTCs.■
    NO - Go to Step 17 .
17. Turn the ignition switch to LOCK (0).
18. Disconnect the HDS from the DLC.
19. Check for continuity between DLC terminal No. 7 and body ground.

    Is there 5 Ω or less?
    YES - Go to Step 20 .

NO - Go to Step 21 .

20. Continue to check for continuity between DLC terminal No. 7 and body ground, while disconnecting these parts, one at a time:
    - SRS unit connector A (39P)
    - VSA modulator-control unit 36P connector
    - ABS modulator-control unit 25P connector
    - EPS control unit connector C (16P)
    - Immobilizer-keyless control unit 7P connector
    - Audio unit 24P connector
    - Under-dash fuse/relay box connector Q (16P)

    Does continuity go away when one of the above components is disconnected?
    YES - Replace the part caused an open when it was disconnected.■
    NO - Repair short in the wire between the DLC (K-line) and the VSA modulator-control unit, the ABS modulator-control unit, the SRS unit, the EPS control unit, the immobilizer-keyless control unit, the audio unit, the under-dash fuse/relay box.■

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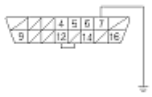
21. Connect DLC terminal No. 7 to body ground with a jumper wire.

22. Check for continuity between body ground and these connector terminals:



Connector	Terminal
SRS unit A (39P)	No. 18 (BLU)
ABS control unit 25P	No. 10 (BLU)
VSA control unit 36P	No. 3 (BLU)
EPS control unit C (16P)	No. 16 (BLU)
Immobilizer-keyless control unit 7P	No. 5 (BLU)
Audio unit 24P	No. 3 (BLU)
Under-dash fuse/relay box (Q) (16P)	No. 2 (BLU)

    Is there continuity between the DLC terminal and each of the terminals in the chart?
    YES - Replace the part that does not communicate with the HDS.■
    NO - Repair open in the wire between the DLC (K-line) and the appropriate connector.■

23. Check for B-CAN system DTCs without the HDS.

    Is DTC U0029 and/or U0100 indicated?
    YES - Go to Step 36 .
    NO - Go to Step 24 .

24. Turn the ignition switch to LOCK (0).

25. Disconnect the HDS from the DLC.

---

26. Measure the voltage between DLC terminal No. 16 and body ground.

    Is there battery voltage?
    YES - Go to Step 27 .
    NO - Repair open in the wire between DLC terminal No. 16 and the No. 1 BACK UP (7.5 A) fuse in the under-dash fuse/relay box.■

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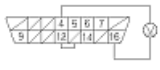
27. Measure the voltage between DLC terminals No. 4 and No. 16.



    Is there battery voltage?
    YES - Go to Step 28 .
    NO - Repair open in the wire between DLC terminal No. 4 and body ground (G502).■

28. Connect the HDS to the DLC.

29. Jump the SCS line with the HDS.

30. Disconnect ECM/PCM connector A (49P).

31. Disconnect the HDS from the DLC.

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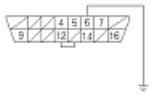
32. Connect DLC terminal No. 6 to body ground with a jumper wire.



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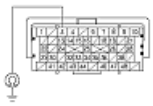
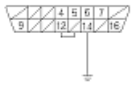
33. Check for continuity between ECM/PCM connector terminal A3 and body ground.

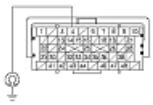


Is there continuity?
YES - Go to Step 34 .
NO - Repair open in the wire between the ECM/PCM (A3) and DLC terminal No. 6.■

34. Connect DLC terminal No. 14 to body ground with a jumper wire.



35. Check for continuity between ECM/PCM connector terminal A4 and body ground.



Is there continuity?
YES - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■
NO - Repair open in the wire between the ECM/PCM (A4) and DLC terminal No. 14.■

36. Try to start the engine.

Does the engine start and idle smoothly?
YES - Go to F-CAN circuit troubleshooting. ■
NO - Go to Step 37 .

37. Turn the ignition switch to LOCK (0).

38. Check the No. 60 IGSW (50 A) fuse in the under-dash fuse/relay box.

Is the fuse OK?
YES - Repair open in the wire the No. 60 IGSW (50 A) fuse and the ignition switch. If the wire is OK go to Step 39 .
NO - Repair short in the wire the No. 60 IGSW (50 A) fuse and the under-dash fuse/relay box. Also replace the No. 60 IGSW (50 A) fuse.■

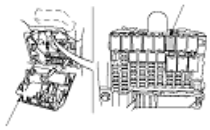
39. Inspect the No. 39 IGP (15 A) fuse in the under-dash fuse/relay box.

Is the fuse OK?
YES - Go to Step 46 .
NO - Go to Step 40 .

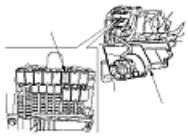
40. Remove the blown No. 39 IGP (15 A) fuse from the under-dash fuse/relay box.

41. Open the fuse lid (A), then remove the PGM-FI main relay 1 (B) from the under-dash fuse/relay box.

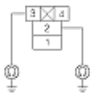
RHD model



LHD model



42. Check for continuity between body ground and PGM-FI main relay 1 4P connector terminals No. 2 and No. 3 individually.



Is there continuity?
YES - Replace the under-dash fuse/relay box. ■
NO - Go to Step 43 .

43. While disconnecting each of the parts or connectors below, one at a time, check for continuity between PGM-FI main relay 1 4P connector terminal No. 1 and body ground.
    - PGM-FI main relay 2
    - ECM/PCM connector A (49P)
    - Each injector 2P connector
    - Camshaft position (CMP) sensor 3P connector
    - Crankshaft position (CKP) sensor 3P connector
    - Electronic throttle control system (ETCS) control relay

    Does continuity go away when one of the above components is disconnected?
    YES - Replace the part that made the short to body ground go away when disconnected. If the part is the ECM/PCM, update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. Also replace the No. 39 IGP (15 A) fuse.■
    NO - Go to Step 44 .

44. Disconnect these parts or connectors:
    - PGM-FI main relay 2
    - ECM/PCM connector A
    - Injectors
    - Camshaft position (CMP) sensor
    - Crankshaft position (CKP) sensor
    - Electronic throttle control system (ETCS) control relay

---

45. Check for continuity between PGM-FI main relay 1 4P connector terminal No. 1 and body ground.

    Is there continuity?
    YES - Repair short in the wire between PGM-FI main relay 1 and each item. Also replace the No. 39 IGP (15 A) fuse.■
    NO - Replace PGM-FI main relay 1. Also replace the No. 39 IGP (15 A) fuse.■

46. Inspect the No. 20 FUEL PUMP (15 A) fuse in the under-dash fuse/relay box.

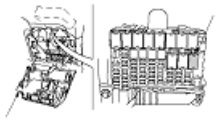
    Is the fuse OK?
    YES - Go to Step 56 .
    NO - Go to Step 47 .

47. Remove the blown No. 20 FUEL PUMP (15 A) fuse from the under-dash fuse/relay box.

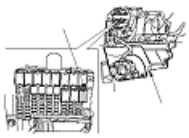
---

48. Open the fuse lid (A), then remove the PGM-FI main relay 2 (B) from the under-dash fuse/relay box.

RHD model



LHD model



49. Test PGM-FI main relay 2.

    Is the relay OK?
    YES - Go to Step 50 .
    NO - Replace PGM-FI main relay 2. Also replace the No. 20 FUEL PUMP (15 A) fuse.■

---

50. Check for continuity between PGM-FI main relay 2 4P connector terminal No. 2 and body ground.

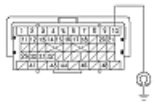
    Is there continuity?
    YES - Go to Step 51 .
    NO - Go to Step 54 .

51. Jump the SCS line with the HDS.

52. Disconnect ECM/PCM connector A (49P).

---

53. Check for continuity between ECM/PCM connector terminal C10 and body ground.



    Is there continuity?
    YES - Repair short in the wire between the No. 20 FUEL PUMP (15 A) fuse and the ECM/PCM (C10), or PGM-FI main relay 2. Also replace the No. 20 FUEL PUMP (15 A) fuse.■
    NO - Replace the No. 20 FUEL PUMP (15 A) fuse, and update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■

54. Disconnect the fuel pump 4P connector.

---

55. Check for continuity between fuel pump 4P connector terminal No. 2 and body ground.

Is there continuity?
YES - Repair short in the wire between the fuel pump and PGM-FI main relay 2. Also replace the No. 20 FUEL PUMP (15 A) fuse.■
NO - Check the fuel pump, and replace it if necessary. Also replace the No. 20 FUEL PUMP (15 A) fuse.■

56. Jump the SCS line with the HDS.

57. Disconnect ECM/PCM connectors A (49P) and C (49P).

58. Turn the ignition switch to ON (II).

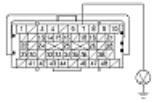
---

59. Measure the voltage between ECM/PCM connector terminal C10 and body ground.

Is there battery voltage?
YES - Go to Step 60 .
NO - Repair open in the wire between the No. 20 FUEL PUMP (15 A) fuse and the ECM/PCM (C10).■

---

60. Measure the voltage between ECM/PCM connector terminal A7 and body ground.



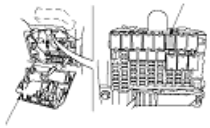
Is there battery voltage?
YES - Go to Step 66 .
NO - Go to Step 61 .

61. Turn the ignition switch to LOCK (0).

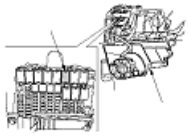
---

62. Open the fuse lid (A), then remove the PGM-FI main relay 1 (B) from the under-dash fuse/relay box.

RHD model



LHD model



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63. Measure the voltage between PGM-FI main relay 1 4P connector terminal No. 3 and body ground.

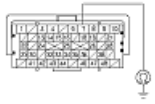
Is there battery voltage?
YES - Go to Step 64 .
NO - Replace the under-dash fuse/relay box. ■

---

64. Connect PGM-FI main relay 1 4P connector terminal No. 4 to body ground with a jumper wire.

---

65. Check for continuity between ECM/PCM connector terminal A7 and body ground.



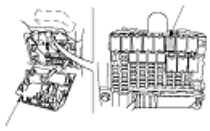
Is there battery voltage?
YES - Test PGM-FI main relay 1. If the relay is OK, update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■
NO - Repair open in the wire between the ECM/PCM (A7) and PGM-FI main relay 1.■

66. Turn the ignition switch to LOCK (0).

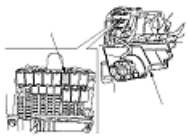
---

67. Open the fuse lid (A), then remove the PGM-FI main relay 1 (B) from the under-dash fuse/relay box.

RHD model



LHD model



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68. Measure the voltage between PGM-FI main relay 1 4P connector terminal No. 2 and body ground.

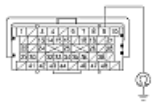
Is there battery voltage?
YES - Go to Step 69 .
NO - Replace the under-dash fuse/relay box. ■

---

69. Connect PGM-FI main relay 1 4P connector terminal No. 1 to body ground with a jumper wire.

---

70. Check for continuity between ECM/PCM connector terminal A9 and body ground.



Is there continuity?
YES - Go to Step 71 .
NO - Repair open in the wire between the ECM/PCM (A9) and PGM-FI main relay 1.■

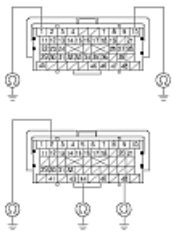
71. Test PGM-FI main relay 1.

Is PGM-FI main relay 1 OK?
YES - Go to Step 72 .
NO - Replace the PGM-FI main relay 1 .■

72. Disconnect ECM/PCM connector B (49P).

---

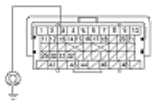
73. Check for continuity between body ground and ECM/PCM connector terminals B1, B10, C2, C44, and C48 individually.



Is there continuity?
YES - Go to Step 74 .
NO - Repair open in the wire between the ECM/PCM (B1, B10, C2, C44, C48) and G101.■

---

74. Check for continuity between ECM/PCM connector terminal C13 and body ground.



Is there continuity?
YES - Go to Step 75 .
NO - Go to Step 76 .

75. Continue to check for continuity between ECM/PCM connector terminal C13 and body ground, while disconnecting these parts, one at a time:
    - MAP sensor 3P connector
    - Output shaft (countershaft) speed sensor 3P connector

Does continuity go away when one of the above components is disconnected?
YES - Repair the part that caused an open when it was disconnected.■
NO - Repair short in the between the ECM/PCM (C13) and the MAP sensor or the output shaft (countershaft) speed sensor.■

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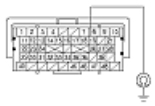
76. Check for continuity between ECM/PCM connector terminal B19 and body ground.



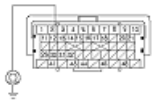
Is there continuity?
YES - Go to Step 77 .
NO - Go to Step 78 .

77. Continue to check for continuity between ECM/PCM connector terminal B19 and body ground, while disconnecting the input shaft (mainshaft) speed sensor 3P connector.

Is there continuity?
YES - Repair short in the wire between the ECM/PCM (B19) and the input shaft (mainshaft) speed sensor.■
NO - Replace the input shaft (mainshaft) speed sensor. ■

---

78. Check for continuity between ECM/PCM connector terminal C12 and body ground.



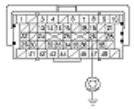
Is there continuity?
YES - Go to Step 79 .
NO - Go to Step 80 .

79. Continue to check for continuity between ECM/PCM connector terminal C12 and body ground, while disconnecting the throttle body 6P connector.

Is there continuity?
YES - Repair short in the wire between the ECM/PCM (C12) and the throttle body.■
NO - Replace the throttle body. ■

---

80. Check for continuity between ECM/PCM connector terminal A26 and body ground.



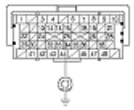
Is there continuity?
YES - Go to Step 81 .
NO - Go to Step 82 .

81. Continue to check for continuity between ECM/PCM connector terminal A26 and body ground, while disconnecting the APP sensor 6P connector.

Is there continuity?
YES - Repair short in the wire between the ECM/PCM (A26) and APP sensor A.■
NO - Replace the accelerator pedal module. ■

---

82. Check for continuity between ECM/PCM connector terminal A25 and body ground.

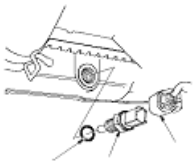


Is there continuity?
YES - Go to Step 83 .
NO - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■

83. Continue to check for continuity between ECM/PCM connector terminal A25 and body ground, while disconnecting the APP sensor 6P connector.

Is there continuity?
YES - Repair short in the wire between the ECM/PCM (A25) and APP sensor B.■
NO - Replace the accelerator pedal module. ■

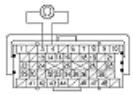
ECT Sensor 2 Replacement



1. Lift the vehicle, and suppor it with jackstands.
2. Remove the engine undercover (KE, KG models).
3. Drain the engine coolant.
4. Disconnect the ECT sensor 2 connector (A), then remove ECT sensor 2 (B).
5. Install the parts in the reverse order of removal with a new O-ring (C), then refill the radiator with engine coolant.

F-CAN Circuit Troubleshooting

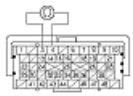
NOTE: Information marked with an asterisk (*) applies to the CANL line.



1. Turn the ignition switch to LOCK (0).
2. Jump the SCS line with the HDS.
3. Disconnect ECM/PCM connector A (49P), then disconnect the HDS.
4. Measure the resistance between ECM/PCM connector terminals A3 and A4.

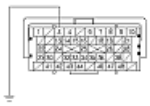
   Is there about 108−132 Ω?
   YES - Go to Step 44 .
   NO - Go to Step 5 .

5. Disconnect these connectors:
   - Gauge control module 32P.
   - VSA modulator-control unit 36P (With VSA).
   - Yaw rate-lateral/longitudinal acceleration sensor 5P (With VSA).
   - ABS modulator-control unit 25P.
   - EPS control unit C (16P).
   - SRS unit A (39P).
   - Engine compartment wire harness (i-SHIFT System).
   - Gear shift control module (i-SHIFT System).



6. Check for continuity between ECM/PCM connector terminals A3 and A4.

   Is there continuity?
   YES - Repair short in the wire between ECM/PCM terminals A3 and A4 * .■
   NO - Go to Step 7 .



7. Connect ECM/PCM connector terminal A3 to body ground with a jumper wire.

---

8. Check for continuity between gauge control module 32P connector terminal No. 30 and body ground.

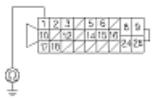
   Is there continuity?
   YES -
   - With VSA: Go to Step 9 .
   - With ABS: Go to Step 10 .

   NO - Repair open in the wire between the ECM/PCM (A3) and the gauge control module.■

---

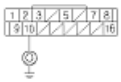
9. Check for continuity between VSA modulator-control unit 36P connector terminal No. 14 and body ground.

   Is there continuity?
   YES - Go to Step 11 .
   NO - Repair open in the wire between the ECM (A3) and the VSA modulator-control unit.■



10. Check for continuity between ABS modulator-control unit 25P connector terminal No. 1 and body ground.

    Is there continuity?
    YES - Go to Step 11 .
    NO - Repair open in the wire between the ECM/PCM (A3) and the ABS modulator-control unit.■



11. Check for continuity between EPS control unit connector C (16P) terminal No. 10 and body ground.

    Is there continuity?
    YES -
    - With i-SHIFT System: Go to Step 12 .
    - Without i-SHIFT System: Go to Step 13 .

    NO - Repair open in the wire between the ECM/PCM (A3) and the EPS control unit.■

---

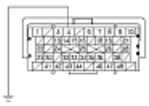
12. Check for continuity between engine compartment wire harness 10P connector terminal No. 7 and body ground.

    Is there continuity?
    YES - Go to Step 13 .
    NO -
    - Repair open in the wire between the ECM (A3) and the engine compartment wire harness.■
    - Check the clutch actuator wire harness for an open.■

13. Remove the jumper wire from ECM/PCM connector A (49P).

---

14. Connect ECM/PCM connector terminal A4 to body ground with a jumper wire.



15. Check for continuity between gauge control module 32P connector terminal No. 29 and body ground.

Is there continuity?

YES -
- With VSA: Go to Step 16 .
- With ABS: Go to Step 17 .

NO - Repair open in the wire between the ECM/PCM (A4) and the gauge control module.■

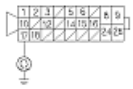
16. Check for continuity between VSA modulator-control unit 36P connector terminal No. 1 and body ground.

Is there continuity?

YES - Go to Step 18 .

NO - Repair open in the wire between the ECM (A4) and the VSA modulator-control unit.■

17. Check for continuity between ABS modulator-control unit 25P connector terminal No. 17 and body ground.



Is there continuity?

YES - Go to Step 18 .

NO - Repair open in the wire between the ECM/PCM (A4) and the ABS modulator-control unit.■

18. Check for continuity between EPS control unit connector C (16P) terminal No. 9 and body ground.

Is there continuity?

YES -
- With i-SHIFT System: Go to Step 19 .
- Without i-SHIFT System: Go to Step 20 .

NO - Repair open in the wire between the ECM/PCM (A4) and the EPS control unit.■

19. Check for continuity between engine compartment wire harness 10P connector terminal No. 6 and body ground.

Is there continuity?

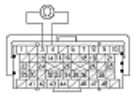
YES - Go to Step 20 .

NO -
- Repair open in the wire between the ECM (A4) and the engine compartment wire harness.■
- Check the clutch actuator wire harness for an open.■

20. Remove the jumper wire from ECM/PCM connector A (49P).

21. Reconnect the gauge control module 32P connector.

22. Measure the resistance between ECM/PCM connector terminals A3 and A4.



Is there about 108−132 Ω?

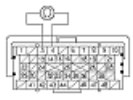
YES -
- With VSA: Go to Step 23 .
- With ABS: Go to Step 29 .

NO - Substitute a known-good gauge control module, If the HDS identifies the vehicle, replace the original gauge control module. ■

23. Disconnect the gauge control module 32P connector.

24. Reconnect the VSA modulator-control unit 36P connector.

25. Measure the resistance between ECM connector terminals A3 and A4.



Is there about 2.34−2.86 kΩ?

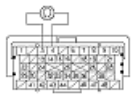
YES - Go to Step 26 .

NO - Substitute a known-good VSA modulator-control unit, If the HDS identifies the vehicle, replace the original VSA modulator-control unit. ■

26. Disconnect the VSA modulator-control unit 36P connector.

27. Reconnect the yaw rate-lateral/longitudinal acceleration sensor 5P connector.

28. Measure the resistance between ECM connector terminals A3 and A4.



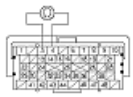
Is there about 2.34–2.86 Ω?
YES - Go to Step 32 .
NO - Substitute a known-good yaw rate-lateral/longitudinal acceleration sensor, If the HDS identifies the vehicle, replace the original yaw rate-lateral/longitudinal acceleration sensor. ■

29. Disconnect the gauge control module 32P connector.

30. Reconnect the ABS modulator-control unit 25P connector.

---

31. Measure the resistance between ECM/PCM connector terminals A3 and A4.



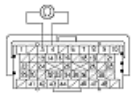
Is there about 2.34–2.86 kΩ?
YES - Go to Step 32 .
NO - Substitute a known-good ABS modulator-control unit, If the HDS identifies the vehicle, replace the original ABS modulator-control unit. ■

32. Disconnect the yaw rate-lateral/longitudinal acceleration sensor 5P connector (With VSA) or ABS modulator-control unit 25P connector (With ABS).

33. Reconnect EPS control unit connector C (16P).

---

34. Measure the resistance between ECM/PCM connector terminals A3 and A4.



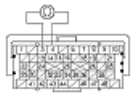
Is there about 2.34–2.86 kΩ?
YES - Go to Step 35 .
NO - Substitute a known-good EPS control unit, If the HDS identifies the vehicle, replace the original EPS control unit. ■

35. Disconnect EPS control unit connector C (16P).

36. Reconnect SRS unit connector A (39P).

---

37. Measure the resistance between ECM/PCM connector terminals A3 and A4.



Is there about 2.34–2.86 kΩ?
YES -
- With i-SHIFT System: Go to Step 38 .
- Without i-SHIFT System:
  Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■

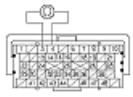
NO - Substitute a known-good SRS unit, If the HDS identifies the vehicle, replace the original SRS unit. ■

38. Disconnect SRS unit connector A (39P).

39. Reconnect the engine compartment wire harness 10P connector.

---

40. Measure the resistance between ECM connector terminals A3 and A4.



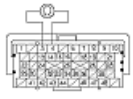
Is there about 2.34–2.86 kΩ?
YES - Go to Step 41 .
NO -
- Check the clutch actuator wire harness for an open or short.■
- Substitute a known-good TCM, If the HDS identifies the vehicle, replace the original TCM. ■

41. Disconnect engine compartment wire harness 10P connector.

42. Reconnect gear shift control module 12P connector.

---

43. Measure the resistance between ECM connector terminals A3 and A4.

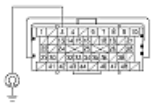


Is there about 2.34–2.86 kΩ?
YES - Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■
NO - Substitute a known-good gear shift control module. If the HDS identifies the vehicle, replace the original gear shift control module. ■

44. Disconnect these connectors:
- Gauge control module 32P.
- VSA modulator-control unit 36P (With VSA).
- Yaw rate-lateral/longitudinal acceleration sensor 5P (With VSA).
- ABS modulator-control unit 25P.
- EPS control unit C (16P).
- SRS unit A (39P).
- Engine compartment wire harness (i-SHIFT System).
- Gear shift control module (i-SHIFT System).

---

45. Check for continuity between ECM/PCM connector terminal A3 and body ground.



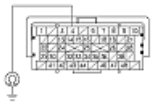
Is there continuity?

YES - Repair short in the wire between ECM/PCM terminals A3 and the gauge control module, the VSA modulator-control unit, the yaw rate-lateral/longitudinal acceleration sensor, the ABS modulator-control unit, the EPS control unit, the SRS unit, the TCM, the gear shift control module, or the DLC.■

NO - Go to Step 46 .

---

46. Check for continuity between ECM/PCM connector terminal A4 and body ground.



Is there continuity?

YES - Repair short in the wire between ECM/PCM terminals A4 and the gauge control module, the VSA modulator-control unit, the yaw rate-lateral/longitudinal acceleration sensor, the ABS modulator-control unit, the EPS control unit, the SRS unit, the TCM, the gear shift control module, or the DLC.■

NO - Go to Step 47 .

47. Reconnect all connectors.

48. Connect the HDS to the DLC.

49. Disconnect the gauge control module 32P connector.

50. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES - Replace the gauge control module. ■

NO -
- With VSA: Go to Step 51 .
- With ABS: Go to Step 59 .

51. Turn the ignition switch to LOCK (0).

52. Reconnect the gauge control module 32P connector.

53. Disconnect the VSA modulator-control unit 36P connector.

54. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES - Replace the VSA modulator-control unit. ■

NO - Go to Step 55 .

55. Turn the ignition switch to LOCK (0).

56. Reconnect the VSA modulator-control unit 36P connector.

57. Disconnect the yaw rate-lateral/longitudinal acceleration sensor 5P connector.

58. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES - Replace the yaw rate-lateral/longitudinal acceleration sensor. ■

NO - Go to Step 63 .

59. Turn the ignition switch to LOCK (0).

60. Reconnect gauge control module 32P connector.

61. Disconnect ABS modulator-control unit 25P.

62. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES - Replace the ABS modulator-control unit. ■

NO - Go to Step 63 .

63. Turn the ignition switch to LOCK (0).

64. Reconnect the yaw rate-lateral/longitudinal acceleration sensor 5P connector (With VSA) or ABS modulator-control unit 25P connector (With ABS).

65. Disconnect EPS control unit connector C (16P).

66. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES - Replace the EPS control unit. ■

NO - Go to Step 67 .

67. Turn the ignition switch to LOCK (0).

68. Reconnect EPS control unit connector D (28P).

69. Disconnect SRS unit connector A (39P).

70. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES - Replace the SRS unit. ■

NO -
- With i-SHIFT System: Go to Step 71 .
- Without i-SHIFT System:
  Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■

71. Turn the ignition switch to LOCK (0).

72. Reconnect SRS unit connector A (39P).

73. Disconnect the engine compartment wire harness 10P connector.

74. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES - Replace the clutch actuator (TCM). ■

NO - Go to Step 75 .

75. Turn the ignition switch to LOCK (0).

76. Reconnect the engine compartment wire harness 10P connector.

77. Disconnect the gear shift control module 12P connector

78. Turn the ignition switch to ON (II), and read the HDS.

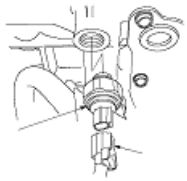
Does the HDS identify the vehicle?

YES - Replace the gear shift control module. ■

NO - Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

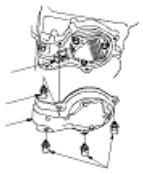
Knock Sensor Replacement

1. Remove the dipstick.
2. Disconnect the knock sensor 1P connector (A).
3. Remove the knock sensor (B).
4. Install the parts in the reverse order of removal.



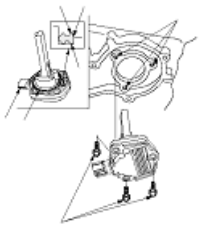
Engine Oil Level Sensor Removal/Installation

1. Remove the engine undercover.
2. Drain the engine oil.
3. Remove the bolts (A), the engine oil level sensor cover (B), and the engine oil level sensor connector (C).
   NOTE: If the cover is damaged, replace it.



4. Remove the bolts (A), then remove the engine oil level sensor (B) from the oil pan (C).
   NOTE:
   - To avoid damaging the oil pan and the sensor mounting surface, do not use sharp tools when removing the sensor.
   - If you find any damage at the oil level sensor, replace it.
5. Clean the surface around the engine oil level sensor mounting hole at the oil pan if there is oil, dirt or grease.
   NOTE: Do not make and scratch or damage at the engine oil level sensor mounting surface.

6. Install the parts in the reverse order of removal, noting these items:
   - Use a new O-ring (A), and make sure it is not twisted when you install it.
   - Remove any oil, dirt or grease from the O-ring groove on the sensor (B), the bolts (C), and the bolt holes (D).
   - Be careful not to scratch the sensor mounting surfaces.
   - Do not cover the sensor connector (E) with oil.
   - Make sure the oil level sensor O-ring surface (F) is 1.0 mm±0.15 mm from the sensor (all around) (G).
7. Install the engine oil drain bolt and refill the engine oil to maximum level.
8. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (in neutral) until the radiator fan comes on, then let it idle for more than 10 minutes.
9. Check the ENGINE OIL LEVEL MONITOR CONDITION in the DATA LIST with the HDS.
   - If it is ACTIVE, go to Step 10 .
   - If it is INACTIVE, install a new sensor, then go to Step 7 .
10. Turn the ignition switch to LOCK (0), wait 3 minutes, then measure the engine oil level. If needed, adjust the engine oil to maximum level.
11. Start the engine, and let it idle for 5 minutes.
12. Check the ENGINE OIL LEVEL in the DATA LIST with the HDS and note it.
13. Stop the engine, leave the ignition switch to ON (II), and wait 3 minutes.
14. Check the ENGINE OIL LEVEL in the DATA LIST with the HDS, and compare it with the level you noted in Step 12 .
    - If the level changed more than 2 mm, the engine oil level sensor is OK.
    - If the level did not change more than 2 mm, install a new sensor, then go to Step 6 .
15. Check for oil leaks around the sensor.
    - If there are no leaks, go to Step 16 .
    - If you find a leak, repair it, then go to Step 16 .



16. Install the engine oil level sensor cover (A), and torque the bolts.
17. Install the engine undercover.

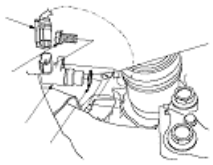
Engine Oil Level Sensor Inspection

NOTE:

- This procedure checks the engine oil level sensor normality.
- Do this procedure at a flat place.
- Make sure that the customer hasn't added oil before doing this procedure.
- Check for any oil leaks before doing this procedure.
- Make sure the vehicle has the genuine oil level gauge.
- Check for Temporary DTCs or DTCs with the HDS before doing this procedure. If any Temporary DTCs or DTCs are indicated, troubleshoot them first, then do this procedure.

1. Start the engine. Hold the engine speed at 3,000 rpm (min^{-1}) without load (in neutral) until the radiator fan comes on.
2. Turn the ignition switch to LOCK (0), and wait 5 minutes.
3. Check the engine oil level with the oil level gauge.
   - If the engine oil level is OK, and the engine oil wasn't added by the customer after the engine oil display came on, replace the engine oil level sensor, then go to Step 4 .
   - If the engine oil level is not in the proper level, adjust the engine oil level, then go to Step 1 and recheck.
4. Start the engine. Hold the engine speed at 3,000 rpm (min^{-1}) without load (in neutral) until the radiator fan comes on.
5. Check for Temporary DTCs or DTCs with the HDS.
   - If there are no DTCs indicated, the engine oil level sensor is OK.
   - If any Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.

Output Shaft (Countershaft) Speed Sensor Replacement



1. Lift the vehicle, and support it with jackstands.
2. Remove the engine undercover (KE, KG models).
3. Disconnect the output shaft (countershaft) speed sensor 3P connector (A).
4. Remove the output shaft (countershaft) speed sensor (B).
5. Install the parts in the reverse order of removal with a new O-ring (C).

Fuel and Emissions System Description - SIL

Shift Indicator Lamp (SIL) (KE, KG models (M/T))

SIL Troubleshooting

NOTE: Check for Temporary DTCs or DTCs with the HDS before doing this procedure. If any DTCs are indicated, troubleshoot them first, then do this procedure.

1. Connect the HDS to the DLC.
2. Start the engine.
3. Test-drive several minutes.
4. Check the C SHAFT SPD in the DATA LIST with the HDS.

   In any vehicle speed indicated?
   YES - Go to Step 5 .
   NO - Go to troubleshooting P0720.
5. Do the gauge self-diagnostic function. ■

   Is the result OK?
   YES - Go to Step 6 .
   NO - Substitute a known-good gauge control module, and recheck. If the symptom/indication goes away with a known-good gauge control module, replace the original gauge control module.
6. Do the APP sensor signal inspection. ■

   Is the result OK?
   YES - Go to Step 7 .
   NO - Depending on the result, replace the appropriate part.■
7. Do the brake pedal position switch signal circuit troubleshooting. ■

   Is the result OK?
   YES - Go to Step 8 .
   NO - Depending on the result, repair or replace the appropriate part.■
8. Turn the ignition switch to LOCK (0).
9. Check clutch pedal position switch A position. ■

   Is a position proper?
   YES - Go to Step 10 .
   NO - Do the clutch pedal and clutch pedal position switch A adjustment. ■
10. Turn the ignition switch to ON (II).
11. Check CLUTCH PEDAL POSITION SWITCH A in the DATA LIST with the HDS.

    Is OFF indicated?
    YES - Go to Step 12 .
    NO - Go to Step 28 .
12. Press the clutch pedal.
13. Check CLUTCH PEDAL POSITION SWITCH A in the DATA LIST with the HDS.

    Is ON indicated?
    YES - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the gauge control module, clutch pedal position switch A, and the ECM.■
    NO - Go to Step 14 .
14. Turn the ignition switch to LOCK (0).
15. Disconnect the clutch pedal position switch A 2P connector.
16. Connect clutch pedal position switch A 2P connector terminals No. 1 and No. 2 with a jumper wire.
17. Turn the ignition switch to ON (II).
18. Check CLUTCH PEDAL POSITION SWITCH A in the DATA LIST with the HDS.

    Is ON indicated?
    YES - Replace clutch pedal position switch A. ■
    NO - Go to Step 19 .
19. Turn the ignition switch to LOCK (0).
20. Remove the jumper wire from the clutch pedal position switch A 2P connector.

21. Connect clutch pedal position switch A 2P connector terminal No. 1 and body ground with a jumper wire.
22. Turn the ignition switch to ON (II).
23. Check CLUTCH PEDAL POSITION SWITCH A in the DATA LIST with the HDS.

Is ON indicated?

YES - Repair open in the wire between clutch pedal position switch A and body ground (LHD model: G302, RHD model: G401).■

NO - Go to Step 24 .

24. Turn the ignition switch to LOCK (0).
25. Jump the SCS line with the HDS.
26. Disconnect ECM connector A (49P).

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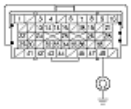
27. Check for continuity between ECM connector terminal A48 and body ground.



Is there continuity?

YES - Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

NO - Repair open in the wire between the ECM (A48) and clutch pedal position switch A.■

28. Turn the ignition switch to LOCK (0).
29. Disconnect the clutch pedal position switch A 2P connector.
30. Turn the ignition switch to ON (II).
31. Check CLUTCH PEDAL POSITION SWITCH A in the DATA LIST with the HDS.

Is OFF indicated?

YES - Replace clutch pedal position switch A. ■

NO - Go to Step 32 .

32. Turn the ignition switch to LOCK (0).
33. Jump the SCS line with the HDS.
34. Disconnect ECM connector A (49P).

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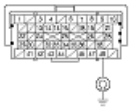
35. Check for continuity between ECM connector terminal A48 and body ground.

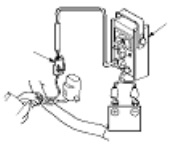


Is there continuity?

YES - Repair short in the wire between the ECM (A48) and clutch pedal position switch A.■

NO - Update the ECM if it does not have the latest software, or substitute a known-good ECM, then recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM. ■

Idle Speed Inspection



NOTE:

- Before checking the idle speed, check these items:
  - The malfunction indicator lamp (MIL) has not been reported on, and there are no DTCs.
  - Ignition timing
  - Spark plugs
  - Air cleaner
  - PCV system
  - Headlight OFF

1. Disconnect the evaporative emission (EVAP) canister purge valve connector.
2. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard, or a tachometer (B) to the test tachometer connector (C).
3. When using the HDS, make sure the HDS communicates with the ECM/PCM. If it doesn't, go to the DLC circuit troubleshooting.
4. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
5. Check the idle speed without load conditions: headlights, blower fan, radiator fan, and air conditioner off.
   Idle speed should be:

L12B1 engine

M/T	**700±50 rpm (min $^{-1}$)**

L13Z1 engine

M/T	**650±50 rpm (min $^{-1}$)**
A/T	**700±50 rpm (min $^{-1}$) (in N or P)**
i-SHIFT	**650±50 rpm (min $^{-1}$)**

L15A7 engine

M/T	**700±50 rpm (min $^{-1}$)**
A/T	**700±50 rpm (min $^{-1}$) (in N or P)**

6. Let the engine idle for 1 minute with high electric load (A/C switch on, temperature set to max cool, blower fan on High, and headlights on high beam).
   Idle speed should be:

M/T	**790±50 rpm (min $^{-1}$)**
A/T	**790±50 rpm (min $^{-1}$) (in N or P)**
i-SHIFT	**790±50 rpm (min $^{-1}$)**

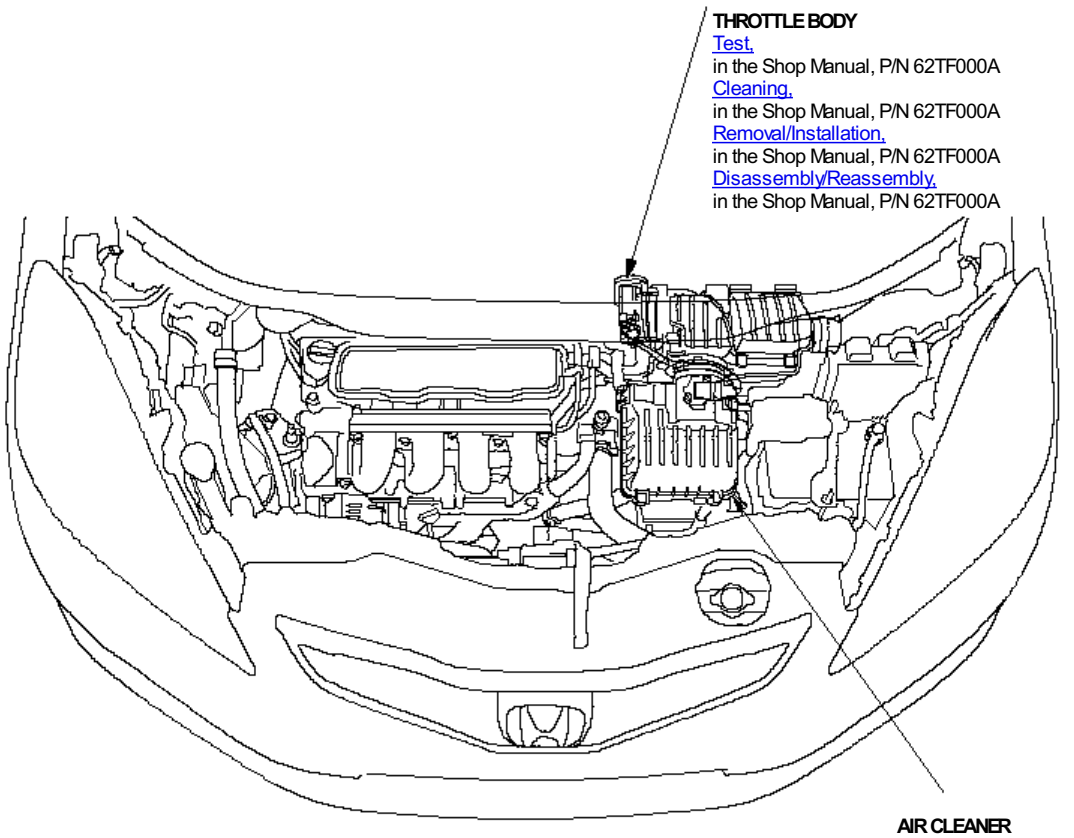
   NOTE: If the idle speed is not within specification, do the ECM/PCM idle learn procedure. If the idle speed is still not within specification, go to symptom troubleshooting.

7. Reconnect the EVAP canister purge valve connector.

Engine idle

Item	Measurement	Qualification	Standard or New
Engine idle	Idle speed without load (L12B1)	M/T (in neutral)	700±50 rpm (min^{-1})
	Idle speed without load (L13Z1)	M/T (in neutral)	650±50 rpm (min^{-1})
		A/T (in N or P)	700±50 rpm (min^{-1})
		i-SHIFT (in neutral)	650±50 rpm (min^{-1})
	Idle speed without load (L15A7)	M/T (in neutral), A/T (in N or P)	700±50 rpm (min^{-1})
	Idle speed with high electrical load (A/C switch ON, temperature set to max cool, blower fan on High, rear window defogger ON, and headlights on high beam)	M/T (in neutral), A/T (in N or P), i-SHIFT (in neutral)	790±50 rpm (min^{-1})
	Idle CO		0.1 % max.

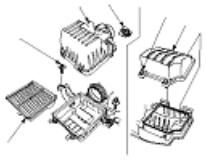
Intake Air System Component Location Index



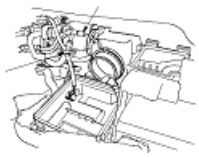
*: This illustration shows RHD model.

Air Cleaner Removal/Installation

1. Disconnect the MAF sensor/IAT sensor connector(A), then remove the air cleaner cover (B), and the air cleaner element (C).
   NOTE: Be careful not to damage the MAF sensor/IAT sensor on the air cleaner cover.
2. Remove the air cleaner chamber (D).

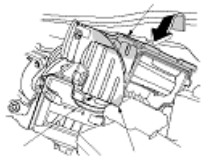


3. Remove the harness clamp (A), and the breather pipe (B) as shown.

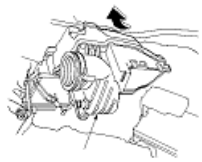


4. Wrap the air cleaner, the cowl cover, and the battery terminal fuse box with the tapes (A) as shown.
5. Remove the battery setting plate, and reposition the battery (B). Reposition the radiator upper hose (C), and the breather pipe (D) as shown.
   NOTE: Do not disconnect the battery terminals.

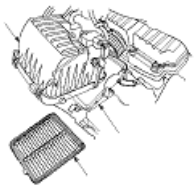
6. Wrap the air cleaner with the tapes (A) as shown.
7. Turn the air cleaner (B) case as shown.



8. Remove the air cleaner case (A) as shown.
9. Install the parts in the reverse order of removal.



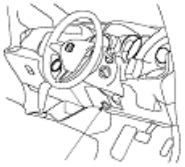
Air Cleaner Element Inspection/Replacement



1. Open the air cleaner housing cover (A).
2. Remove the air cleaner element (B) from the air cleaner housing (C).
3. Check the air cleaner element for damage, dirt, or clogging. If it is damage or clogged, replace it.
   NOTE: Do not use compressed air to clean the air cleaner element.
4. Clean and remove any debris from inside the air cleaner housing.
5. Install the parts in the reverse order of removal.
   - If you did not replace the air cleaner element, this procedure is complete.
   - If you replace the air cleaner element, reset the ECM/PCM with the HDS and do the ECM/PCM idle learn procedure.
6. Without service reminder system, this procedure is complete.

With service reminder system

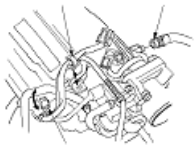
7. If the srevice reminder system required to replace the air cleaner element, reset the service reminder system, and this procedure is complete. If the service reminder system did not require to replace the air cleaner, go to Step 8 .



8. Connect the HDS to the data link connector (DLC) located under the driver's side of the dashboard.
9. Turn the ignition switch to ON (II).
10. Make sure the HDS communicates with the vehicle and the ECM. If it doesn't communicate, troubleshoot the DLC circuit.
11. Select BODY ELECTRICAL with the HDS.
12. Select ADJUSTMENT in GAUGE MENU with the HDS.
13. Select SERVICE REMINDER in the EU MAINTENANCE MINDER with the HDS.
14. Select SERVICE REMINDER ITEM 8 with the HDS.

Intake Manifold Chamber Removal and Installation

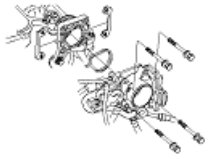
Exploded View



Removal

1. Remove the under-cowl panel.
2. Remove the air cleaner housing assembly.
3. Remove the engine wire harness connectors and wire harness clamps from the intake manifold chamber.
   - Throttle actuator connector
   - Manifold absolute pressure (MAP) sensor connector
4. Remove the brake booster vacuum hose (A) and the harness clamp (B).
5. Remove the water bypass hose from the clamp (C).

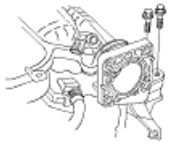
6. Remove the throttle body without disconnecting the water bypass hoses.



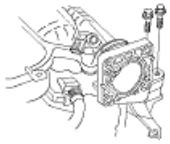
7. Remove the intake manifold bracket mounting bolts.

L15A7 engine

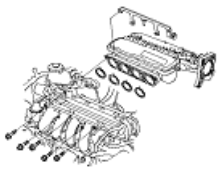
L13Z1 engine



L12B1 engine

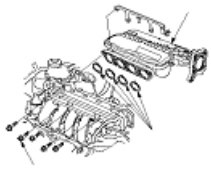


8. Remove the intake manifold chamber.



Installation

1. Install the intake manifold chamber (A) with a new gaskets (B), and tighten the bolts in a crisscross pattern in three steps, beginning with the inner bolt.

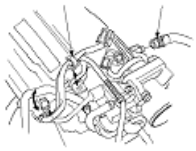


2. With L15A7 engine: Loosen the intake manifold bracket mounting bolt (A), (B). Tighten the mounting bolts (C), then tighten the mounting bolt (A). Loosely tighten the mounting bolt (D), and tighten the mounting bolt (B), then tighten the mounting bolt (D).

3. With L13Z1 engine, L12B1 engine: Loosen the intake manifold bracket mounting bolt (A). Tighten the mounting bolts (B), then tighten the mounting bolt (A).

4. Install the throttle body (A) with a new gasket (B).

5. Install the water bypass hose to the clamp (A).
6. Install the brake booster vacuum hose (B) and the harness clamp (C).
7. Install the engine wire harness connectors and wire harness clamps to the intake manifold chamber.
   - Throttle actuator connector
   - MAP sensor connector



8. Install the air cleaner housing assembly.
9. Install the under-cowl panel.

Intake Manifold/Chamber Assembly Removal and Installation

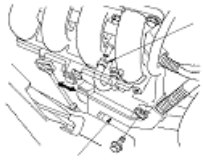
Exploded View

Removal

1. Remove the under-cowl panel.
2. Remove the air cleaner housing assembly.
3. Remove the engine wire harness connectors and wire harness clamps from the intake manifold chamber.
   - Throttle actuator connector
   - Manifold absolute pressure (MAP) sensor connector
   - Exhaust gas recirculation (EGR) valve connector
4. Remove the brake booster vacuum hose (A) and the harness clamp (B).
5. Remove the water bypass hose from the clamp (C).

6. Remove the throttle body without disconnecting the water bypass hoses.

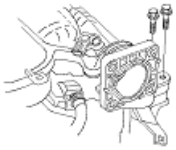
7. Remove the harness holder mounting bolt, then remove the harness holder (A) from the bracket.
8. Remove the positive crankcase ventilation (PCV) hose (B).
9. Remove the dipstick.



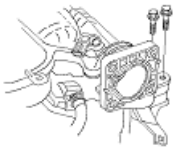
10. Remove the intake manifold bracket mounting bolts.

L15A7 engine

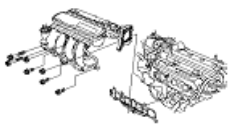
L13Z1 engine



L12B1 engine

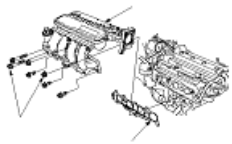


11. Remove the intake manifold/chamber assembly.



Installation

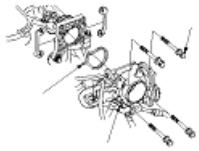
1. Install the intake manifold/chamber assembly (A) with a new gasket (B), and tighten the bolts and nuts in a crisscross pattern in three steps, beginning with the inner bolt.



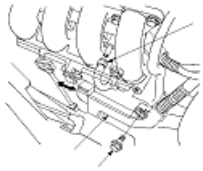
2. With L15A7 engine: Loosen the intake manifold bracket mounting bolt (A), (B). Tighten the mounting bolts (C), then tighten the mounting bolt (A). Loosely tighten the mounting bolt (D), and tighten the mounting bolt (B), then tighten the mounting bolt (D).

3. With L13Z1 engine, L12B1 engine: Loosen the intake manifold bracket mounting bolt (A). Tighten the mounting bolts (B), then tighten the mounting bolt (A).

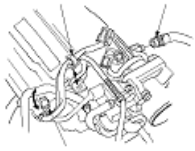
4. Install the throttle body (A) with a new gasket (B).
5. Install the dipstick.



6. Install the PCV hose (A) and harness holder (B).



7. Install the water bypass hose to the clamp (A).
8. Install the brake booster vacuum hose (B) and the harness clamp (C).
9. Install the engine wire harness connectors and wire harness clamps to the intake manifold chamber.
    - Throttle actuator connector
    - MAP sensor connector
    - EGR valve connector



10. Install the air cleaner housing assembly.
11. Install the under-cowl panel.

Ignition timing

Item	Measurement	Qualification	Standard or New	Service Limit
Ignition timing		At idle (check the *white* mark)	M/T (in neutral): 0±2 ° BTDC	
			A/T (in N or P): 0±2 ° BTDC	

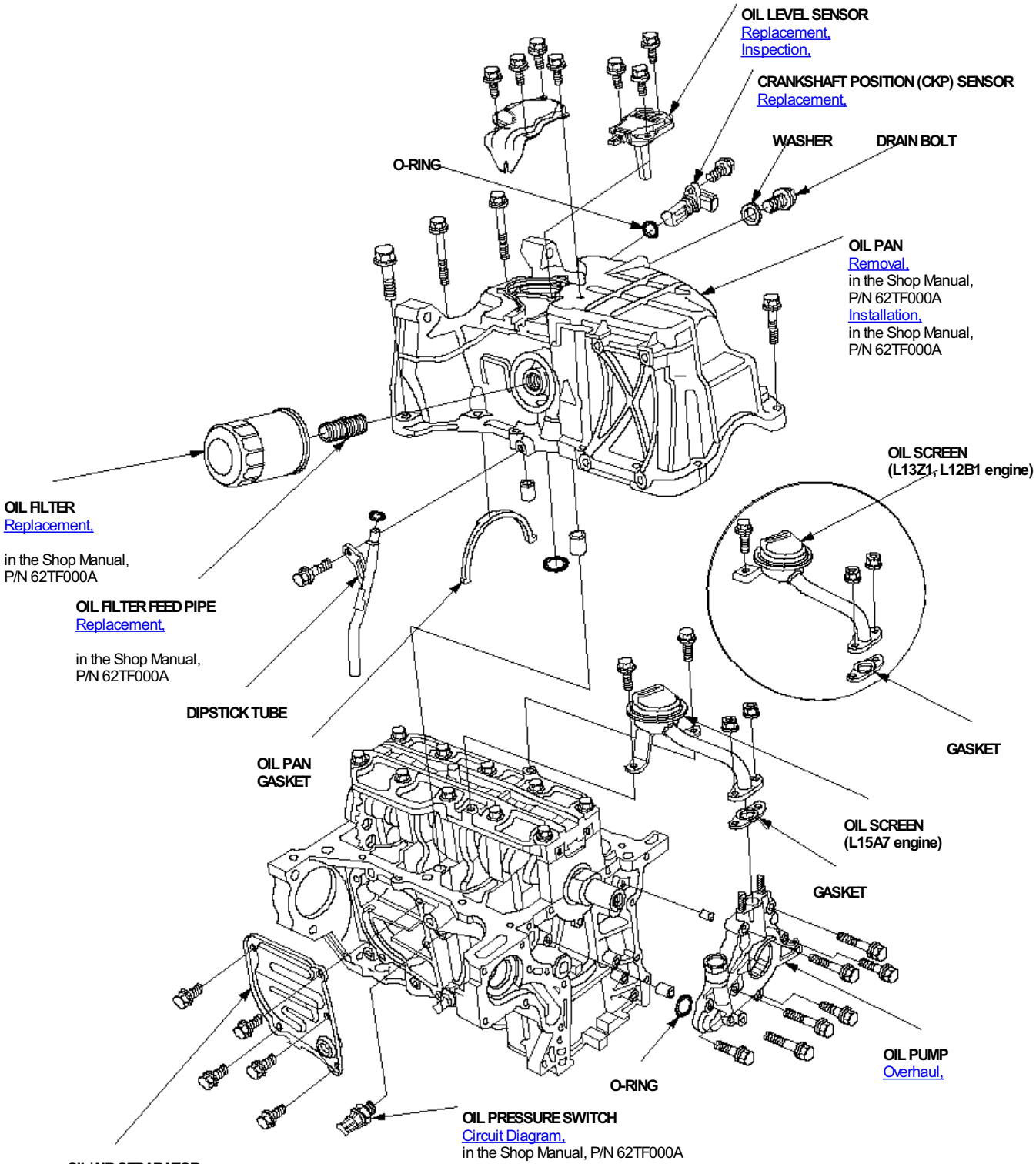
Ignition coil

Item	Measurement	Qualification	Standard or New	Service Limit
Ignition coil	Rated voltage		12 V	
	Firing order		1−3−4−2	

Spark plug

Item	Measurement	Qualification	Standard or New	Service Limit
Spark plug	Type		NGK: IZFR6K13 DENSO: SKJ20DR-M13	
	Gap		1.2−1.3 mm (0.047−0.051 in.)	———

Engine Lubrication Component Location Index



Excessive engine oil consumption

Diagnostic procedure

1. Verify that the engine oil filler cap, oil drain bolt, and oil filter are tight.
2. Check for oil leaks.
3. Check for worn valve guide(s) or worn valve stem seal(s).
4. Check for damaged or worn piston ring(s).
5. Check for damaged or worn engine internal parts (cylinder wall, pistons, etc.).

Low oil pressure indicator does not come on with the ignition switch ON (II)

Diagnostic procedure

1. Do the low oil pressure indicator circuit troubleshooting (Open).
2. Test the oil pressure switch.

Also check for

- An open in the wire between the engine control module (ECM)/powertrain control module (PCM) and the oil pressure switch

Engine oil level sensor system indication symbol comes on in the multi information display

1. Refer to the Fuel and Emissions general troubleshooting information.

Low oil pressure indicator stays on

Diagnostic procedure

1. Check the engine oil level.
2. Do the low oil pressure indicator circuit troubleshooting (Short).
3. Test the oil pressure switch.
4. Check the engine oil pressure.
5. Check the oil filter for clogging.
6. Check the oil screen for clogging.
7. Check the relief valve.
8. Inspect the oil pump.

Also check for

- A wire shorted to ground between the engine control module (ECM)/powertrain control module (PCM) and the oil pressure switch

Engine Lubrication Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Excessive engine oil consumption	1. Verify that the engine oil filler cap, oil drain bolt, and oil filter are tight. 2. Check for oil leaks. 3. Check for worn valve guide(s) or worn valve stem seal(s). 4. Check for damaged or worn piston ring(s). 5. Check for damaged or worn engine internal parts (cylinder wall, pistons, etc.).	
Low oil pressure indicator does not come on with the ignition switch ON (II)	1. Do the low oil pressure indicator circuit troubleshooting (Open). 2. Test the oil pressure switch.	An open in the wire between the engine control module (ECM)/powertrain control module (PCM) and the oil pressure switch
Engine oil level sensor system indication symbol comes on in the multi information display	Refer to the Fuel and Emissions general troubleshooting information.	
Low oil pressure indicator stays on	1. Check the engine oil level. 2. Do the low oil pressure indicator circuit troubleshooting (Short). 3. Test the oil pressure switch. 4. Check the engine oil pressure. 5. Check the oil filter for clogging. 6. Check the oil screen for clogging. 7. Check the relief valve. 8. Inspect the oil pump.	A wire shorted to ground between the engine control module (ECM)/powertrain control module (PCM) and the oil pressure switch

Engine Oil Pump Overhaul

Exploded View

Special Tools Required

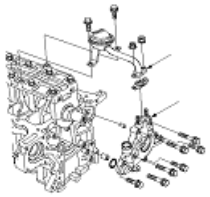
Sub hanger stay
07MAK-PY30100

Removal

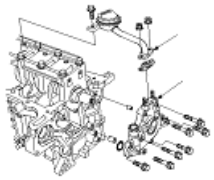
1. Remove the cam chain.
2. Remove the alternator mounting bolt, then install the sub hanger stay.
3. Attach the chain to the sub hanger stay. Lift and support the engine with the chain.
4. Remove the oil pan.

5. Remove the oil screen (A), then remove the oil pump (B).

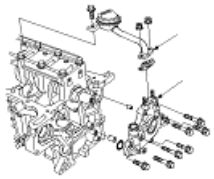
L15A7 engine



L13Z1 engine



L12B1 engine

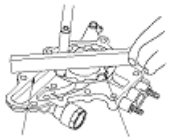


Inspection

1. Remove the screws from the oil pump housing, then separate the pump housing and pump cover.
2. Check the inner-to-outer rotor radial clearance between the inner rotor (A) and the outer rotor (B). If the inner-to-outer rotor clearance exceeds the service limit, replace the oil pump assembly.

Inner Rotor-to-Outer Rotor Radial Clearance

Standard (New):	**0.06–0.16 mm (0.002–0.006 in.)**
Service Limit:	**0.20 mm (0.008 in.)**

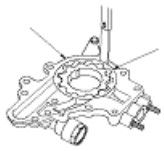


3. Check the pump housing-to-rotor axial clearance between the rotors (A) and pump housing (B). If the pump housing-to-rotor axial clearance exceeds the service limit, replace the oil pump assembly.

Housing-to-Rotor Axial Clearance

Standard (New):	**0.02–0.06 mm (0.001–0.002 in.)**
Service Limit:	**0.15 mm (0.006 in.)**

4. Check the pump housing-to-outer rotor radial clearance between the outer rotor (A) and the pump housing (B). If the pump housing-to-outer rotor radial clearance exceeds the service limit, replace the oil pump assembly.



Pump Housing-to-Outer Rotor Radial Clearance

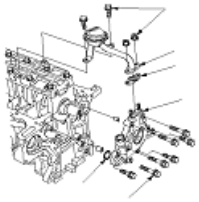
Standard (New):	**0.100–0.175 mm (0.0039–0.0069 in.)**
Service Limit:	**0.20 mm (0.008 in.)**

5. Inspect both rotors and the pump housing for scoring or other damage. Replace the parts, if necessary.
6. Check that the oil pump turns freely.

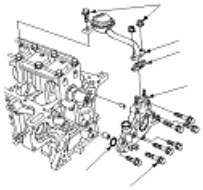
Installation

1. Clean the O-ring groove and the mating surface of the engine block.
2. Install the oil pump (A) with a new O-ring (B).
3. Install the oil screen (C) with a new gasket (D).
4. Install the oil pan.
5. Support the engine with a jack and wood block under the oil pan.

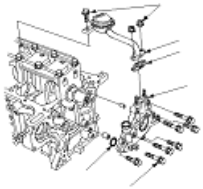
L15A7 engine



L13Z1 engine



L12B1 engine



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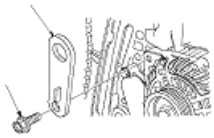
6. Remove the chain and sub hanger stay, then tighten the alternator mounting bolt.
7. Install the cam chain.



Oil pump

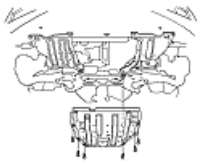
Item	Measurement	Qualification	Standard or New	Service Limit
Oil pump	Inner rotor-to-outer rotor clearance		0.06−0.16 mm (0.002−0.006 in.)	0.20 mm (0.008 in.)
	Pump housing-to-outer rotor clearance		0.100−0.175 mm (0.0039−0.0069 in.)	0.20 mm (0.008 in.)
	Pump housing-to-rotor axial clearance		0.02−0.06 mm (0.001−0.002 in.)	0.15 mm (0.006 in.)

Relief valve

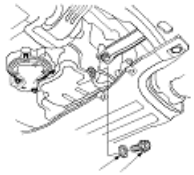
Item	Measurement	Qualification	Standard or New	Service Limit
Relief valve	Relief valve, oil pressure with oil temperature at 80°C (176°F)	At idle	70 kPa (0.7 kgf/cm ^{2}, 10 psi) min.	———
		At 3,000 rpm (min $^{-1}$)	340 kPa (3.5 kgf/cm ^{2}, 50 psi) min.	———

Engine Oil Replacement

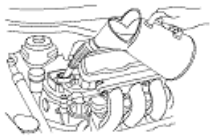
1. Warm up the engine.
2. Remove the undercover.



3. Remove the drain bolt (A), and drain the engine oil.
4. Reinstall the drain bolt with a new washer (B).
5. Install the undercover.



6. Refill the engine with the recommended oil.
   Capacity
   At Oil Change:
   3.4 L (3.6 US qt, 3.0 Imp qt)
   At Oil Change Including Filter:
   3.6 L (3.8 US qt, 3.2 Imp qt)
   After Engine Overhaul:
   4.2 L (4.4 US qt, 3.7 Imp qt)



7. Without service reminder system, this procedure is complete.
8. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC).
9. Turn the ignition switch to ON (II).
10. Make sure the HDS communicates with the vehicle and the engine control module (ECM)/powertrain control module (PCM). If it doesn't communicate, troubleshoot the DLC circuit.
11. Select BODY ELECTRICAL with the HDS.
12. Select ADJUSTMENT in GAUGE MENU with the HDS.
13. Select SERVICE REMINDER in the EU MAINTENANCE MINDER with the HDS.
14. Select SERVICE REMINDER ITEM A with the HDS.
15. Run the engine for more than 3 minutes, then check the oil level and oil leaks.

Engine oil

Item	Measurement	Qualification	Standard or New	Service Limit
Engine oil	Capacity	Engine overhaul	4.2 L (4.4 US qt, 3.7 Imp qt)	———
		Oil change including oil filter	3.6 L (3.8 US qt, 3.2 Imp qt)	———
		Oil change without oil filter	3.4 L (3.6 US qt, 3.0 Imp qt)	———

Engine does not start (does not crank)

Diagnostic procedure

1. Check for i-SHIFT DTCs (i-SHIFT model).
2. Check for PGM-FI DTCs.
3. Check for loose battery terminals or connections.
4. Test the battery for a low charge.
5. Check the starter.
6. Check the starter cut relay (A/T model).
7. Check the starter cut relay 1 (i-SHIFT model).
8. Check the starter cut relay 2 (i-SHIFT model).
9. Check the transmission range switch (A/T model).
10. Check the transmission control module (i-SHIFT model).
11. Check the brake switch (i-SHIFT model).
12. Check the ignition switch or related circuits.

Also check for

- Poor ground at G302 (LHD model), G401 (RHD model)

Engine cranks, but does not start

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Check the fuel pressure.
3. Check for a plugged or damaged fuel line.
4. Check for a plugged fuel filter.
5. Check the throttle body.
6. Check for low engine compression.
7. Check for a damage or broken cam chain.

Engine is hard to start

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Check the fuel pressure.
3. Check for a plugged or damaged fuel line.
4. Check for a plugged fuel filter.

Engine cranks slowly

Diagnostic procedure

1. Check for loose battery terminals or connections.
2. Test the battery for a low charge.
3. Check the starter for binding.
4. Check for excessive drag in the engine.

Starting System Symptom Troubleshooting Index

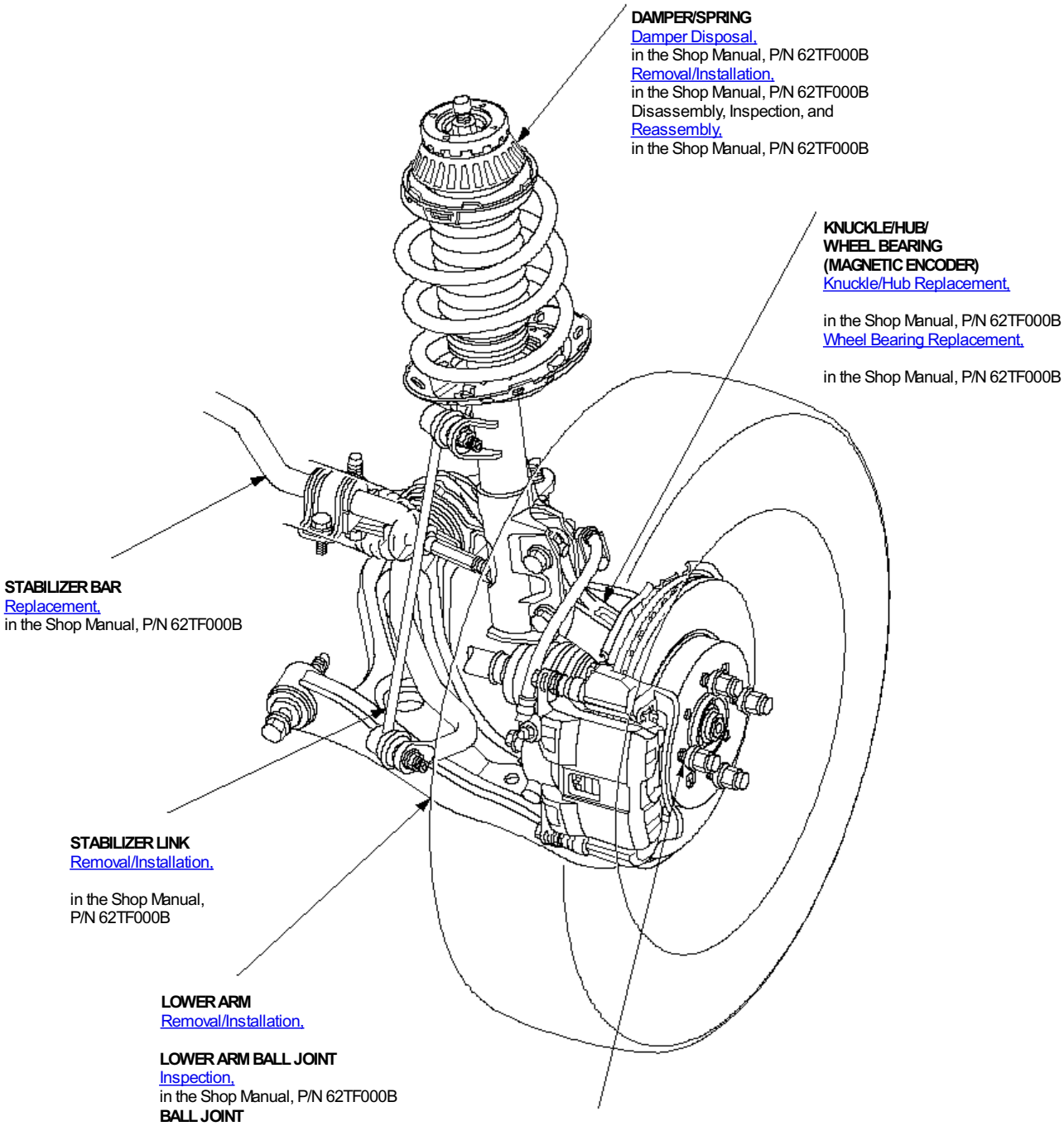
Symptom	Diagnostic procedure	Also check for
Engine does not start (does not crank)	1. Check for i-SHIFT DTCs (i-SHIFT model). 2. Check for PGM-FI DTCs. 3. Check for loose battery terminals or connections. 4. Test the battery for a low charge. 5. Check the starter. 6. Check the starter cut relay (A/T model). 7. Check the starter cut relay 1 (i-SHIFT model). 8. Check the starter cut relay 2 (i-SHIFT model). 9. Check the transmission range switch (A/T model). 10. Check the transmission control module (i-SHIFT model). 11. Check the brake switch (i-SHIFT model). 12. Check the ignition switch or related circuits.	Poor ground at G302 (LHD model), G401 (RHD model)
Engine cranks, but does not start	1. Check for PGM-FI DTCs. 2. Check the fuel pressure. 3. Check for a plugged or damaged fuel line. 4. Check for a plugged fuel filter. 5. Check the throttle body. 6. Check for low engine compression. 7. Check for a damage or broken cam chain.	
Engine is hard to start	1. Check for PGM-FI DTCs. 2. Check the fuel pressure. 3. Check for a plugged or damaged fuel line. 4. Check for a plugged fuel filter.	
Engine cranks slowly	1. Check for loose battery terminals or connections. 2. Test the battery for a low charge. 3. Check the starter for binding. 4. Check for excessive drag in the engine.	

Starter

Item	Measurement	Qualification	Standard or New	Service Limit
Starter	Output	Except L13Z1 KQ	0.7 kW	
		L13Z1 KQ	0.6 kW, 0.7 kW	
	Commutator mica depth		0.45−0.75 mm (0.018−0.030 in.)	0.20 mm (0.008 in.)
	Commutator runout		0.05 mm (0.002 in.) max.	0.4 mm (0.02 in.)
	Commutator O.D.		27.9−28.0 mm (1.098−1.102 in.)	27.0 mm (1.06 in.)
	Brush length		9.7−10.3 mm (0.38−0.41 in.)	6.0 mm (0.20 in.)

Front Suspension Component Location Index

Front Suspension



DAMPER/SPRING
Damper Disposal,
in the Shop Manual, P/N 62TF000B
Removal/Installation,
in the Shop Manual, P/N 62TF000B
Disassembly, Inspection, and
Reassembly,
in the Shop Manual, P/N 62TF000B

KNUCKLE/HUB/
WHEEL BEARING
(MAGNETIC ENCODER)
Knuckle/Hub Replacement,

in the Shop Manual, P/N 62TF000B
Wheel Bearing Replacement,

in the Shop Manual, P/N 62TF000B

STABILIZER BAR
Replacement,
in the Shop Manual, P/N 62TF000B

STABILIZER LINK
Removal/Installation,

in the Shop Manual,
P/N 62TF000B

LOWER ARM
Removal/Installation,

LOWER ARM BALL JOINT
Inspection,
in the Shop Manual, P/N 62TF000B
BALL JOINT
Boot Inspection/Replacement,

in the Shop Manual, P/N 62TF000B

WHEEL BOLT
Replacement,
in the Shop Manual, P/N 62TF000B

Wheel Alignment

Special Tool Required

Wheel alignment gauge attachment, 56 x 62 mm
07NAJ-SS00301

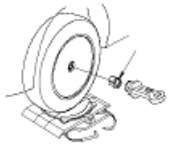
The suspension can be adjusted for front camber and front toe. However, each of these adjustments are interrelated to each other. For example, when you adjust the camber, the toe will change. Therefore, you must adjust the front wheel alignment whenever you adjust camber or toe.

Pre-Alignment Checks

For proper inspection and adjustment of the wheel alignment, do these checks:

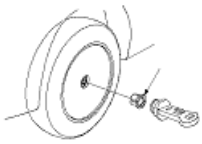
1. Release the parking brake to avoid an incorrect measurement.
2. Make sure the suspension is not modified.
3. Make sure the fuel tank is full, and that the spare tyre or the temporary repair kit, the jack, and the tools are in place on the vehicle.
4. Check the tyre size and tyre pressure according to tyre information.
5. Check the runout of the wheels and tyres.
6. Check the suspension ball joints.
   - Ball joint boot inspection.
   - Lower arm ball joint inspection.
7. Before doing alignment inspections, be sure to remove all extra weight from the vehicle, and no one should be inside the vehicle (driver or passengers).
8. Bounce the vehicle up and down several times to stabilize the suspension.
9. Check that the steering column is set at the center tilt and telescopic position.

Front Caster Inspection



1. Raise the front of the vehicle, and remove the wheel caps.
   NOTE: Push out the cap on the aluminum wheel from the inside after removing the wheel.
2. Set the turning radius gauges beneath the front wheels, and place the boards under the rear wheels the same thickness as the turning radius gauges, then lower the vehicle.
   NOTE: Be sure that the vehicle is level with the wheels on the turning radius gauges and the boards.
3. Install the wheel alignment gauge attachment (A) and camber/caster gauge on the wheel hub, and apply the front brake.
4. Turn the front wheel 20 ° outward, then turn the adjusting screw of the camber/caster gauge to set the bubble at 0 °.
5. Turn the wheel 20 ° inward and read the caster angle on the gauge with the bubble at the center of the gauge.
   Front caster angle:
   Except KY 1.5LXE, 1.5EXE models: 3 ° 20 '± 1 °
   KY 1.5LXE, 1.5EXE models: 3 ° 13 '± 1 °
   - If the measurement is within specifications, measure the front camber angle.
   - If the measurement is not within specifications, check for bent or damaged suspension components.

Front Camber Inspection

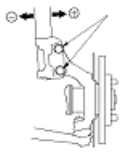


1. Turn the front wheels to the straight ahead position.
2. Raise the front of the vehicle, and remove the wheel caps.
   NOTE: Push out the cap on the aluminum wheel from the inside after removing the wheel.
3. Install the wheel alignment gauge attachment (A) and camber/caster gauge on the wheel hub.
4. Read the camber angle on the gauge with the bubble at the center of the gauge.
   Front camber angle:
   Except KY 1.5LXE, 1.5EXE models: 0 ° 00 '± 1 °
   KY 1.5LXE, 1.5EXE models: 0 ° 07 '± 1 °
   (Maximum difference between the right and left side: 0 ° 45 ')
   - If the measurement is within specifications, measure the rear camber.
   - If the measurement for the front camber is not within specifications, go to the front camber adjustment.

Front Camber Adjustment

The front camber can be adjusted by exchanging one or both of the damper pinch bolts with the smaller diameter adjusting bolt(s). The difference between the adjusting bolt diameter and the pinch bolt hole diameter allows for a small range of adjustment.

1. Raise the front of the vehicle, and support it with safety stands in the proper locations.
2. Remove the front wheels.
3. Loosen the damper pinch bolts (A), and adjust the camber angle by moving the bottom of the damper within the range of the damper pinch bolt free play.
4. Tighten the damper pinch bolts to the specified torque.
5. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheels.
6. Lower the vehicle to the ground, and bounce the front of the vehicle up and down several times to settle the suspension.
7. Measure the camber angle.
   - If the measurement is within specification, measure the rear camber.
   - If the measurement is not within specification, go to Step 8 .
8. Raise the front of the vehicle, and support it with safety stands in the proper locations.
9. Remove the front wheels.



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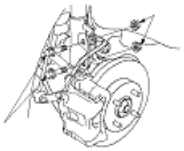
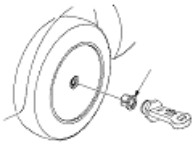
10. Replace the damper pinch bolts with the adjusting bolts (A), and adjust the camber angle.
    NOTE:
    - The camber angle can be adjusted up to ±20 ' (center of tolerance) by replacing one damper pinch bolt with the adjusting bolt.
    - The camber angle can be adjusted up to ±40 ' by replacing both the damper pinch bolts with the adjusting bolts.
11. Tighten the adjusting bolts to the specified torque value.
12. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheels.
13. Lower the vehicle to the ground, and bounce the front of the vehicle up and down several times to settle the suspension.
14. Measure the camber angle. If the camber angle is not within specification, repeat Step 8 through 13 to readjust the camber angle. If the camber measurement is correct, measure the toe-in, and adjust it if necessary.



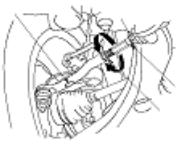
Rear Camber Inspection

1. Raise the rear of the vehicle, and remove the wheel caps.
   NOTE: Push out the cap on the aluminum wheel from the inside after removing the wheel.
2. Install the wheel alignment gauge attachment (A) and camber/caster gauge on the wheel hub.
3. Read the camber angle on the gauge with the bubble at the center of the gauge.
   Rear camber angle: −1 ° 00 '±1 °
   (Maximum difference between the right and left side: 0 ° 45 ')
   - If the measurement is within specifications, measure the toe-in.
   - If the measurement is not within specifications, check for bent or damaged suspension components.



Front Toe Inspection/Adjustment

1. Set the steering column to the middle tilt and telescopic positions. Center the steering wheel spokes, and hold it.
2. Check the toe with the wheels pointed straight ahead.
   Front toe-in: 0±3 mm (0±0.12 in.)
   - If adjustment is required, go to Step 3 .
   - If no adjustment is required, go to rear toe inspection.
3. Loosen the tie-rod locknuts (A) while holding the flat surface sections (B) of the tie-rod end with a wrench, and turn both tie-rods (C) until the front toe is within specifications.
4. After adjusting, tighten the tie-rod locknuts to the specified torque value. Reposition the rack end boot if it is twisted or displaced.
5. Go to rear toe inspection.
   NOTE: Adjust both the right and left wheels at the same time by the same amount in opposite directions to obtain the correct toe and to keep the steering wheel straight.



Rear Toe Inspection

1. Release the parking brake to avoid and incorrect measurement.
2. Check the toe.
   Rear toe-in: 2.5±2.5 mm (0.10±0.10 in.)

   - If the measurement is within specifications, measure the turning angle.
   - If the measurement is not within specifications, check for bent or damaged suspension components.

Turning Angle Inspection

1. Raise the vehicle and set the turning radius gauges beneath the front wheels, and place the boards under the rear wheels the same thickness as the turning radius gauges, then lower the vehicle.
   NOTE: Be sure that the vehicle is level with the wheels on the turning radius gauges and the boards.
2. Turn the wheel right and left while applying the brake, and measure the turning angle of the both wheels.
   Turning angle:
   16 inch wheel model and KE 1.2SE model and KG 1.4ES, 1.4ESH models:
   Inward: 40 ° 18 '±2 °
   Outward (reference): 33 ° 19 '±1 °
   KY 1.5LXE, 1.5EXE models:
   Inward: 40 ° 38 '±2 °
   Outward (reference): 33 ° 30 '±1 °
   Except 16 inch wheel model and KE 1.2SE model, KG 1.4ES, 1.4ESH models and KY 1.5LXE, 1.5EXE models:
   Inward: 42 ° 51 '±2 °
   Outward (reference): 34 ° 42 '±1 °
3. If the measurement is not within the specifications, even up both sides of the tie-rod threaded section length while adjusting the front toe. If it is correct, but the turning angle is not within the specifications, check for bent or damaged suspension components.

Wheel alignment (except KY 1.5LXE, 1.5EXE models)

Item	Measurement	Qualification	Standard or New	Service Limit
Wheel alignment (except KY 1.5LXE, 1.5EXE models)	Camber	Front	0 ° 00 ′±1 °	
		Rear	−1 ° 00 ′±1 °	
	Caster	Front	3 ° 20 ′±1 °	
	Total toe-in	Front	0±3 mm (0±0.12 in.)	
		Rear	2.5±2.5 mm (0.10±0.10 in.)	
	Front wheel turning angle (except 16 inch wheel model and KE 1.2SE model and KG 1.4ES, 1.4ESH models)	Inward	42 ° 51 ′±2 °	
		Outward (reference)	34 ° 42 ′±1 °	
	Front wheel turning angle (16 inch wheel model and KE 1.2SE model and KG 1.4ES, 1.4ESH models)	Inward	40 ° 18 ′±2 °	
		Outward (reference)	33 ° 19 ′±1 °	

Wheel alignment (KY 1.5LXE, 1.5EXE models)

Item	Measurement	Qualification	Standard or New	Service Limit
Wheel alignment (KY 1.5LXE, 1.5EXE models)	Camber	Front	0 ° 07 ′±1 °	
		Rear	−1 ° 00 ′±1 °	
	Caster	Front	3 ° 13 ′±1 °	
	Total toe-in	Front	0±3 mm (0±0.12 in.)	
		Rear	2.5±2.5 mm (0.10±0.10 in.)	
	Front wheel turning angle	Inward	40 ° 38 ′±2 °	
		Outward (reference)	33 ° 30 ′±1 °	

Front Lower Arm Removal/Installation

Special Tools Required

Ball joint remover, 28 mm
07MAC-SL00201

NOTICE

Do not remove the lower arm of both sides at the same time.

1. Raise the front of the vehicle, and support it with safety stands in the proper locations.
2. Remove the front wheel.
3. Remove the splash shield.
4. With HID lamp model: If removing the left side lower arm, disconnect the suspension stroke sensor from the lower arm.
5. Remove the lock pin (A) from the lower arm ball joint, then remove the castle nut (B).
   NOTE: During installation, install the lock pin as shown after tightening the new castle nut.
6. Disconnect the lower ball joint from the knuckle using the ball joint remover.
   NOTE:
   - Be careful not to damage the ball joint boot when installing the remover.
   - Do not force or hammer on the lower arm, or pry between the lower arm and the knuckle. You could damage the ball joint.

---

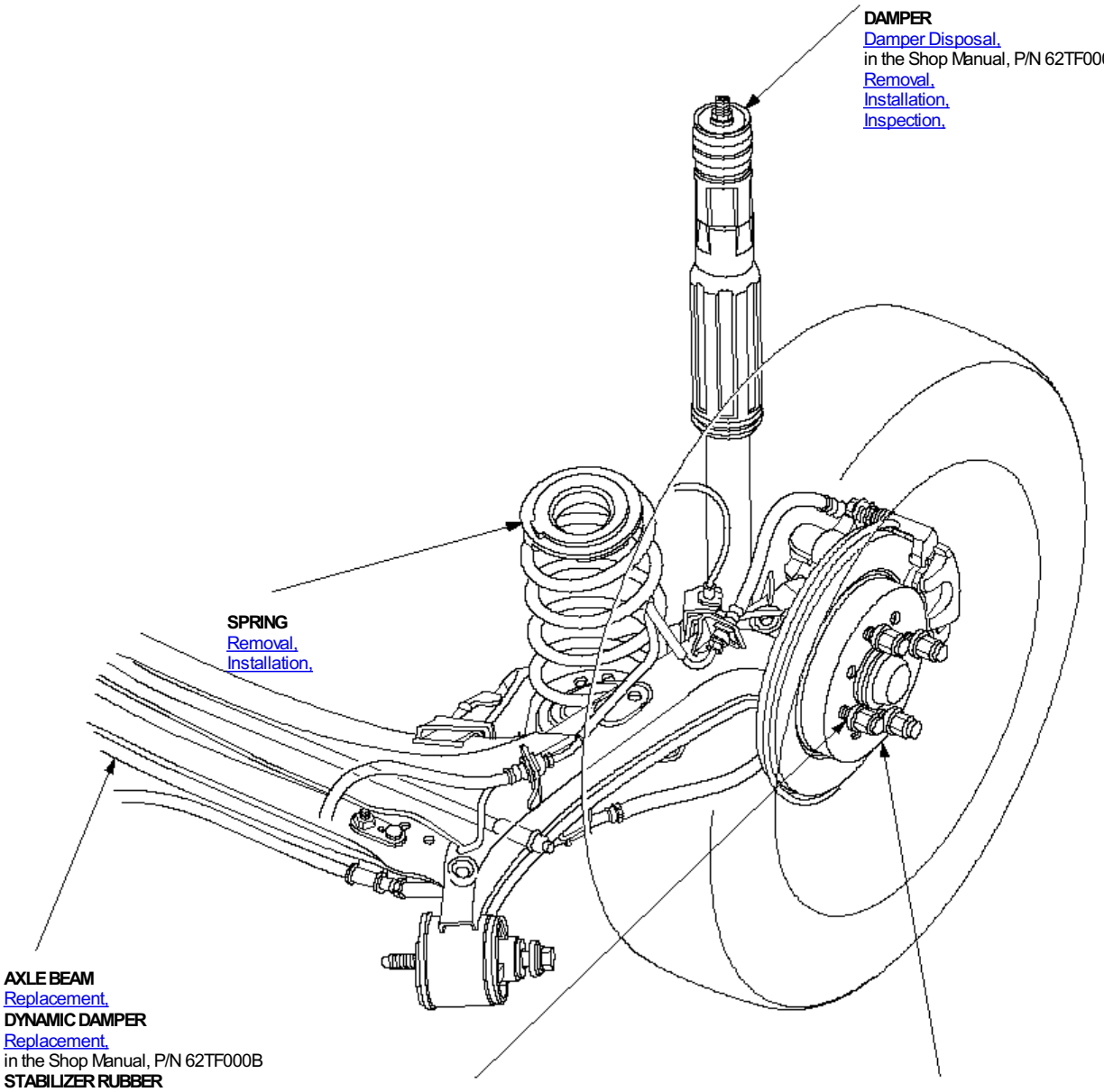
7. Remove the lower arm mounting bolts, then remove the lower arm (A) from the front subframe.
   NOTE: Use new lower arm mounting bolts during reassembly.
8. Install the lower arm in the reverse order of removal, and note these items:
   - First install all the components, and lightly tighten the bolts and the nuts, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torque values. Do not place the jack against the ball joint of the lower arm.
   - Be careful not to damage the ball joint boot when connecting the lower arm to the knuckle.
   - Before connecting the ball joint, degrease the threaded section and the tapered portion of the ball joint pin, the ball joint connecting hole, and the threaded section and the mating surfaces of the castle nut.
   - Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole. Do not align the castle nut by loosening it.
   - Before installing the wheel, clean the mating surfaces on the brake disc and the inside of the wheel.
9. Check the wheel alignment, and adjust it if necessary.
10. With HID lamp model: If the left side lower arm was removed, do the headlight initial position learning procedure.

Wheel bearing

Item	Measurement	Qualification	Standard or New	Service Limit
Wheel bearing	End play	Front	0−0.05 mm (0−0.002 in.)	
		Rear	0−0.05 mm (0−0.002 in.)	

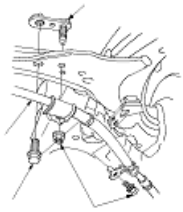
Rear Suspension Component Location Index

Rear Suspension

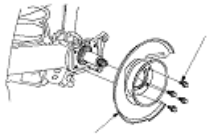


Rear Axle Beam Replacement

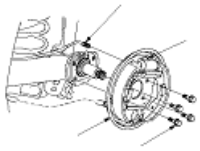
1. Raise the vehicle, and support it with safety stands in the proper locations.
2. Remove the rear wheels.
3. Remove the rear spring seat lower cover.
4. Remove the rear hub bearing unit.
5. With HID lamp model: Disconnect the suspension stroke sensor from axle beam.
6. Remove the parking brake cable bracket (left side) (A), the brake line bracket (right side), and the parking brake cable (B) from the axle beam.



7. Disc brake type: Remove the splash guard (A).



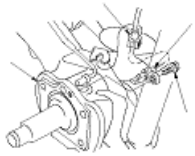
8. Drum brake type: Disconnect the brake line (A) from the wheel cylinder (B). Remove the backing plate (C) with brake shoe assembly from the axle beam.



9. Remove the wheel speed sensor (A) and the wheel speed sensor stay (B) from the axle beam (C). Do not disconnect the wheel speed sensor connector.
10. Remove the rear spring.

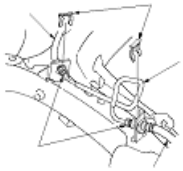
Disc brake type

Drum brake type

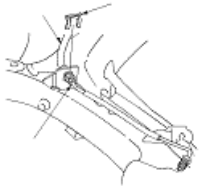


11. Disconnect the brake hose (A) from both sides of the brake line (B), then remove the brake line by removing the brake hose clip (C).
    NOTE:
    - Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
    - Plug the end of a hose and joints to prevent spilling brake fluid.
    - Use the new brake hose clip during reassembly.

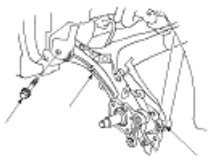
Disc brake type



Drum brake type



12. Place a floor jack under the lower spring seat (A) on both sides of the axle beam (B), and support it by raising the floor jack. Do not place the floor jack under the center of the axle beam.



13. Remove the axle beam mounting bolts (C) on both sides.
    NOTE: Use new axle beam mounting bolts during reassembly.

14. Lower the jack slowly, then remove the axle beam.

15. Install the axle beam in the reverse order of removal, and note these items:
    - First install all the components, and lightly tighten bolts and the nuts, and place a jack under the lower spring seat of the axle beam on both sides, then raise the suspension to load with the vehicle's weight before fully tightening to the specified torque values.
    - Connect the brake pipe from the vehicle front side first.
    - After installing the brake hose, the brake line, and the parking brake cable, check interference and twisting to other parts.
    - Before installing the brake disc/drum clean the mating surfaces of the hub bearing unit and the inside of the brake disc/drum.
    - After installing, fill the reservoir with new brake fluid, and bleed the brake system.
    - Check the brake hose and line joint for leaks, and tighten if necessary.
    - Before installing the wheel, clean the mating surfaces of the brake disc/drum and the inside of the wheel.

16. Check the wheel alignment, and adjust it if necessary.

17. With HID lamp model: Do the headlight initial position learning procedure.

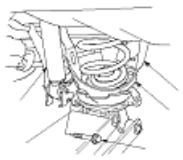
Rear Damper Replacement

Exploded View

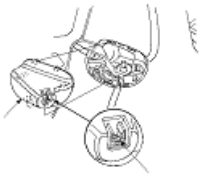
Removal

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations.
2. Remove the rear wheels.
3. With HID lamp model: Disconnect the suspension stroke sensor from rear axle beam.
4. Remove the wheel speed sensor stay (A) from both sides of the axle beam.

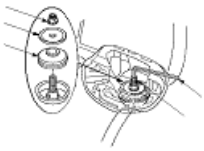
5. Position a floor jack under lower spring seat (A) on both sides of the axle beam (B). Raise the floor jack until the suspension begins to compress.
6. Remove the damper mounting bolt (C) that connects the axle beam and the damper (D) from both sides.



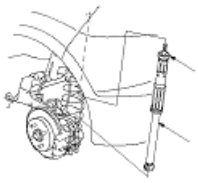
7. Remove the lid (A) from the trunk side trim.
   NOTE: Remove the screw (B) if the lid fixed by it.



8. Remove the self-locking nut (A) while holding the damper shaft (B) with a hex wrench (C).
9. Remove the damper mounting washer (D) and the damper mounting rubber (E) from the top of the damper.

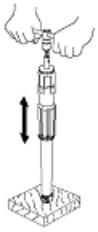


10. Compress the damper unit (A) by hand, and remove it from the vehicle.
    NOTE: Be careful not to damage the body.
11. Remove the damper mounting rubber (B).



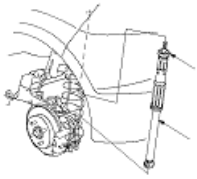
Inspection

1. Install the flange nut on the damper shaft end, and set the socket wrench and T-handle on the nut.
2. Compress the damper assembly by hand, and check for smooth operation through a full stroke, both compression and extension. The damper should extend smoothly and constantly when compression is released. If it does not, the gas is leaking and the damper should be replaced.
3. Check for oil leaks, abnormal noises, and binding during these tests.

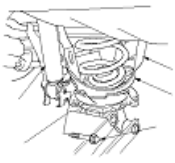


Installation

1. Install the damper mounting rubber (A) onto the damper unit. Position the damper assembly (B) between the body and the axle beam.
   NOTE: Be careful not to damage the body.



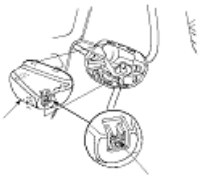
2. Position the floor jack under lower spring seat (A) on both sides of the axle beam (B).
3. Slowly raise the jack until you can align the bolt hole with the holes in the axle beam and the damper (C), and loosely tighten the new damper mounting bolt (D) on both sides.
4. Raise the rear suspension with the jack until the vehicle just lifts off of the safety stands, then tighten the damper mounting bolts to the specified torque value.



5. Install the damper mounting rubber (A), the damper mounting washer (B), and the self-locking nut (C) on the damper shaft (D).
   NOTE: During installation, note the direction of the damper mounting rubber and the damper mounting washer.

6. Tighten the self-locking nut (A) to the specified torque value while holding the damper shaft (B) with a hex wrench (C).

7. Install the lid (A) on the trunk side trim.
   NOTE: Install the screw (B) if the lid fixed by it.

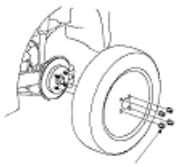


8. Install the wheel speed sensor stay (A) on both sides of the axle beam.
9. With the HID lamp model: Connect the suspension stroke sensor to rear axle beam.
10. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the rear wheels.
11. Check the wheel alignment, and adjust if necessary.
12. With HID lamp model: Do the headlight initial position learning procedure.

Rear Hub Bearing Unit Replacement

Exploded View - Disc Brake Type

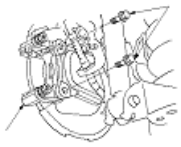
Exploded View - Drum Brake Type



Replacement - Disc Brake Type

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations.
2. Remove the wheel nuts (A) and the rear wheel.
3. Release the parking brake lever fully.
4. Remove the caliper body and the brake pads from the caliper bracket.
   NOTE: To prevent damage to the caliper body or the brake hose, use a short piece of wire to hang the caliper body from the undercarriage. Do not twist the brake hose excessively.

5. Remove the caliper bracket (A) from the axel beam.

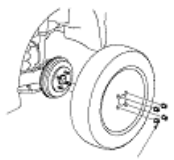


6. Remove the hub cap (A). Raise the stake (B), then remove the spindle nut (C).
7. Remove the rear brake disc.

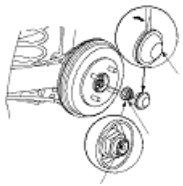
8. Remove the hub bearing unit (A) from the spindle.
9. Check the hub bearing unit for damage and cracks.
10. Install the hub bearing unit in the reverse order of removal, and note these items:
    - Use new a spindle nut and hub cap during reassembly.
    - Before installing the spindle nut, apply a small amount of engine oil to the seating surface of the nut. After tightening, use a drift to stake the spindle nut shoulder against the spindle.
    - Before installing the brake disc, clean the mating surfaces of the hub bearing unit and the inside of the brake disc.
    - Before installing the wheel, clean the mating surfaces of the brake disc and the inside of the wheel.
11. Check the wheel alignment, and adjust it if necessary.

Replacement - Drum Brake Type

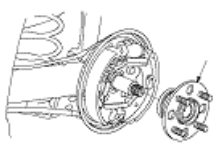
1. Raise the rear of the vehicle, and support it with safety stands in the proper locations.
2. Remove the wheel nuts (A) and the rear wheel.
3. Release the parking brake lever fully.



4. Remove the hub cap (A). Raise the stake (B), then remove the spindle nut (C).
5. Remove the brake drum.

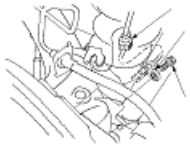


6. Remove the hub bearing unit (A) from the spindle.
7. Check the hub bearing unit for damage and cracks.
8. Install the hub bearing unit in the reverse order of removal, and note these items:
    - Use new a spindle nut and hub cap during reassembly.
    - Before installing the spindle nut, apply a small amount of engine oil to the seating surface of the nut. After tightening, use a drift to stake the spindle nut shoulder against the spindle.
    - Before installing the brake drum, clean the mating surfaces of the hub bearing unit and the inside of the brake drum.
    - Before installing the wheel, clean the mating surfaces of the brake drum and the inside of the wheel.
9. Check the wheel alignment, and adjust it if necessary.



Rear Spring Replacement

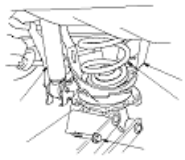
Exploded View



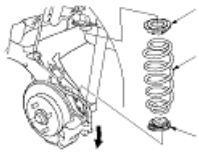
Removal

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations.
2. Remove the rear wheels.
3. With HID lamp model: Disconnect the suspension stroke sensor from rear axle beam.
4. Remove the wheel speed sensor (A) and the wheel speed sensor stay (B) from both sides of the axle beam. Do not disconnect the wheel speed sensor connector.

5. Position a floor jack under spring seat (A) on both sides of the axle beam (B). Raise the floor jack until the suspension begins to compress.
6. Remove the damper mounting bolt (C) that connects the axle beam and the damper (D) from both sides.
7. Lower the floor jack gradually.

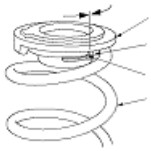


8. Remove the spring (A), the upper mounting rubber (B), and the lower mounting rubber (C). Do not lower the jack more than necessary.

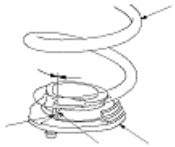


Installation

1. Install the upper mounting rubber (A) on the spring (B) by aligning the upper end (C) of the spring with the ledge portion (D) of the upper mounting rubber.



2. Install the lower mounting rubber (A) on the spring (B) by aligning the upper end (C) of the spring with the ledge portion (D) of the lower mounting rubber.



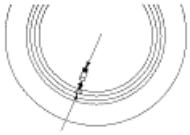
3. Install the tab (A) of the lower mounting rubber into the groove (B) of the lower spring seat.
   NOTE:
   - Make sure that the tab of the lower mounting rubber is properly installed into the axle beam (C).
   - Make sure that the spring was installed correctly.

4. Position the floor jack under the lower spring seat (A) on both sides of the axle beam (B).
5. Slowly raise the jack until you can align the bolt hole with the holes in the axle beam and the damper (C), and loosely tighten the new damper mounting bolt (D) on both sides.
6. Raise the rear suspension with the jack until the vehicle just lifts off of the safety stands, then tighten the damper mounting bolts to the specified torque value.

7. Install the wheel speed sensor (A) and the wheel speed sensor stay (B) on both sides of the axle beam.
8. With the HID lamp model: Connect the suspension stroke sensor to rear axle beam.
9. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the rear wheels.
10. Check the wheel alignment, and adjust it if necessary.
11. With HID lamp model: Do the headlight initial position learning procedure.

The Extraction of the Fluid Sealant of the Tyre Inflator

NOTE:



- The TRK (Temporary Repair Kit) is employed for the spare-tyreless models instead of a spare tyre.
- The fluid sealant used to reinflate a flat tyre must be extracted and retrieved from the inside. The out-of-date fluid sealant and the extracted fluid sealant must be retrieved by the transactor for the sake of the environment after separated as well as oil waste such as the oil and fluid, because they include the ethylene glycol, the industrial waste. (The address and telephone number of the transactor is labeled on the bottle.)

NOTICE

Do not dispose the tyre with the fluid sealant filled.

1. Raise the vehicle, and support it with safety stands in the proper locations.
2. Deflate the tyre.
3. Cut off the valve (A) at its base, and push the remaining rubber portion of the valve into the tyre.
   NOTICE
   Avoid damage to the wheel disc when using the tools.
   NOTE: Replace the valve with a new one when reassembling the tyre.
4. Put the tyre on the working table, and set it up.
   NOTE: Be careful not to spill the fluid sealant from the drain hole (B).

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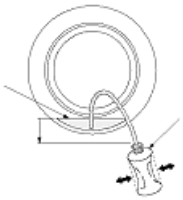
5. Use the empty bottle (A) to extract the fluid sealant. Insert the tube into the tyre through the drain hole, and stick it down until the end of the tube is immersed into the fluid sealant (B).
6. Set the empty bottle in the lower position than the tyre and pump the fluid sealant into the bottle. To empty the tyre, pump it completely by shaking the tyre or doing something else.



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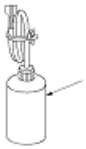
7. Bend and bind up the tube of the bottle (A) that is filled with the fluid sealant as shown in the figure.



8. If you reuse the tyre, completely wipe up the fluid sealant sat around the drain hole, fix a flat, and replace the valve.
   NOTE:
   - Wipe the fluid sealant completely so that the beaded edge of the tyre and the mating portion of the wheel rim and the bead are cleared.
   - The damaged portion such as punctures may be filled with the fluid sealant, and can not be found depending on the extent of the damage.
   - If you drive on a flat tyre, often check the tyre pressure and replace the tyre with a normal one when you detect any abnormality (air pressure reduction in the tyre).

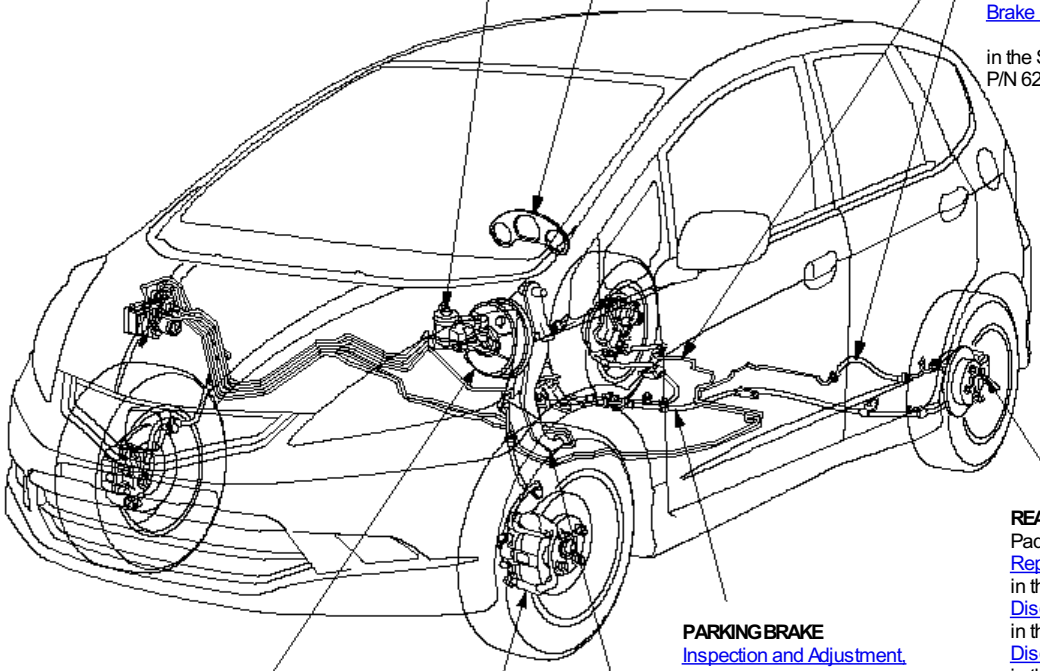
Wheel

Item	Measurement	Qualification	Standard or New	Service Limit
Wheel	Steel wheel runout	Axial	0−1.0 mm (0−0.04 in.)	2.0 mm (0.08 in.)
		Radial	0−1.0 mm (0−0.04 in.)	1.5 mm (0.06 in.)
	Aluminium wheel runout	Axial	0−0.7 mm (0−0.03 in.)	2.0 mm (0.08 in.)
		Radial	0−0.7 mm (0−0.03 in.)	1.5 mm (0.06 in.)

Parking brake

Item	Measurement	Qualification	Standard or New	Service Limit
Parking brake	Distance traveled when lever pulled with 196 N (20 kgf, 44 lbf) of force	Disc	6 to 8 clicks	
		Drum	5 to 7 clicks	

Conventional Brake Component Location Index



MASTER CYLINDER
Brake System Bleeding,
Replacement,
Disassembly,
Reassembly,

BRAKE SYSTEM INDICATOR
Circuit Diagram,
Parking Brake Switch Test,
in the Shop Manual, P/N 62TF000B
Brake Fluid Level Switch Test,
in the Shop Manual, P/N 62TF000B

BRAKE HOSE and LINE
Inspection,
in the Shop Manual,
P/N 62TF000B
Brake Hose Replacement,

in the Shop Manual,
P/N 62TF000B

REAR BRAKE
Pad Inspection and
Replacement,
in the Shop Manual, P/N 62TF000B
Disc Inspection,
in the Shop Manual, P/N 62TF000B
Disc Replacement,
in the Shop Manual, P/N 62TF000B
Caliper Overhaul,
in the Shop Manual, P/N 62TF000B
Drum Brake Inspection,
Drum Replacement,
Shoe Replacement,
Rear Wheel Cylinder
Disassembly/Inspection,

PARKING BRAKE
Inspection and Adjustment,

Cable Replacement,

BRAKE PEDAL
Brake Pedal and Brake Pedal
Position Switch Adjustment,

in the Shop Manual, P/N 62TF000B
Replacement,
in the Shop Manual, P/N 62TF000B

BRAKE BOOSTER
Inspection,
Replacement,

FRONT BRAKE
Pad Inspection and Replacement,
Disc Inspection,
in the Shop Manual, P/N 62TF000B
Disc Replacement,
in the Shop Manual, P/N 62TF000B
Caliper Overhaul,

*: The illustration shows LHD model, RHD model is similar.

Brake System Symptom Troubleshooting - Rapid brake pad wear, vehicle vibration (after a long drive), or high, hard brake pedal

Rapid brake pad wear, vehicle vibration (after a long drive), or high, hard brake pedal

NOTE: Make sure that the caliper pins are installed correctly.
Upper caliper pin A and lower caliper pin B are different. If the pins are installed in the wrong location, it will cause vibration, uneven or rapid brake pad wear, and possibly uneven tyre wear. For proper caliper pin location.

1. Drive the vehicle until the brakes drag or until the pedal is high and hard. This can take 20 or more brake pedal applications during an extended test-drive.
2. With the engine running, raise the vehicle on a lift, and spin all four wheels by hand.

   Is there brake drag at any of the wheels?
   YES - Go to Step 3 .
   NO - Look for other causes of pad wear, high pedal, or vehicle vibration.■
3. Turn the ignition switch to LOCK (0), press the brake pedal several times to deplete the vacuum in the brake booster, and then spin the wheels again to check for brake drag.

   Is there brake drag at any of the wheels?
   YES - Go to Step 4 .
   NO - Replace the brake booster.

   - LHD model. ■
   - RHD model. ■
4. Without removing the brake lines, unbolt and separate the master cylinder from the booster, then spin the wheels to check for brake drag.

   Is there brake drag at any of the wheels?
   YES - Go to Step 5 .
   NO - Check the brake pedal position switch adjustment and pedal free play. ■
5. Loosen the hydraulic lines at the master cylinder, then spin the wheels to check for brake drag.

   Is there brake drag at any of the wheels?
   YES - Go to Step 6 .
   NO - Check the master cylinder reservoir for contamination in the brake fluid. If you find contamination, flush the entire brake system of all contaminated fluid. If the brake fluid is OK, replace the master cylinder.

   - LHD model. ■
   - RHD model. ■
6. Loosen the bleed screws at each caliper, then spin the wheels to check for brake drag.

   Is there brake drag at any of the wheels?
   YES - Check the master cylinder reservoir for contamination in the brake fluid. If you find contamination, flush the entire brake system of all contaminated fluid. If the brake fluid is OK, disassemble and repair the caliper on the wheel(s) with brake drag.■
   NO - Look for and replace any damaged brake lines. If all brake lines are OK, replace the ABS or the VSA modulator-control unit.

   - ABS modulator-control unit. ■
   - VSA modulator-control unit. ■

Brake System Inspection and Test

Inspect the brake system components listed. Repair or replace any parts that are leaking or damaged.

Component Inspections:

Component	Procedure	Also check for
Master Cylinder	Look for damage or signs of fluid leakage at: • Reservoir tank, subreservoir or master cylinder body. • Lines, reservoir tank hose and grommets, and their joints. • Between master cylinder and booster.	Bulging seal at reservoir cap. This is a sign of fluid contamination.
Brake Hoses	Look for damage or signs of fluid leakage at: • Line joints and banjo bolt connections. • Hoses and lines, also inspect for twisting or damage.	Bulging, twisted, or bent lines.
Caliper	Look for damage or signs of fluid leakage at: • Piston seal. • Banjo bolt connections. • Bleed screw.	Seized or sticking caliper pins.
Wheel Cylinder	Look for damage or signs of fluid leakage at: • Wheel cylinder. • Line joints. • Bleed screw.	
ABS or VSA Modulator-control Unit	Look for damage or signs of fluid leakage at: • Line joints. • Modulator-control unit.	

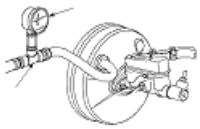
Brake System Test

Brake pedal sinks/fades when braking

1. Set the parking brake, and start the engine, then turn off the A/C. Allow the engine to warm up to normal operating temperature (radiator fan comes on twice).
2. Attach a 50 mm (2 in.) piece of masking tape along the bottom of the steering wheel, and draw a horizontal reference mark across it.
3. With the transmission in neutral (M/T) or P or N (A/T), press and hold the brake pedal lightly (about the same pressure needed to keep an A/T-equipped vehicle from creeping), then release the parking brake.
4. While still holding the brake pedal, hook the end of the tape measure behind the brake pedal, then pull the tape up to the steering wheel. Note the measurement between the brake pedal and the reference mark on the steering wheel.
5. Apply steady pressure to the brake pedal for 3 minutes.
6. Watch the tape measure.
   - If the measurement increases 10 mm (0.39 in.) or less, the master cylinder is OK.
   - If the measurement increases more than 10 mm (0.39 in.), replace the master cylinder.

Brake Booster Inspection

Special Tools Required



Pressure gauges set, 16,000 kPa
07YAJ-0010410

Combination gauge kit
07YAJ-0010610

Attachments
07410-5790102

Tube joint adapter
07410-5790503

Pressure gauge joint pipes, 10 x 1.0 mm
07510-6340101

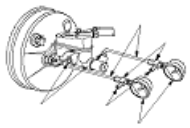
Pressure gauge joint pipes, 12 x 1.0 mm
07HAK-SG00110

Leak Test

1. Install the vacuum gauge (A) between the brake booster and check valve.
2. Start the engine, adjust the engine speed with the accelerator pedal so that the vacuum gauge readings show 66.7 kPa (500 mmHg, 19.7 in.Hg), then stop the engine.
3. Read the vacuum gauge.
   If the vacuum reading decreases 2.7 kPa (20 mmHg, 0.8 in.Hg) or more after 30 seconds, check following parts for leaks.
   - Check valve
   - Vacuum hose, pipe
   - Seals
   - Brake booster
   - Master cylinder

   NOTE: Do not try to disassemble the brake booster. Replace the brake booster as an assembly with a new one.

Function Test



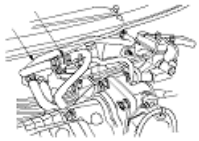
1. Install the vacuum gauge as same as the leak test.
2. Connect the oil pressure gauges (A) to the master cylinder using the attachments pressure gauge joint pipes as shown.
3. Bleed air through the valves (B).
4. Start the engine, and let it idle.

5. Have an assistant depress the brake pedal with a 98 N (10 kgf, 22 lbf) and 196 N (20 kgf, 44 lbf) of pressure measuring with a commercially available pressure gauge (A).
6. The following pressures should be observed at the pressure gauges in each vacuum.

Vacuum booster Vacuum kPa (mmHg, in.Hg)	Brake pedal pressure N (kgf, lbf)	Master cylinder oil pressure kPa (kgf/cm ^{2}, psi)	
0 (0, 0)	98 (10, 22)	0 (0, 0)	
	196 (20, 11)	Except LHD model of M/T	577 (5.9, 83.7)
		LHD model of M/T	501 (5.1, 72.6)
66.7 (500, 19.7)	98 (10, 22)	KE, KG models of i-SHIFT	5,393 (55, 782)
		KG model of 5MT	5,153 (52.5, 747)
		Except LHD model of M/T	4,523 (46.1, 656)
		LHD model of M/T	4,235 (43.2, 614)
	196 (20, 11)	KE, KG models of i-SHIFT	8,125 (82.9, 1,178)
		KG model of 5MT	8,060 (82.2, 1,169)
		Except LHD model of M/T	9,538 (97.3, 1,383)
		LHD model of M/T	9,468 (96.5, 1,373)

7. Inspect the master cylinder for leaks if the readings do not fall within the limits shown above.

Booster Check Valve Test



1. Disconnect the brake booster vacuum hose (A) at the booster.
   NOTE: If the check valve (B) is faulty, replace the brake booster vacuum hose/check valve as an assembly.
2. Start the engine, and let it idle. There should be vacuum available. If no vacuum is available, the check valve is not working properly. Replace the brake booster vacuum hose and check valve, and retest.

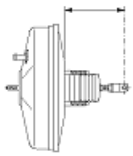
Brake Assist Check (For KE, KG ABS models)

Make sure the brake assist is not activated early in case of installing brake booster and brake pedal. You may hear mechanical noises when pressing the brake pedal with some vacuum remained in brake booster. That could be caused in a normal condition, it would be not a symptom of abnormalities. The noises would not be created in the condition that the brake booster has no vacuum.

1. Check the brake pedal height and free play, and adjust it if necessary.
2. Press the brake pedal hard.
3. Release the brake pedal and start the engine, and allow the engine warm up to normal operating temperature.
4. Test-drive the vehicle at low speed.
5. Press the brake pedal lightly, and make sure it does not cause a rapid brake.

Brake Booster Pushrod Thickness (Reference)

NOTE: The illustration shows except KE, KG ABS models.

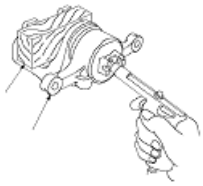


KE, KG ABS models:	**123−124 mm (4.84−4.88 in.)**
Except KE, KG ABS models:	**115.5−1116.5 mm (4.55−4.59 in.)**

Brake booster

Item	Measurement	Qualification	Standard or New		Service Limit
Brake booster	Master cylinder oil pressure	Vacuum booster vacuum kPa (mmHg, in.Hg)	Brake pedal pressure N (kgf, lbf)	Master cylinder oil pressure kPa (kgf/cm ^{2}, psi)	
		0 (0, 0)	98 (10, 22)	0 (0, 0)	
			196 (20, 11)	Except LHD model of M/T	577 (5.9, 84)
				LHD model of M/T	501 (5.1, 73)
		66.7 (500, 19.7)	98 (10, 22)	KE/KG model of 1.3 L i-SHIFT	5,393 (55, 782)
				KG model of 1.2/1.3 L 5MT	5,153 (52.5, 747)
				Except LHD model of M/T	4,523 (46.1, 656)
				LHD model of M/T	4,235 (43.2, 614)
			196 (20, 11)	KE/KG model of 1.3 L i-SHIFT	8,125 (82.9, 1,178)
				KG model of 1.2/1.3 L 5MT	8,060 (82.2, 1,169)
				Except LHD model of M/T	9,538 (97.3, 1,383)
				LHD model of M/T	9,468 (96.5, 1,373)

Front Brake Caliper Overhaul



Exploded View

⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.

- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an appropriate vacuum cleaner.

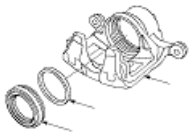
NOTE: Make sure that the caliper pins are installed correctly. Upper caliper pin B and lower caliper pin A are different. If these caliper pins are installed in the wrong location, it will cause vibration, uneven or rapid pad wear, and possibly uneven tyre wear.

- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
- To prevent dripping brake fluid, cover disconnected hose joints with rags or shop towels.
- Clean all parts in brake fluid and air dry; blow out all passages with compressed air.
- Before reassembling, check that all parts are free of dirt and other foreign particles.
- Replace parts with new ones as specified in the illustration.
- Make sure no dirt or other foreign matter gets in the brake fluid.
- Make sure no grease or oil gets on the brake discs or the brake pads.
- When reusing brake pads, always reinstall them in their original positions to prevent loss of braking efficiency.
- Do not reuse drained brake fluid. Use only clean genuine Honda DOT 3 or DOT 4 Brake Fluid from an unopened container. Using a non-Honda brake fluid can cause corrosion and shorten the life of the system.
- Coat the piston, the piston seal groove, and the caliper bore with clean brake fluid.
- Use recommended greases in the front caliper set.
- After installing the caliper, check the brake hose and line for leaks, interference, and twisting.
- Make sure not to get any silicone grease on the terminal part of the connectors and switches, especially if you have silicone grease on your hands or gloves.

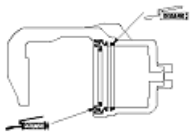
Disassembly

1. Remove the caliper body.
2. Set the wooden block (A) or several shop towels to the caliper body (B) as shown. Blow out the piston with compressed air gradually, and remove the piston from the caliper body.
   NOTE: Do not put the hand into the caliper body because the piston will come out hardly from the caliper body.

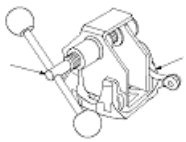
3. Remove the piston boot (A) and the piston seal (B) from the caliper body (C).
   NOTE: Be careful not to damage the inner surface of the cylinder wall with the tool.



Reassembly



1. Apply a thin coat of silicone grease to the new piston seal (A), then install it into the groove in the caliper body.
2. Apply a thin coat of rubber grease to the new piston boot (B), then install it into the groove in the caliper body.
3. Apply the brake fluid to the outer surface of the piston, then set the piston in place on the caliper body.

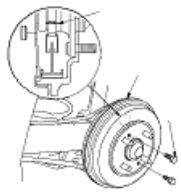


4. Mount the commercially available brake caliper piston compressor tool (A) on the caliper body (B).
5. Press in the piston with the brake caliper piston compressor tool. Make sure that the piston boot is properly positioned into the groove of the piston.
   NOTE:
   - Do not press the piston diagonally, and do not press it forcibly.
   - Be careful not to damage the piston boot when press the piston.
6. Install the caliper body.
7. Bleed the brake system.

Brake disc

Item	Measurement	Qualification	Standard or New	Service Limit
Brake disc	Thickness	Front	20.9−21.1 mm (0.82−0.83 in.)	19.0 mm (0.75 in.)
		Rear	8.9−9.1 mm (0.35−0.36 in.)	8.0 mm (0.31 in.)
	Runout		———	0.04 mm (0.0016 in.)
	Parallelism		———	0.015 mm (0.0006 in.)

Rear Drum Brake Replacement



NOTE: Keep any grease off the brake drum and brake shoes.

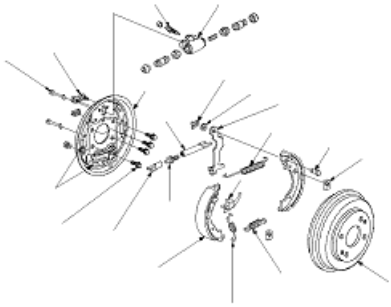
1. Raise the rear of the vehicle, and support it with safety stands in the proper locations.
2. Remove the rear wheel.
3. Remove the parking brake, and remove the brake drum (A) from the hub bearing unit.
   NOTE:
   - If necessary, turn the adjuster bolt (B) with a flat-tip screwdriver until the shoes become loose.
   - If the brake drum stuck to the hub bearing unit. Thread two 8 x 1.25 mm bolts (C) into the brake drum to push it away from the hub bearing unit. Turn each bolt 90 degrees at a time to prevent the brake drum from binding.
   - After installation, press the brake pedal several times to make sure the brakes work and self adjust the brake shoes.
4. Install the brake drum in the reverse order of removal.
   NOTE: Before installing the brake drum, clean the mating surfaces of the rear hub and the inside of the brake drum.
5. Clean the mating surfaces of the brake drum and the inside of the wheel, then install the rear wheel.

Rear Drum Brake Inspection

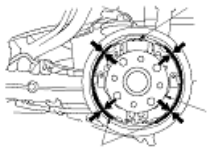
⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.

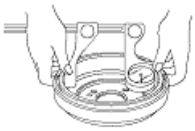
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an appropriate vacuum cleaner.



1. Raise the rear of the vehicle, and support it with safety stands in the proper locations.
2. Remove the rear wheels.
3. Release the parking brake, and remove the brake drum.



4. Check the wheel cylinder (A) for leakage.
5. Check the brake linings (B) for cracking, glazing, wear, and contamination.
   NOTE: Contaminated brake linings or drums reduce stopping ability.
6. Measure the brake lining thickness (C). Measurement does not include brake shoe thickness.
   Brake lining thickness:
   Standard: 4.0 mm (0.16 in.)
   Service limit: 1.0 mm (0.04 in.)
7. If the brake lining thickness is less than the service limit, replace the brake shoes as a set.
8. Check the hub (D) for smooth operation. If it requires servicing, replace the hub bearing unit.

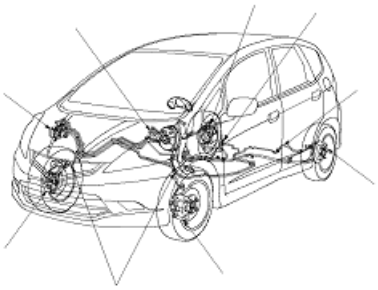


9. Measure the inside diameter of the brake drum with inside vernier calipers.
   Drum inside diameter:
   Standard: 199.9–200 mm (7.870–7.874 in.)
   Service limit: 201 mm (7.91 in.)
10. If the inside diameter of the brake drum is more than the service limit, replace the brake drum.
11. Check the brake drum for scoring, grooves, corrosion, and cracks.
12. Install the brake drum.
    NOTE: Before installing the brake drum, clean the mating surfaces of the rear hub and the inside of the brake drum.
13. Clean the mating surfaces of the brake drum and the inside of the wheel, then install the rear wheel.

Rear brake (drum brake)

Item	Measurement	Qualification	Standard or New	Service Limit
Rear brake (drum brake)	Brake drum I.D.		199.9−200 mm (7.870−7.874 in.)	201 mm (7.91 in.)
	Brake shoe lining thickness		4.0 mm (0.16 in.)	1.0 mm (0.04 in.)

Brake Hose and Line Inspection



1. Inspect the brake hoses for damage, deterioration, leaks, interference, and twisting.
2. Check the brake lines for damage, rusting, and leaks. Also check for bent brake lines.
3. Check for leaks at hose and line joints and connections, and retighten if necessary.
4. Check the master cylinder and the ABS/VSA modulator-control unit for damage and leaks.

Connection Point	Component	Connected to	Specified Torque Value	Note
A	Front brake caliper	Brake hose	34 N·m (3.5 kgf·m, 25 lbf·ft)	Banjo bolt
		Bleed screw	8.5 N·m (0.9 kgf·m, 6.5 lbf·ft)	
B	Rear brake caliper (disc type)	Brake hose	34 N·m (3.5 kgf·m, 25 lbf·ft)	Banjo bolt
		Bleed screw	8.5 N·m (0.9 kgf·m, 6.5 lbf·ft)	
	Rear wheel cylinder (drum type)	Brake line	15 N·m (1.5 kgf·m, 11 lbf·ft)	Flare nut
		Bleed screw	7 N·m (0.7 kgf·m, 5 lbf·ft)	
C	Brake hose	Brake line	15 N·m (1.5 kgf·m, 11 lbf·ft)	Flare nut
D	Master cylinder	Brake line	15 N·m (1.5 kgf·m, 11 lbf·ft)	Flare nut
E	ABS modulator-control unit	Brake line (10 mm nut)	15 N·m (1.5 kgf·m, 11 lbf·ft)	Flare nut
	VSA modulator-control unit	Brake line (12 mm nut)	22 N·m (2.2 kgf·m, 16 lbf·ft)	Flare nut

Brake Master Cylinder Replacement

NOTICE

- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
- Be careful not to damage or deform the brake lines during removal and installation.
- Plug the end of a hose and joints to prevent spilling brake fluid.

LHD Model

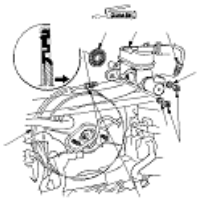
1. Remove the air cleaner cover, and the air cleaner case.
2. Remove the dashboard lid (A).
3. Remove the reservoir cap, and the brake fluid from the reservoir tank with a syringe.

4. Disconnect the brake fluid level switch connector (A).
5. Remove the reservoir tank mounting bolt (B) from the bracket (C).

6. Disconnect the brake lines (A) from the master cylinder (B). To prevent spills, cover the hose joints with rags or shop towels.
7. Remove the master cylinder mounting nuts (C) and washers (D).
8. Remove the master cylinder from the brake booster (E). Be careful not to bend or damage the bake lines when removing the master cylinder.
9. Except KG ABS model: Remove the rod seal (F) from the master cylinder.
   NOTE: During installation, set the new rod seal onto the master cylinder with its grooved side (G) toward the master cylinder.
10. KG ABS model: Remove the O-ring (H) from the master cylinder.
    NOTE: Use the new O-ring during installation.
11. Install the master cylinder in the reverse order of removal, and note these items:
    - Coat the inner bore lip and the outer circumference of the new rod seal with the silicone grease in the master cylinder set.
    - Make sure not to get any silicone grease on the terminal part of the connectors and switches, especially if you have silicone grease on your hands or gloves.
    - Check the brake pedal height and free play after installing the master cylinder, and adjust it if necessary.
12. Bleed the brake system.
13. Spin the wheels to check for brake drag.

KG ABS model:

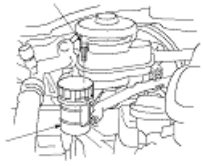
Except KG ABS model:



RHD Model

1. Remove the dashboard lid (A).

2. M/T: Remove the clutch reservoir tank (A), and move it aside. Do not disconnect the clutch line from the reservoir tank.
3. Remove the reservoir cap and the brake fluid from the reservoir tank with a syringe.



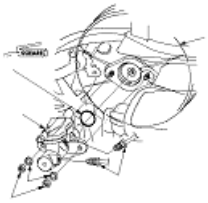
4. Disconnect the brake fluid level switch connector (A).
5. Remove the reservoir tank (B) and the clip (C) from the bracket (D).

6. Remove the bracket mount bolt (A) and the clip (B).

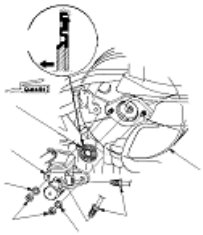
---

7. Disconnect the brake lines (A) from the master cylinder (B). To prevent spills, cover the hose joints with rags or shop towels.
8. Remove the master cylinder mounting nuts (C) and the washers (D).
9. Remove the master cylinder from the brake booster (E). Be careful not to bend or damage the bake lines when removing the master cylinder.
10. Except KE ABS model: Remove the rod seal (F) from the master cylinder.
    NOTE: During installation, set the new rod seal onto the master cylinder with its grooved side (G) toward the master cylinder.
11. KE ABS model: Remove the O-ring (H) from the master cylinder.
    NOTE: Use the new O-ring during installation.
12. Install the master cylinder in the reverse order of removal, and note these items:
    - Coat the inner bore lip and the outer circumference of the new rod seal with the silicone grease in the master cylinder set.
    - Make sure not to get any silicone grease on the terminal part of the connectors and switches, especially if you have silicone grease on your hands or gloves.
    - Check the brake pedal height and free play after installing the master cylinder, and adjust it if necessary.
13. Bleed the brake system.
14. Spin the wheels to check for brake drag.

KE ABS model:



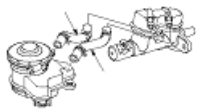
Except KE ABS model:



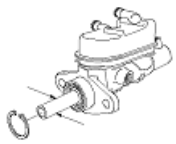
Brake Master Cylinder Disassembly

VSA Model

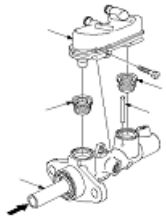
NOTE: The illustrations show LHD model.



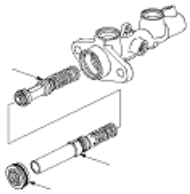
1. Remove the rod seal from the master cylinder.
2. Disconnect the reservoir tank hose (A).



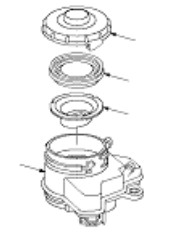
3. Remove the circlip (A) while pushing in the secondary piston (B).



4. Remove the subreservoir (A) and the grommets (B) from the master cylinder.
5. Remove the stop pin (C) while pushing in the secondary piston (D).
   NOTE: When subreservoir and master cylinder body are separated, replace the grommets with new ones.



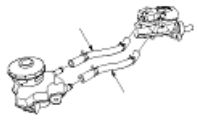
6. Remove the secondary piston (A), primary piston (B) and piston guide (C).



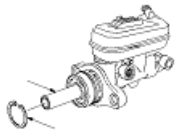
7. Remove the reservoir seal (A) from the reservoir cap (B).
8. Remove the strainer (C) from the reservoir tank (D).

KE, KG ABS Models

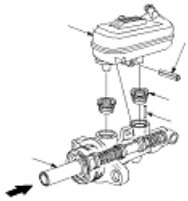
NOTE: The illustrations show LHD model.



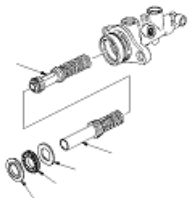
1. Remove the rod seal from the master cylinder.
2. Disconnect the reservoir tank hose (A).



3. Remove the circlip (A) while pushing in the secondary piston (B).

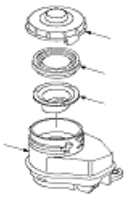


4. Remove the subreservoir (A) and the grommets (B) from the master cylinder.
   NOTE: When subreservoir and master cylinder body are separated, replace the grommets with new ones.
5. Remove the stop pin (C) while pushing in the secondary piston (D).



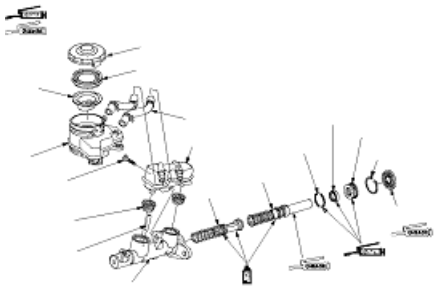
6. Remove the secondary piston (A), the primary piston (B), the plate (C), the cylinder cup (D) and the piston guide (E).

7. Remove the reservoir seal (A) from the reservoir cap (B).
8. Remove the strainer (C) from the reservoir tank (D).



Brake Master Cylinder Reassembly

VSA Model

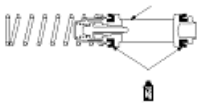


NOTE:

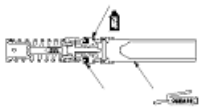
- Clean all parts in brake fluid and air dry; blow out all passages with compressed air.
- Before reassembling, check that all the parts are free of dirt and other foreign particles.
- Replace parts with new ones whenever specified to do so.
- Use only genuine DOT 3 or DOT 4 Honda Brake Fluid. Non-Honda brake fluid can cause corrosion and shorten the life of the system.
- Replace the master cylinder if the bore is damaged or worn. Do not hone or attempt to refinish the bore.
- Coat the piston cups, pressure cup and master cylinder bore with clean brake fluid.
- Use recommended greases in the master cylinder seal set.
- Make sure not to get any silicone grease on the terminal part of the connectors and switches, especially if you have silicone grease on your hands or gloves.
- The illustrations show LHD model.

1. Install the reservoir seal in the groove of the reservoir cap.
2. Install the strainer, assembled reservoir cap on the reservoir tank.

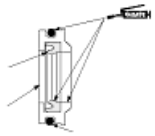
3. Coat the cups (A) of a new primary piston (B) with clean brake fluid, then install the primary piston into the master cylinder.



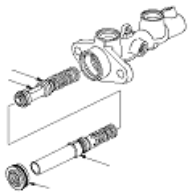
4. Coat the cup (A) of a new secondary piston (B) with clean brake fluid, and apply the silicone grease to the piston surface (C).



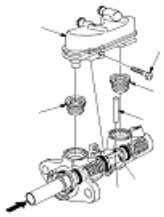
5. Apply the rubber grease to the piston guide (A), a new O-ring (B) and a new secondary cup (C).



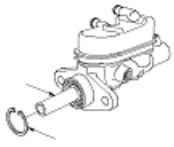
6. Install the primary piston (A), secondary piston (B) and piston guide (C) into the master cylinder. Make sure the direction of piston guide.
   NOTE: Install the primary piston so the slot (D) in the piston aligns with the stop pin hole in the master cylinder.



7. Install the new grommets (A) and subreservoir (B) to the master cylinder.
8. Align the slot (C) in the primary piston with the stop pin hole (D) by pushing the secondary piston in, and install the stop pin (E).



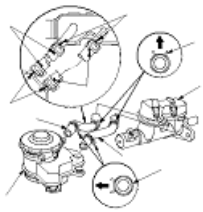
9. Install the new circlip (A) while pushing in the secondary piston (B). Be careful not to scratched damage on the piston surface with the circlip edges.



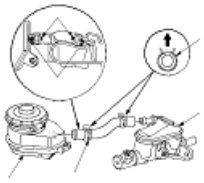
10. Install the reservoir tank (A) and the reservoir tank hose (B) to the subreservoir (C).
    NOTE:
    - Align the "△" mark (D) on the reservoir and subreservoir with the paint mark (E) on the hose.
    - Position the direction of the clamp (F).

11. Apply the silicone grease to a new rod seal, and install the seal onto the master cylinder.
    - LHD model.
    - RHD model.

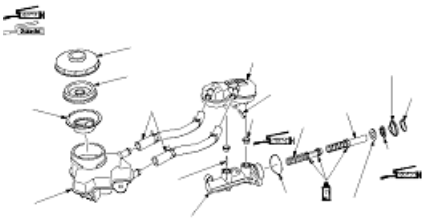
LHD model



RHD model



KE, KG ABS Models



NOTE:

- Clean all parts in brake fluid and air dry; blow out all passages with compressed air.
- Before reassembling, check that all the parts are free of dirt and other foreign particles.
- Replace parts with new ones whenever specified to do so.
- Use only genuine DOT 3 or DOT 4 Honda Brake Fluid. Non-Honda brake fluid can cause corrosion and shorten the life of the system.
- Replace the master cylinder if the bore is damaged or worn. Do not hone or attempt to refinish the bore.
- Coat the piston cups, pressure cup and master cylinder bore with clean brake fluid.
- Use recommended greases in the master cylinder seal set.
- Make sure not to get any silicone grease on the terminal part of the connectors and switches, especially if you have silicone grease on your hands or gloves.
- The illustrations show LHD model.

1. Install the reservoir seal in the groove of the reservoir cap.
2. Install the strainer, assembled reservoir cap on the reservoir tank.

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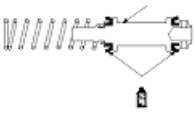
3. Coat the cups (A) of a new primary piston (B) with clean brake fluid, then install the primary piston into the master cylinder.



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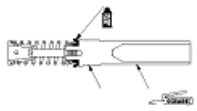
4. Coat the cup (A) of a new secondary piston (B) with clean brake fluid, and apply the silicone grease to the piston surface (C).



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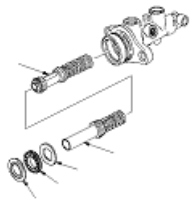
5. Install the primary piston (A), secondary piston (B), the plate (C), the cylinder cup (D) and the piston guide (E) into the master cylinder. Make sure the direction of piston guide.



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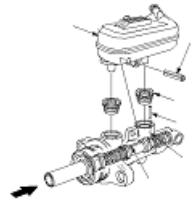
6. Install the new grommets (A) and the subreservoir (B) to the master cylinder.
7. Align the slot (C) in the primary piston with the stop pin hole (D) by pushing the secondary piston in, and install the stop pin (E).



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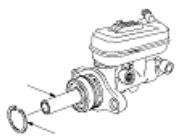
8. Install the new circlip (A) while pushing in the secondary piston (B). Be careful not to scratched damage on the piston surface with the circlip edges.



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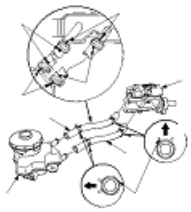
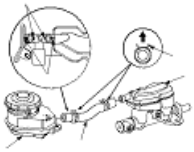
9. Install the reservoir tank (A) and the reservoir tank hose (B) to the subreservoir (C).
   NOTE:
   - Align the "△" mark (D) on the reservoir and subreservoir with the paint mark (E) on the hose.
   - Position the direction of the clamps (F).

LHD model



RHD model



Front Brake Pad Inspection and Replacement

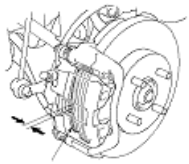
⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.

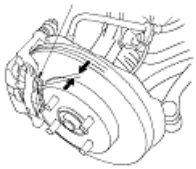
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an appropriate vacuum cleaner.

Inspection

Inner pad



Outer pad



1. Raise the front of the vehicle, and support it with safety stands in the proper locations.
2. Remove the front wheels.
3. Check the thickness (A) of the inner pad (B) and the outer pad (C). Do not include the thickness of the backing plate.

   Brake pad thickness:

   Standard:

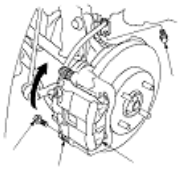
   Except KE, KG models: **9.5–10.2 mm (0.37–0.41 in.)**

   KE, KG models: **9.3–10.2 mm (0.37–0.41 in.)**

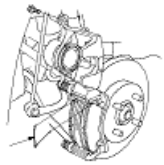
   Service limit: **1.6 mm (0.06 in.)**

4. If the brake pad thickness of any of the pads is less than the service limit, replace the front brake pads as a set.
5. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheels.

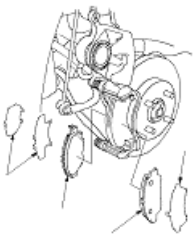
Replacement



1. Remove some brake fluid from the master cylinder.
2. Raise the front of the vehicle, and support it with safety stands in the proper locations.
3. Remove the front wheels.
4. Remove the brake hose mounting bolt (A).
5. Remove the flange bolt (B) while holding the caliper pin (C) with a wrench. Be careful not to damage the pin boot, and pivot the caliper (D) up out of the way. Check the hose and the pin boots for damage and deterioration.

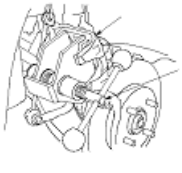


6. KE, KG models: Remove the pad return spring (A).



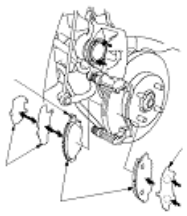
7. Remove the pad shims (A) and the brake pads (B).

8. Remove the pad retainers (A).
9. Clean the caliper bracket (B) thoroughly; remove any rust, and check for grooves and cracks. Verify that the caliper pins (C) move in and out smoothly. Clean and lube if needed.
10. Inspect the brake disc, and check for damage and cracks.
11. Install the pad retainers. Wipe excess grease off the retainers. Keep grease off the brake disc and the brake pads.
    NOTE: KE, KG models: Upper retainer and lower retainer are different. Make sure retainers are installed correctly.



12. Mount a commercially available brake caliper piston compressor tool (A) on the caliper body (B).
13. Press in the piston with the brake caliper piston compressor tool so the caliper will fit over the brake pads. Make sure the piston boot is in position to prevent damaging it when pivoting the caliper down.
    NOTE: Be careful when pressing in the piston; brake fluid might overflow from the master cylinder's reservoir. If brake fluid gets on any painted surface, wash it off immediately with water.
14. Remove the brake caliper piston compressor tool.

15. Apply Molykote M77 grease to the pad side of the shims (A), and the back of the brake pads (B). Wipe excess grease off the pad shims and the brake pads. Keep grease off the brake discs and the brake pads. Contaminated brake discs or brake pads reduce stopping ability.
16. Install the brake pads and the pad shims correctly. Install the brake pad with the wear indicator (C) on the upper inside. If you are reusing the brake pads, always reinstall the brake pads in their original positions to prevent a momentary loss of braking efficiency.



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17. KE, KG models: Install the pad return spring (A).

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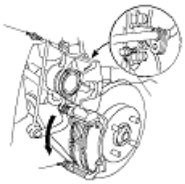
18. Pivot the caliper down into position. Install the flange bolt (A), and tighten it to the specified torque while holding the caliper pin (B) with a wrench being careful not to damage the pin boot.
19. Install the brake hose mounting bolt (C).
20. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheels.
21. Press the brake pedal several times to make sure the brakes work.
    NOTE: Engagement may require a greater pedal stroke immediately after the brake pads have been replaced as a set. Several applications of the brake pedal will restore the normal pedal stroke.
22. Add brake fluid as needed.
23. After installation, check for leaks at hose and line joints or connections, and retighten if necessary.
    Test-drive the vehicle, then check for leaks.



Brake pad

Item	Measurement	Qualification	Standard or New	Service Limit
Brake pad	Thickness	Front	KE, KG: 9.3−10.2 mm (0.36−0.41 in.)	1.6 mm (0.06 in.)
			Except KE, KG: 9.5−10.2 mm (0.37−0.41 in.)	1.6 mm (0.06 in.)
		Rear	6.8−7.5 mm (0.27−0.30 in.)	1.6 mm (0.06 in.)

Brake pedal

Item	Measurement	Qualification	Standard or New	Service Limit
Brake pedal	Pedal height (carpet moved aside)	M/T	139 mm (5.5 in.)	
		A/T	138 mm (5.4 in.)	
	Free play		1−5 mm (0.04−0.20 in.)	

Rear Brake Shoe Replacement

⚠CAUTION

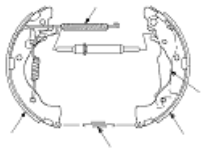
Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.

- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an appropriate vacuum cleaner.

Disassembly

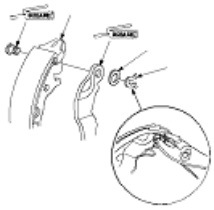
1. Raise the rear of the vehicle, and support it with safety stands in the proper locations.
2. Remove the rear wheels.
3. Release the parking brake, and remove the brake drum.
4. Remove the tension pins (A) by pushing respective retainer spring (B) and turning the pin.

5. Remove the lower return spring (A), and remove the brake shoe assembly over the hub.
6. Remove the forward brake shoe (B) by removing the upper return spring (C), and disassemble the brake shoe assembly.
7. Remove the rearward brake shoe (D) by disconnecting the parking brake cable from the parking brake lever (E).



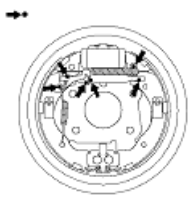
8. Remove the U-clip (A), wave washer (B), and pivot pin (C), and separate the parking brake lever (D) from the brake shoe (E).

Reassembly

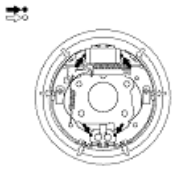


1. Apply rubber grease to the sliding surface of the pivot pin (A) and parking brake lever (B) for the rearward brake shoe (C).
2. Install the parking brake lever and the wave washer (D) on the pivot pin, and secure with a new U-clip (E).
   NOTE: Pinch the U-clip securely to prevent the parking brake lever from coming out of the brake shoe.
3. Connect the parking brake cable to the parking brake lever.

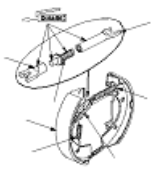
4. Apply a thin coat of rubber grease to the connecting rod ends (A), and the sliding surfaces (B) as shown. Wipe off any excess. Keep grease off the brake linings.



5. Apply a thin coat of Molykote 44 MA grease to the shoe ends (A) and the edge of the shoe surfaces (B) that contact the backing plate as shown. Wipe off any excess. Keep grease off the brake linings.



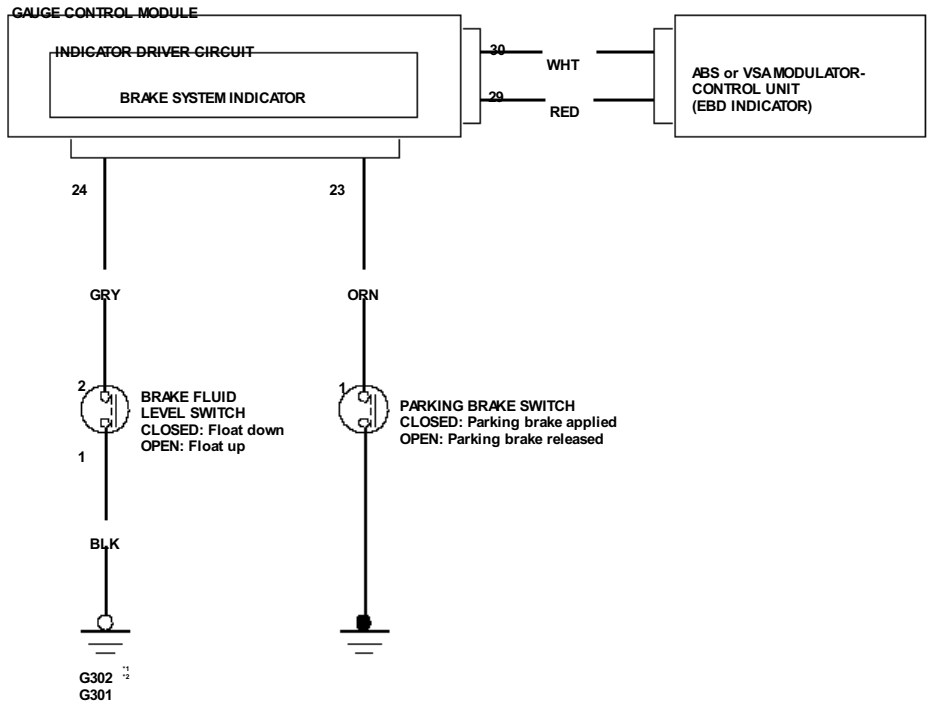
6. Install connecting rods A and B on the adjuster bolt (C).
   NOTE:
   - Clean the threaded portions of connecting rod A and the sliding surface of connecting rod B, then coat them with rubber grease.
   - Shorten connecting rod A by fully turning the adjuster bolt.
7. Assemble the brake shoes, the upper return spring (D), and with the connecting rods the adjuster bolt on the backing plate, then install the self-adjuster lever (E) and the self-adjuster spring (F) on the forward brake shoe (G).



8. Install the tension pins (A) and the retainer springs (B) by pushing in respective spring and turning each pin.

9. Install the lower return spring.
   NOTE: Make sure the brake shoe positioning on the brake shoe bosses of the backing plate, and fitting the top of the brake shoes onto the wheel cylinder pistons.
10. Install the brake drum.
    NOTE: Before installing the brake drum, clean the mating surface of the rear hub and the inside of the brake drum.
11. Clean the mating surfaces of the brake drum and the inside of the wheel, then install the rear wheel.
12. Press the brake pedal several times to make sure the brakes work and to set the self-adjusting brake.
    NOTE: Engagement of the brakes may require a greater pedal stroke immediately after the brake shoes have been replaced as a set. Several applications of the brake pedal will restore the normal pedal stroke.
13. Adjust the parking brake.

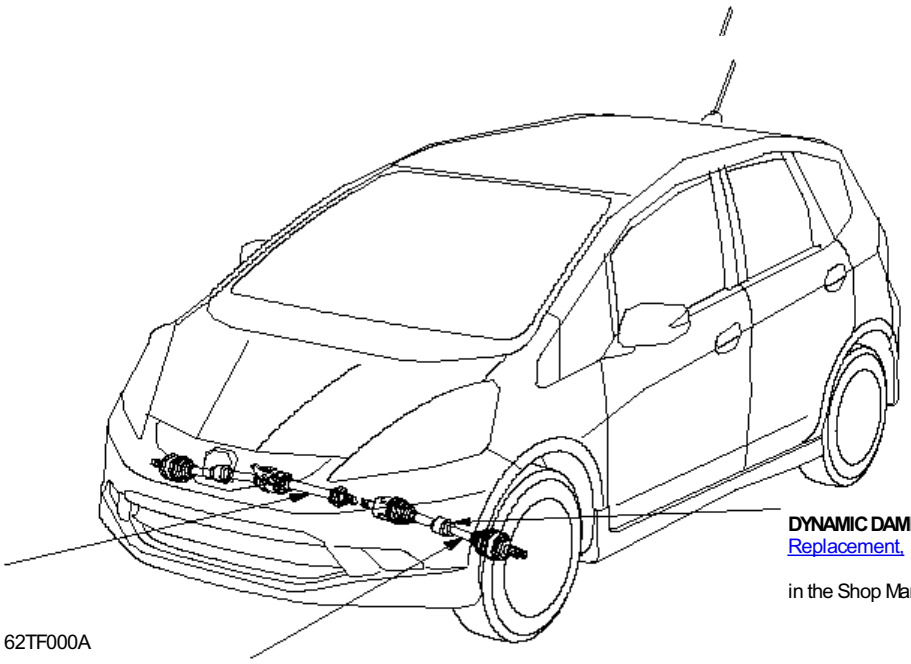
Brake System Indicator Circuit Diagram



*1: LHD model
*2: RHD model

Driveline/Axle Component Location Index

M/T model, i-SHIFT model



INTERMEDIATE SHAFT
Removal,
in the Shop Manual, P/N 62TF000A
Disassembly,
in the Shop Manual, P/N 62TF000A
Reassembly,
in the Shop Manual, P/N 62TF000A
Installation,
in the Shop Manual, P/N 62TF000A

DRIVESHAFT
Inspection,
in the Shop Manual, P/N 62TF000A
Removal,
Disassembly,
in the Shop Manual, P/N 62TF000A
Reassembly,
in the Shop Manual, P/N 62TF000A
Installation,

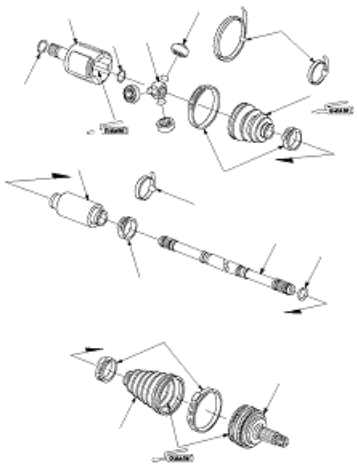
DYNAMIC DAMPER
Replacement,

in the Shop Manual, P/N 62TF000A

Driveshaft Reassembly

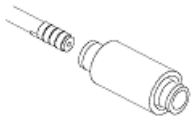
Refer to the procedures for the Manual Transmission model.

i-SHIFT

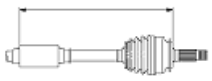


Driveshaft Dynamic Damper Replacement

1. Remove the inboard joint.
2. Remove the dynamic damper band.
3. Remove the dynamic damper.
4. Install the new dynamic damper.



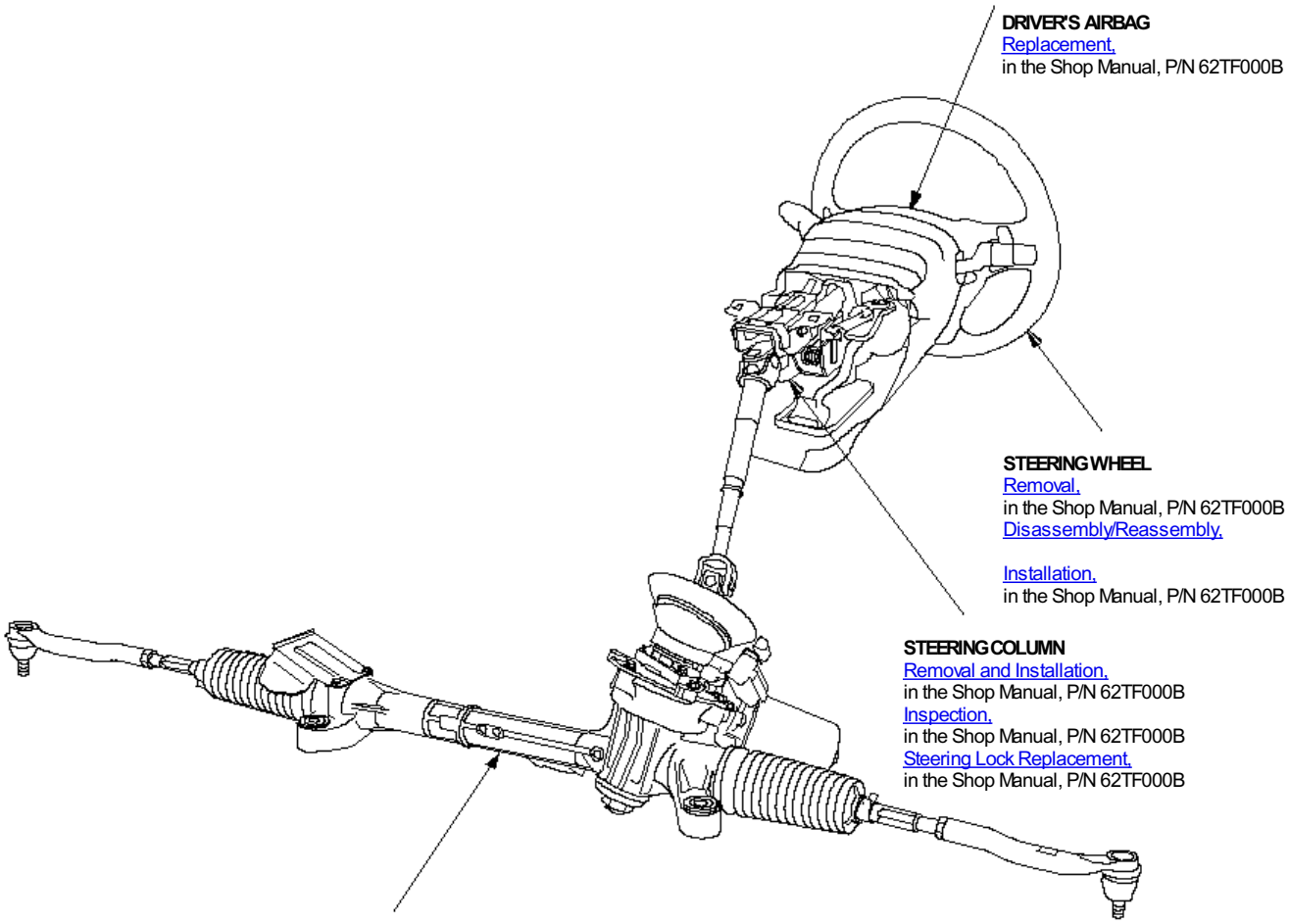
5. Adjust the specified distance (A) between the outboard joint side and the dynamic damper edge.
   NOTE: Check the type of dynamic damper by its shape.



Model	Left/Right Driveshaft	Specified Distance (A)
i-SHIFT	Left	———
	Right	287−292 mm (11.30−11.50 in.)

6. Install the dynamic damper band.
7. Install the inboard joint.

Steering Component Location Index



DRIVER'S AIRBAG
Replacement,
in the Shop Manual, P/N 62TF000B

STEERING WHEEL
Removal,
in the Shop Manual, P/N 62TF000B
Disassembly/Reassembly,

Installation,
in the Shop Manual, P/N 62TF000B

STEERING COLUMN
Removal and Installation,
in the Shop Manual, P/N 62TF000B
Inspection,
in the Shop Manual, P/N 62TF000B
Steering Lock Replacement,
in the Shop Manual, P/N 62TF000B

POWER STEERING GEARBOX
Rack Guide Adjustment,
in the Shop Manual, P/N 62TF000B
Tie-rod Ball Joint Boot Replacement,
in the Shop Manual, P/N 62TF000B
Gearbox Mount Cushion Replacement,
in the Shop Manual, P/N 62TF000B
EPS Component location Index,

The illustration shows LHD model, RHD model is similar.

Steering Gearbox Removal and Installation

Special Tools Required

Ball joint remover, 28 mm
07MAC-SL00201

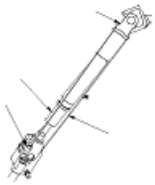
Engine support hanger
AAR-T1256-J00*
*: This special tool is available from Snap-on Tools International, LLC.
Note these items during removal:

- Use solvent and a brush, wash any oil and dirt off the end of the steering gearbox. Avoid any electrical parts. Blow dry with compressed air.
- Be sure to remove the steering wheel before disconnecting the steering joint. Damage to the cable reel can occur.
- Lower the front subframe from the body and remove the steering gearbox through the gap produced by lowering the front subframe.
- The illustrations show LHD model, RHD model is similar for items not shown in this section.

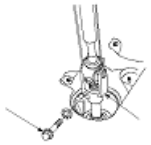
Removal

1. Do the battery terminal disconnection procedure.
2. Raise the vehicle on a lift, and support it with safety stands in the proper locations.
3. Remove the front wheels.
4. Release the lock lever, and adjust the steering column to the full tilt up position, and to the full telescopic in position.
5. Tighten the lock lever.
6. Remove the driver's airbag and the steering wheel.
7. Remove the steering joint cover (A).

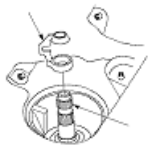
8. Hold the lower slide shaft (A) on the column with a piece of wire (B) between the joint yoke (C) of the lower slide shaft and joint yoke (D) of the upper shaft to prevent the lower slide from pulling out.
9. Release the lock lever, and adjust the steering column to the full telescopic out position, then tighten the lock lever.



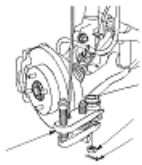
10. Remove the steering joint bolt (A).
11. Disconnect the steering joint (B) by moving the steering joint toward the column.



12. Remove the center guide (A) (if equipped) from top of the pinion shaft (B), and discard it. The center guide is for factory assembly use only.

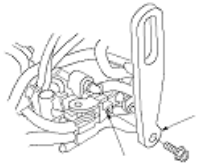


13. Remove the cotter pin (A) from the tie-rod ball joint, then remove the nut (B).
14. Separate the tie-rod ball joint and knuckle using the ball joint remover.

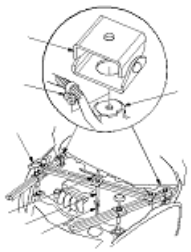


15. Remove the clip (A) from the castle nut (B), and remove the nut.
16. Separate the lower arm ball joint and the knuckle using the ball joint remover.
17. Remove the stabilizer link from the stabilizer bar.
18. Remove the air cleaner.

19. Install the hanger adapter (A) to the threaded hole (B) in the cylinder head using the 8 mm bolt.

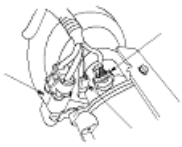


20. On the left side, remove the harness clip (A) from the harness clamp bracket (B).
21. Place the cross arm foot (C) to the harness clamp bracket on both side.
22. Install the engine support hanger (AAR-T1256-J00) to the vehicle, and attach the hook (D) to the hanger adapter (E). Tighten the wing nut (F) by hand, and lift and support the engine.
23. Raise the vehicle on a lift.
24. Remove the splash shield.
25. With HID lamp model: Disconnect the suspension stroke sensor connector.

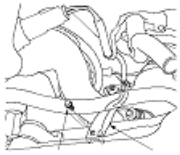


26. LHD model: Disconnect the motor 2P connector (A), and torque sensor 4P connector (B) from the torque sensor.

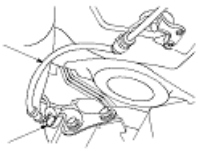
27. RHD model: Disconnect the motor 2P connector (A), torque sensor 3P connector (B), and steering gearbox 1P connector (C) from the torque sensor.
28. Wrap the connectors with the vinyl tape to avoid the contamination from grease or water.



29. LHD model: Remove the secondary HO2S wire clamp (A) on steering gearbox. Do not disconnect secondary HO2S 4P connector and secondary HO2S.

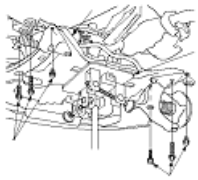


30. RHD model: Remove the secondary HO2S wire (A) from the clamp (B) on steering gearbox. Do not disconnect secondary HO2S 4P connector and secondary HO2S.

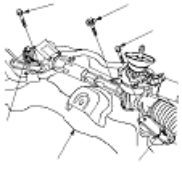


31. Remove the lower torque rod (A).

32. Attach a jack (A) to the center of the front subframe (B) and support the front subframe securely by raising the jack.
33. Remove the front subframe mounting bolts (C).
34. Lower the front subframe and steering gearbox as an assembly by lowering the jack slowly.



35. Remove the steering gearbox (A) from the front subframe (B).



36. Remove the pinion shaft grommet (A) from the top of the torque sensor.

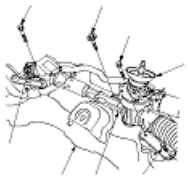
Installation

1. Before installing the steering gearbox, make sure that no grease is on the mating surface of the steering gearbox and the front subframe. To prevent the gearbox mounting bolts from loosening after the installation, remove any grease from the bolt holes.
2. Install the pinion shaft grommet (A). Align the cutout portion (B) in the pinion shaft grommet with the lug portion (C) on the torque sensor 3P connector. The grommet must not have a gap at the mating surface of the grommet and torque sensor.

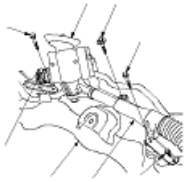
---

3. Place the steering gearbox (A) on the front subframe (B).
4. Loosely install the stiffener plates, and new gearbox mounting bolts, then tighten the bolts to the specified torque in the sequence shown.
5. Turn the lip (C) of the pinion shaft grommet to ease installation.

LHD model



RHD model



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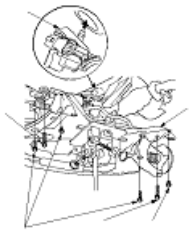
6. Set the front subframe (A) mounting with the steering gearbox on the transmission jack and support it.
7. Carefully raise the front subframe with the jack, and pass the pinion shaft into the cabin. Return the lip (B) of the pinion shaft grommet.
   NOTE:
   - Be sure that the pinion shaft grommet is securely in place. Check whether the pinion shaft grommet is not turning up. Incorrect installation can cause leakage of water, mud, or noise.
   - Take care not to damage the lower arm ball joint boot with the edge of the knuckle, etc.
8. Loosely install new front subframe mounting bolts, then tighten the bolts to the specified torque in the sequence shown.



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9. Install the lower torque rod (A) with new mounting bolts and new mounting nut, and tighten them to the specified torque.
   NOTE: Make sure the stopper (B) of flange bolt securely installed.

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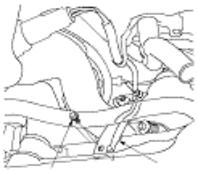
10. LHD model: Install the secondary HO2S wire clamp (A) to the steering gearbox.



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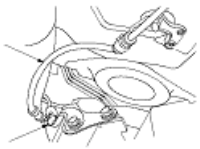
11. RHD model: Install the secondary HO2S wire (A) to the clamp (B) on steering gearbox.
12. Remove the vinyl tape from the connectors.



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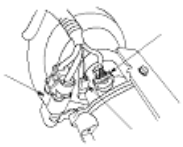
13. LHD model: Connect the motor 2P connector (A), and torque sensor 4P connector (B) to the torque sensor.

---

14. RHD model: Connect the motor 2P connector (A), torque sensor 3P connector (B), and steering gearbox 1P connector (C) to the torque sensor.
15. With HID lamp model: Connect the suspension stroke sensor connector.
16. Install the splash shield.
17. Connect the stabilizer links.
18. Lower the vehicle.
19. Remove the engine support hanger (AAR-T1256-J00) from the vehicle.



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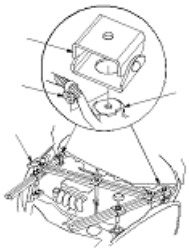
20. Remove the cross arm foot (A), then install the harness clip (B) to the harness clamp bracket (C) on the left side.



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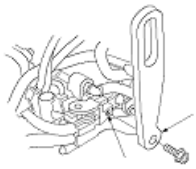
21. Remove the hanger adapter (A) from the threaded hole (B) in the cylinder head.
22. Install the air cleaner.



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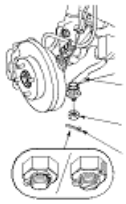
23. Wipe off any grease contamination from the tapered section and the threads of the ball joint. Connect the tie-rod ends (A) to the knuckles with a nut, then tighten it to the specified torque.
24. Install the new cotter pin (B), and bend it as shown.



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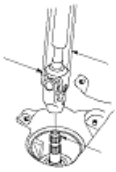
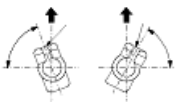
25. Wipe off any grease contamination from the tapered section and threads of the lower arm ball joint. Then reconnect the lower arm (A) to the knuckle. Install the new castle nut (B) and tighten it.
NOTE:
    - Be careful not to damage the lower ball joint boot (C). Check the ball joint boot for deformation before connecting the knuckle.
    - Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the joint pin clip hole. Do not align the castle nut by loosening it.
26. Install the clip (D).
27. Install the front wheels, then set the wheels in the straight ahead position.
NOTE: Before installing the wheel, clean the mating surfaces of the brake disc and the inside of the wheel.

---

28. Cut the wire (A).
29. Slip the lower end of the steering joint (B) onto the pinion shaft (C) taking care to align the gap (D) within the angle shown.
30. Release the lock lever, and adjust the steering column to the full tilt down position, and to the full telescopic out position, then tighten the lock lever.





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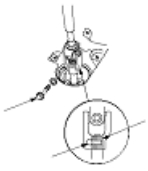
31. Align the bolt hole (A) on the steering joint with the groove (B) around the pinion shaft, then loosely install the lower steering joint bolt (C). Be sure that the joint bolt is securely in the groove in the pinion shaft.
32. Pull on the steering joint to make sure that the steering joint is fully seated, then tighten the lower joint bolt to the specified torque.



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33. Install the steering joint cover (A).

34. Install the steering wheel and the driver's airbag.

35. With the tyres raised off the ground, check for the following symptoms by turning the steering wheel fully to the right and left several times.

Symptom	Probable cause
Rubbing sound coming from the lower steering column area.	Steering column joint is contacting the cover.
Grating sound from the lower steering column area, or a rough feeling during steering.	Poor engagement of the pinion shaft serrations.
Noise from around the steering wheel during steering.	Poor engagement of the SRS cable reel with the steering wheel, or a damaged cable reel.

36. Do the battery terminal reconnection procedure, and do these tasks:
    - Turn the ignition switch to ON (II) and check that the SRS indicator should came on for about 6 seconds and then go off.
    - Make sure the horn and turn signal switches work properly.
    - Make sure the steering wheel switches work properly.

37. After installation, do these checks:
    - Start the engine, allow it to idle, and turn the steering wheel from lock-to-lock several times.
    - Check that the EPS indicator does not come on.
    - Check the steering wheel spoke angle. If steering spoke angles to the right and left are not equal (steering wheel and rack are not centered), correct the engagement of the joint/pinion shaft serrations, then adjust the front toe by turning the tie-rod ends, if necessary.

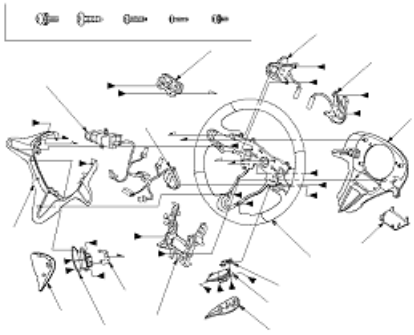
38. Do the memorizing the torque sensor neutral position.

39. Check the wheel alignment, and adjust it if necessary.

Gearbox

Item	Measurement	Qualification	Standard or New
Gearbox	Angle of rack guide screw loosened from locked position		10±3 °

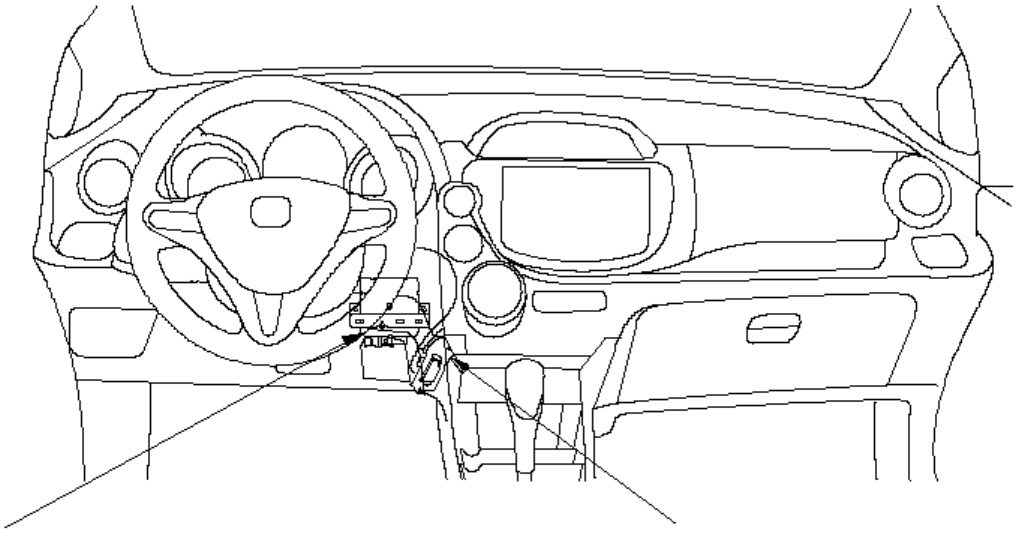
Steering Wheel Disassembly/Reassembly



Steering wheel

Item	Measurement	Qualification	Standard or New
Steering wheel	Rotational play measured at outside edge with engine running		0−10 mm (0−0.39 in.)
	Initial load measured at outside edge with engine running		29 N (3.0 kgf, 6.6 lbf)

EPS Component Location Index



EPS CONTROL UNIT
Removal/Installation,
in the Shop Manual, P/N 62TF000B

DATA LINK CONNECTOR (DLC)

The illustration shows LHD model, RHD model is similar.

STEERING GEARBOX
Removal and Installation,
Rack End Removal and Installation,
in the Shop Manual, P/N 62TF000B
Rack Guide Removal/Installation,
in the Shop Manual, P/N 62TF000B

Refrigerant

Item	Measurement	Qualification	Standard or New
Refrigerant	Type		HFC-134a (R-134a)
	Capacity of system		370−420 g (13.1−14.8 oz)

Refrigerant oil

Item	Measurement	Qualification	Standard or New
Refrigerant oil	Type		SP-10 (P/N 38897-P13-003, 38898-P13-003, or 38899-P13-A01)
	Capacity of components	Condenser	25 mL (5/6 fl·oz, 0.9 Imp·oz)
		Evaporator	35 mL (1 1/6 fl·oz, 1.2 Imp·oz)
		Each line and hose	10 mL (1/3 fl·oz, 0.4 Imp·oz)
		Receiver/Dryer	10 mL (1/3 fl·oz, 0.4 Imp·oz)
		Compressor	80–90 mL (2 2/3–3 fl·oz, 2.8–3.2 Imp·oz)

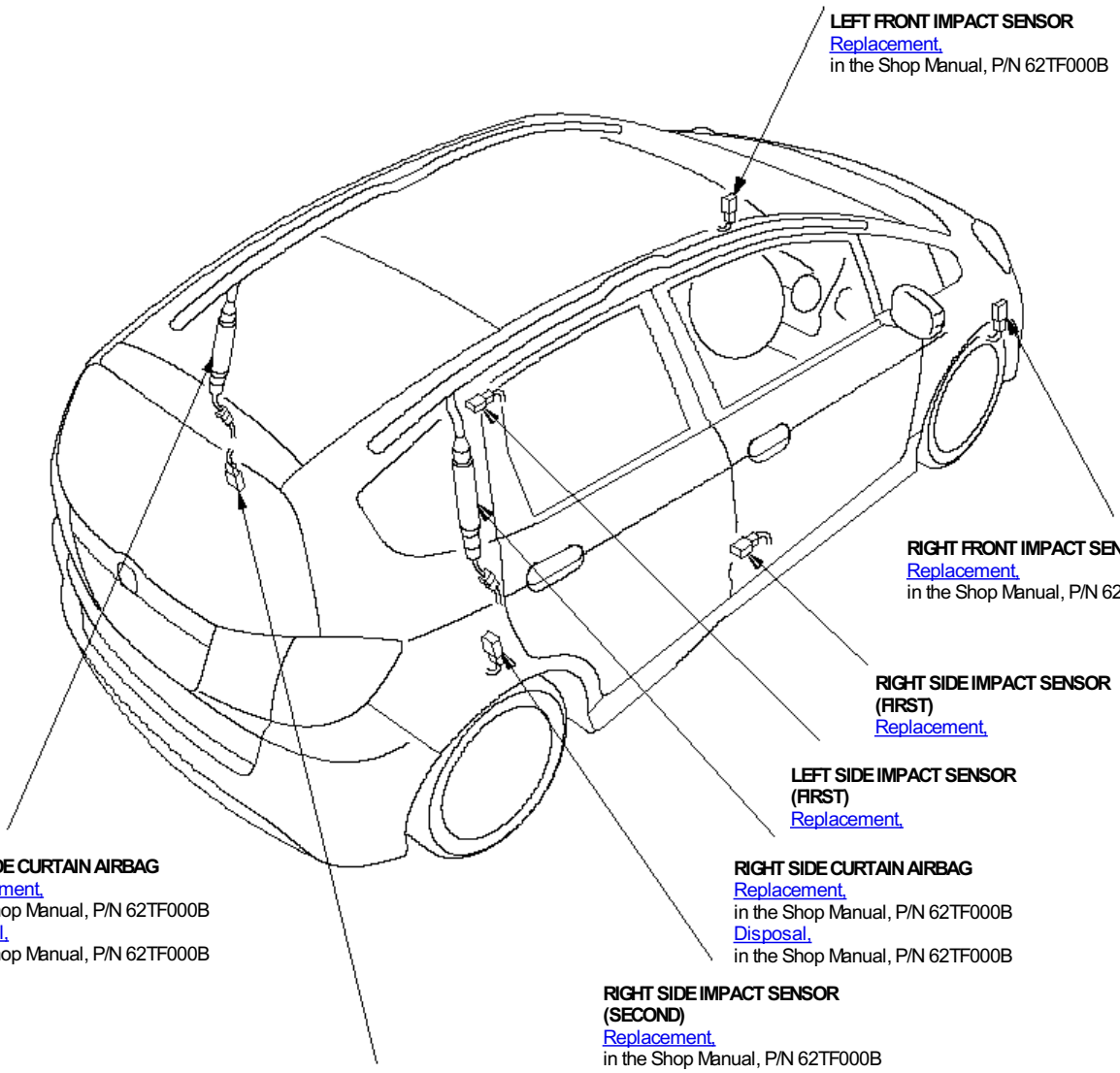
Compressor

Item	Measurement	Qualification	Standard or New
Compressor	Field coil resistance	At 20 °C (68 °F)	3.15−3.45 Ω
	Pulley-to-armature plate clearance		0.35−0.65 mm (0.014−0.026 in.)

SRS System Description

SRS Components
Side Airbag Cutoff Indicator/OPDS Operation
SRS Operation
SRS Unit Inputs and Outputs at Connector A (39P)
SRS Unit Inputs and Outputs at Connector B (39P)

SRS Component Location Index



LEFT FRONT IMPACT SENSOR
Replacement,
in the Shop Manual, P/N 62TF000B

RIGHT FRONT IMPACT SENSOR
Replacement,
in the Shop Manual, P/N 62TF000B

RIGHT SIDE IMPACT SENSOR (FIRST)
Replacement,

LEFT SIDE IMPACT SENSOR (FIRST)
Replacement,

LEFT SIDE CURTAIN AIRBAG
Replacement,
in the Shop Manual, P/N 62TF000B
Disposal,
in the Shop Manual, P/N 62TF000B

RIGHT SIDE CURTAIN AIRBAG
Replacement,
in the Shop Manual, P/N 62TF000B
Disposal,
in the Shop Manual, P/N 62TF000B

RIGHT SIDE IMPACT SENSOR (SECOND)
Replacement,
in the Shop Manual, P/N 62TF000B

LEFT SIDE IMPACT SENSOR (SECOND)
Replacement,
in the Shop Manual, P/N 62TF000B

RHD model is shown, LHD model is similar.

LEFT SIDE SEAT BELT TENSIONER
Replacement,

in the Shop Manual, P/N 62TF000B
Disposal,

in the Shop Manual, P/N 62TF000B

in the Shop Manual, P/N 62TF000B
Replacement,

in the Shop Manual, P/N 62TF000B

FRONT PASSENGER'S SEAT SITTING SWITCH/ SEAT CUSHION PAD
Replacement,
in the Shop Manual, P/N 62TF000B

FRONT PASSENGER'S AIRBAG ON/OFF SWITCH
Replacement,

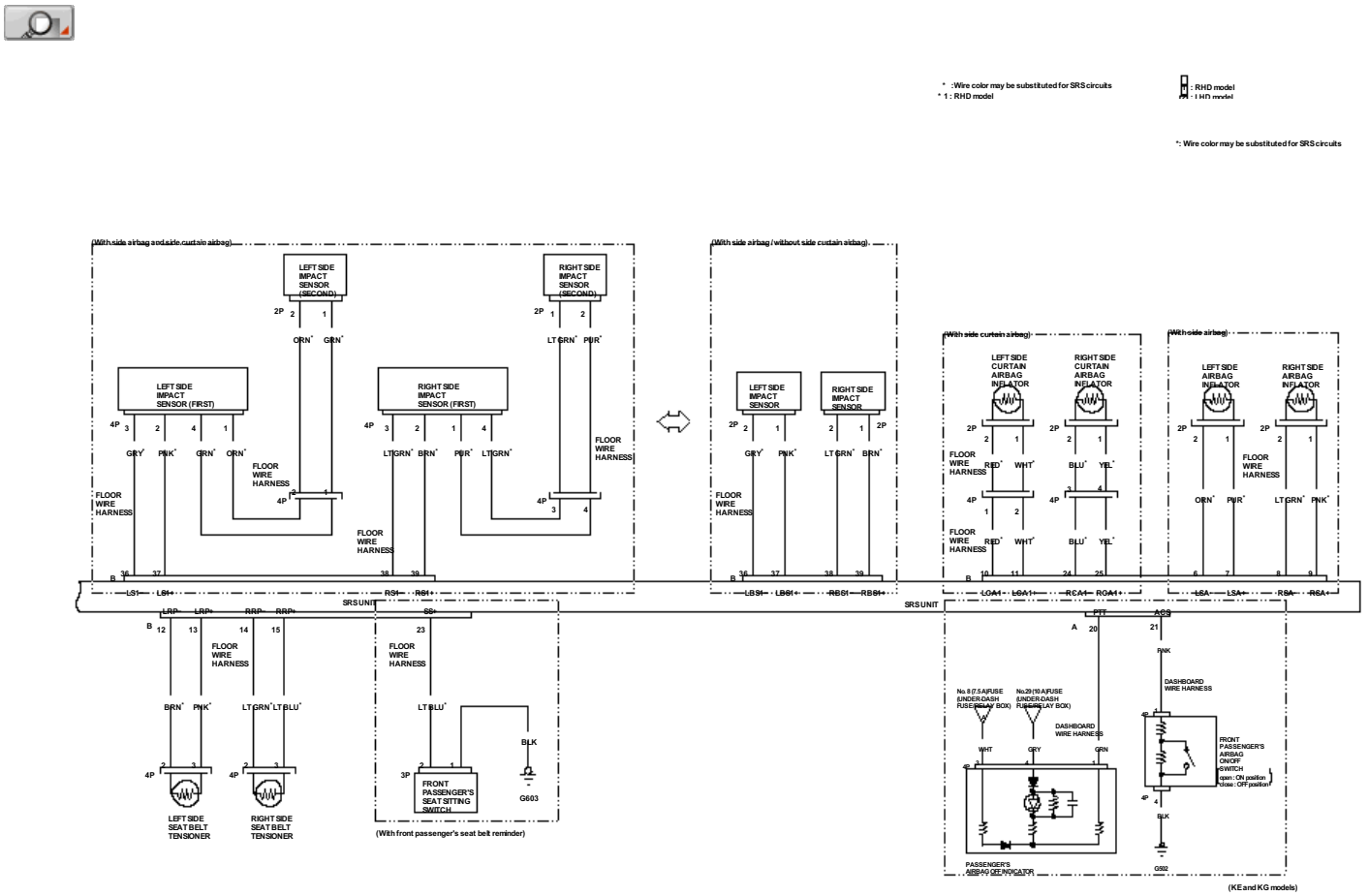
in the Shop Manual, P/N 62TF000B
Replacement,
in the Shop Manual, P/N 62TF000B

RIGHT SIDE AIRBAG
Replacement,
in the Shop Manual, P/N 62TF000B
Disposal,
in the Shop Manual, P/N 62TF000B

RIGHT SIDE SEAT BELT TENSIONER
Replacement
in the Shop Manual, P/N 62TF000B
Disposal,
in the Shop Manual, P/N 62TF000B

RHD model is shown, LHD model is similar.

SRS Circuit Diagram



SRS Symptom Troubleshooting - Front Passenger's airbag ON/OFF switch to OFF, but passenger's airbag off indicator does not come on

Front passenger's airbag ON/OFF switch to OFF, but passenger's airbag off indicator does not come on

NOTE: Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Turn the ignition switch to LOCK (0), then wait for 10 seconds.
2. Turn the ignition switch to ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator come on?
   YES - Go to the System Troubleshooting "SRS indicator stay on, but no DTCs are stored".■
   NO - Go to Step 3 .
3. Check for front passenger's airbag on/off switch to OFF.
4. Connect the HDS to the data link connector (DLC).
5. From the Main Menu on the HDS, select SRS, then PARAMETER INFORMATION. In the "FRONT PASSENGER'S AIRBAG ON/OFF SWITCH", and read the HDS indicated.

   Is OFF indicated on the HDS?
   YES - Faulty passenger's airbag off indicator, replace the passenger's airbag off indicator. ■
   NO - Faulty front passenger's airbag on/off switch, replace the front passenger's airbag on/off switch.■

SRS Symptom Troubleshooting - Passenger's airbag off indicator does not come on

Passenger's airbag off indicator does not come on

NOTE: Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Check for front passenger's airbag on/off switch to ON.
2. Turn the ignition switch to LOCK (0), then wait for 10 seconds.
3. Turn the ignition switch to ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator come on?

   YES - Go to the System Troubleshooting "SRS indicator stay on, but no DTCs are stored".■
   NO - Go to Step 4 .
4. Connect the HDS to the data link connector (DLC).
5. From the Main Menu on the HDS, select SRS, then PARAMETER INFORMATION. In the "FRONT PASSENGER'S AIRBAG ON/OFF SWITCH", and read the HDS indicated.

   Is OFF indicated on the HDS?

   YES - Faulty passenger's airbag off indicator, replace the passenger's airbag off indicator. ■
   NO - Faulty front passenger's airbag on/off switch, replace the front passenger's airbag on/off switch.■

SRS indicator does not come on

Diagnostic procedure

1. Symptom Troubleshooting

Also check for

- Communication with the HDS

SRS indicator stays on, but no DTCs are stored

Diagnostic procedure

1. Symptom Troubleshooting

Also check for

- Charging system for under or overcharging
- Communication with the HDS

Side airbag cutoff indicator flashes

Diagnostic procedure

1. Check for DTCs. If any DTC is indicated, go to the DTC troubleshooting

Also check for

- OPDS Initialization
- Communication with the HDS

Side airbag cutoff indicator stays on

Diagnostic procedure

1. Symptom Troubleshooting

Also check for

- Communication with the HDS

Side airbag cutoff indicator does not come on

Diagnostic procedure

1. Symptom Troubleshooting

Also check for

- OPDS Initialization
- Communication with the HDS

Faulty front seat belt reminder indicator

Diagnostic procedure

1. Symptom Troubleshooting

Also check for

- Communication with the HDS

HDS does not communicate with the SRS unit or the vehicle

Diagnostic procedure

1. Troubleshoot the DLC circuit

Also check for

- Communication with the HDS

Passenger's airbag off indicator flashes

Diagnostic procedure

1. Check for DTCs. If any DTC is indicated, go to the DTC troubleshooting

Also check for

- Communication with the HDS

Front passenger's airbag ON/OFF switch to OFF, but passenger's airbag off indicator does not come on

Diagnostic procedure

1. Symptom Troubleshooting

Also check for

- Communication with the HDS

Passenger's airbag off indicator does not come on

Diagnostic procedure

1. Symptom Troubleshooting

Also check for

- Communication with the HDS

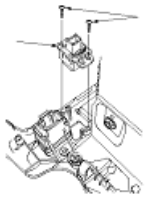
SRS Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
SRS indicator does not come on	Symptom Troubleshooting	Communication with the HDS
SRS indicator stays on, but no DTCs are stored	Symptom Troubleshooting	• Charging system for under or overcharging • Communication with the HDS
Side airbag cutoff indicator flashes	Check for DTCs. If any DTC is indicated, go to the DTC troubleshooting	• OPDS Initialization • Communication with the HDS
Side airbag cutoff indicator stays on	Symptom Troubleshooting	Communication with the HDS
Side airbag cutoff indicator does not come on	Symptom Troubleshooting	• OPDS Initialization • Communication with the HDS
Faulty front seat belt reminder indicator	Symptom Troubleshooting	Communication with the HDS
HDS does not communicate with the SRS unit or the vehicle	Troubleshoot the DLC circuit	Communication with the HDS
Passenger's airbag off indicator flashes	Check for DTCs. If any DTC is indicated, go to the DTC troubleshooting	Communication with the HDS
Front passenger's airbag ON/OFF switch to OFF, but passenger's airbag off indicator does not come on	Symptom Troubleshooting	Communication with the HDS
Passenger's airbag off indicator does not come on	Symptom Troubleshooting	Communication with the HDS

Front Passenger's Airbag Off Indicator Replacement

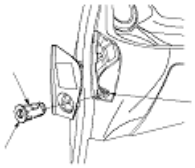
1. Remove the audio panel.
   - With audio unit.
   - Without audio unit.
2. Remove the two screws (A) and the passenger's airbag off indicator (B).
3. Reinstall the parts in the reverse order of removal.

With audio unit



Without audio unit

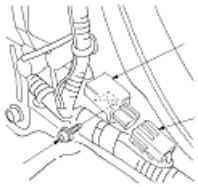
Front Passenger's Airbag ON/OFF Switch Replacement



1. Remove the passenger's dashboard side lid.
2. Disconnect the 4P connector (A) from the front passenger's airbag ON/OFF switch (B).
3. Pull out the front passenger's airbag ON/OFF switch, while pushing the lock (C) on the inside of the front passenger's airbag ON/OFF switch.
4. Reinstall the parts in the reverse order of removal.

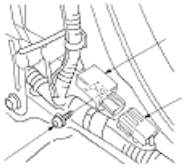
Side Impact Sensor (First) Replacement

Removal



1. Do the battery terminal disconnection procedure, then wait at least 3 minutes before starting work.
2. Remove the front seat assembly.
3. Remove the center pillar lower trim.
4. Disconnect the floor wire harness 2P or 4P connector (A) from the side impact sensor (first) (B).
   - 2P: With side airbag/without side curtain airbag
   - 4P: With side airbag and side curtain airbag
5. Using a TORX T30 bit, remove the TORX bolt (C), then remove the side impact sensor (first).

Installation



1. Install the new side impact sensor (first) with a new TORX bolt (A), then connect the floor wire harness 2P or 4P connector (B) to the side impact sensor (first) (C).
   - 2P: With side airbag/without side curtain airbag
   - 4P: With side airbag and side curtain airbag
2. Do the battery terminal reconnection procedure.
3. After installing the side impact sensor (first) confirm proper system operation: Turn the ignition switch to ON (II); the SRS indicator should come on for about 6 seconds and then go off.
4. Reinstall all removed parts.

Audio System Error Codes

The audio system displays error codes when a problem is detected with the disc player, the disc or the anti-theft code.

CD Error Codes

Error Code Displayed	Possible Cause	Solution
CD UNSUPPORTED	Track/File format not supported.	Current track will skipped. The next supported track or file plays automatically. • Verify that CD file names end in CDA. • Verify that CD-R or CD-RW with compressed music formats end in MP3 or WMA. • Other file formats like i-Tunes (AAC) or Ogg are not recognized. • WMA files may have (DRM) copy protection and cannot be read.
BAD DISC/PLEASE CHECK/OWNERS MANUAL/PUSH EJECT	• CD label jammed in the mechanism. • The wrong type disc is inserted. • CD eject mechanism or motor is inoperative. • CD spindle motor won't spin up the CD.	• Eject CD and insert a known-good CD. • If flashing the PUSH EJECT, press the EJECT button and hold it for 5 seconds. If the disc does not eject, try again. If the disc still won't eject, replace the unit.
HEAT ERROR	Disc player is hot. This error can happen if the vehicle is parked out in the hot sun all day.	Park the vehicle in a cooler place for a while and play the disc again. If the error code is still present, try another disc. If the error code is still present, replace the audio unit.

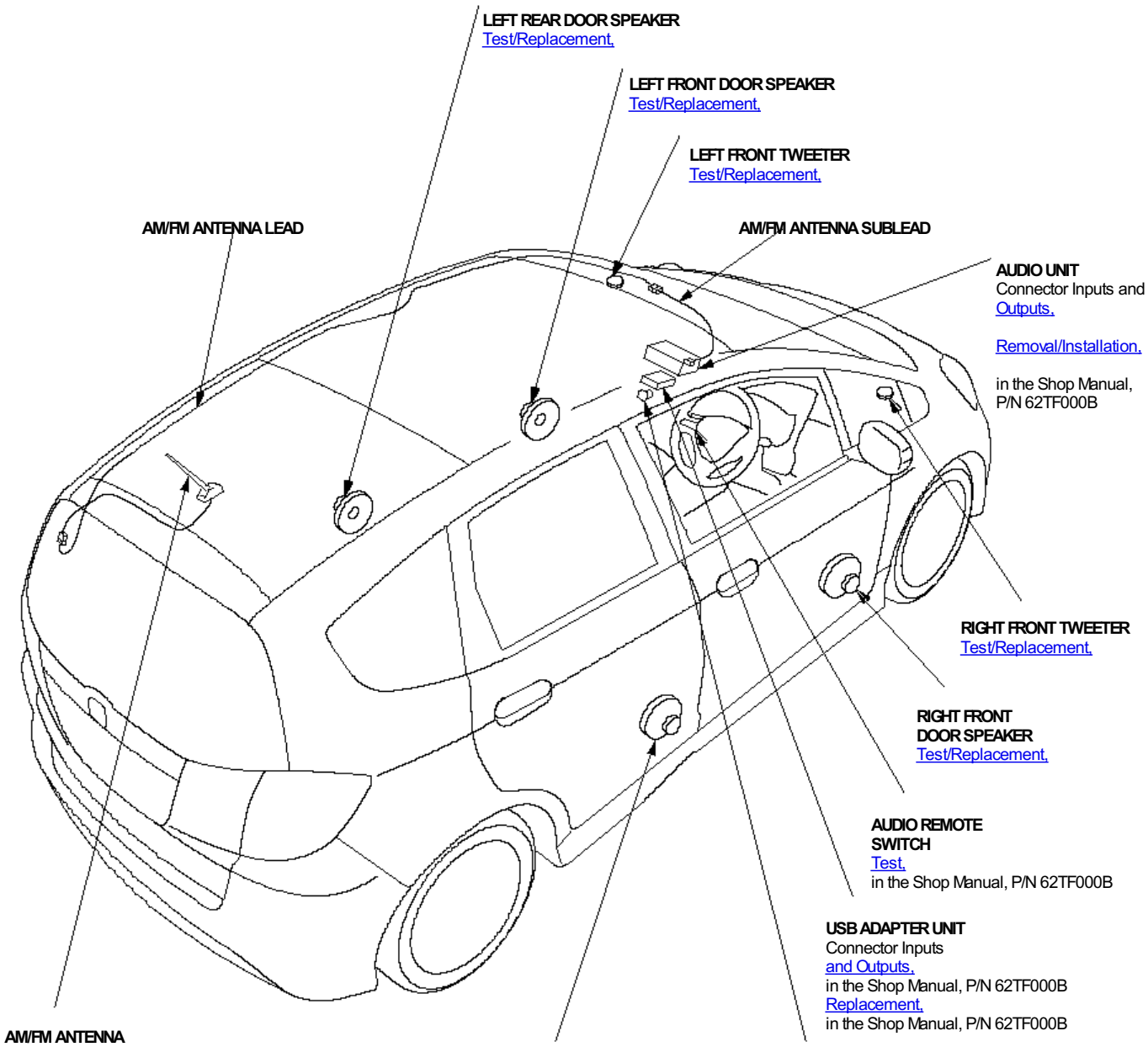
Audio Unit Error Codes

Error Code Displayed	Possible Cause	Solution
CODE ERROR 1	Anti-theft code mismatch (1st try).	Enter the correct anti-theft code.
CODE ERROR E	Anti-theft code mismatch (10th try).	Remove fuse No. 1 (10 A) in the under-dash fuse/relay box, then reinsert it. You will have 10 more tries to enter the correct anti-theft code.

Audio System Description - Supplement

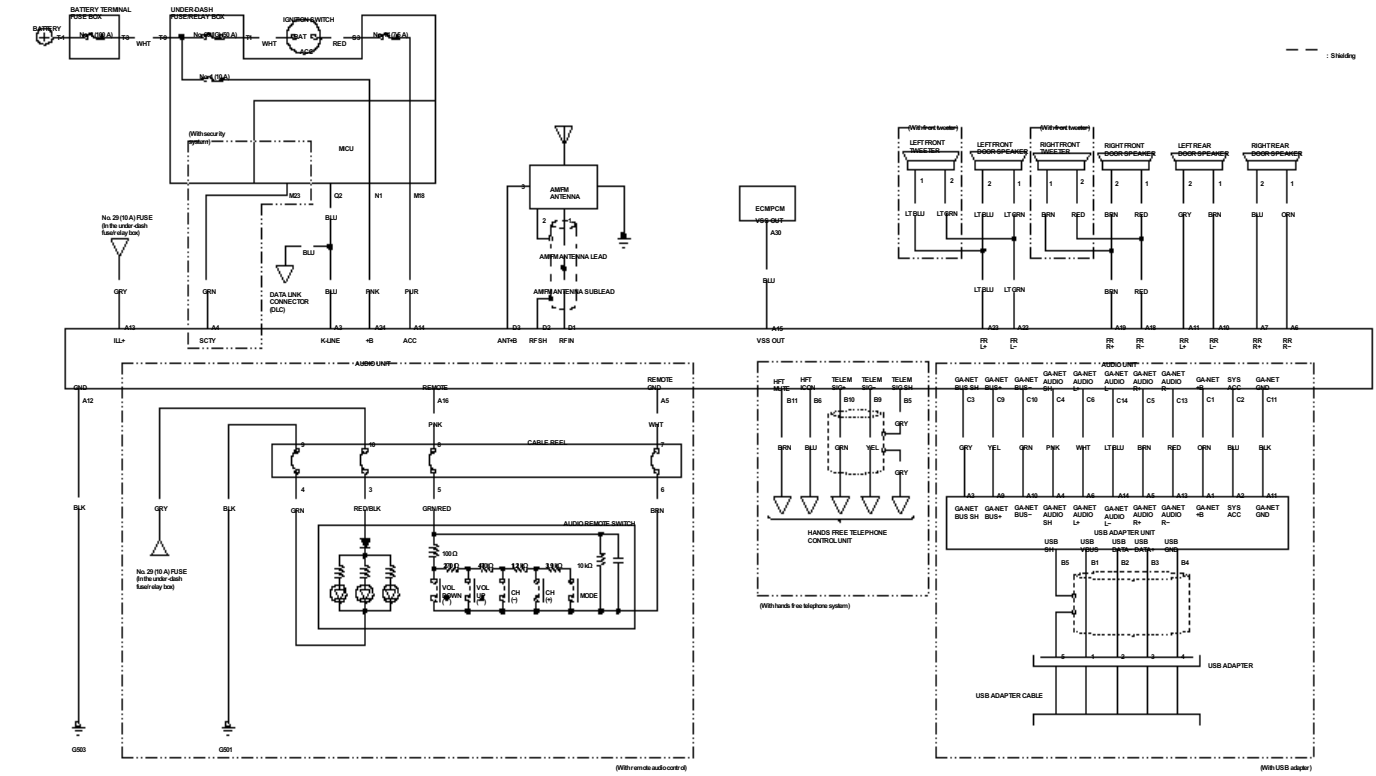
[Anti-theft Feature](#)
[Audio Unit Connector for Inputs and Outputs](#)

Audio System Component Location Index



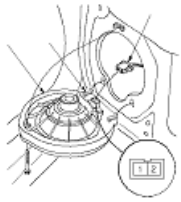
RHD model is shown, LHD model is similar.
Part of items are not equipped for some models.

Audio System Circuit Diagram



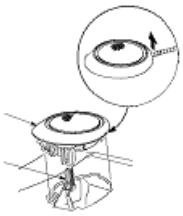
Speaker Test/Replacement

Front/Rear Door Speaker



1. Remove the door panel:
   - Front
   - Rear
2. Remove the bolt. Then lift the speaker (A) straight up to release the lower clips (B).
   NOTICE
   If you pull the speaker out too far from the door, you will damage the lower clips.
3. Disconnect the 2P connector (C), and remove the speaker.
4. Measure the resistance between the terminals No. 1 and No. 2. There should be about 4 Ω.
5. If the resistance is not as specified, replace the door speaker.

Front Tweeter

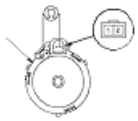


NOTE:

- Be careful not to damage the front tweeter grille and the dashboard.
- When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.

1. Carefully pry the tweeter grille (A) out of the dashboard.
2. Disconnect the 2P connector (B) from the front tweeter.

3. Remove the front tweeter (A) from the speaker grille (B).
4. Check the capacitor condition. If any malfunction is found, replace the front tweeter.

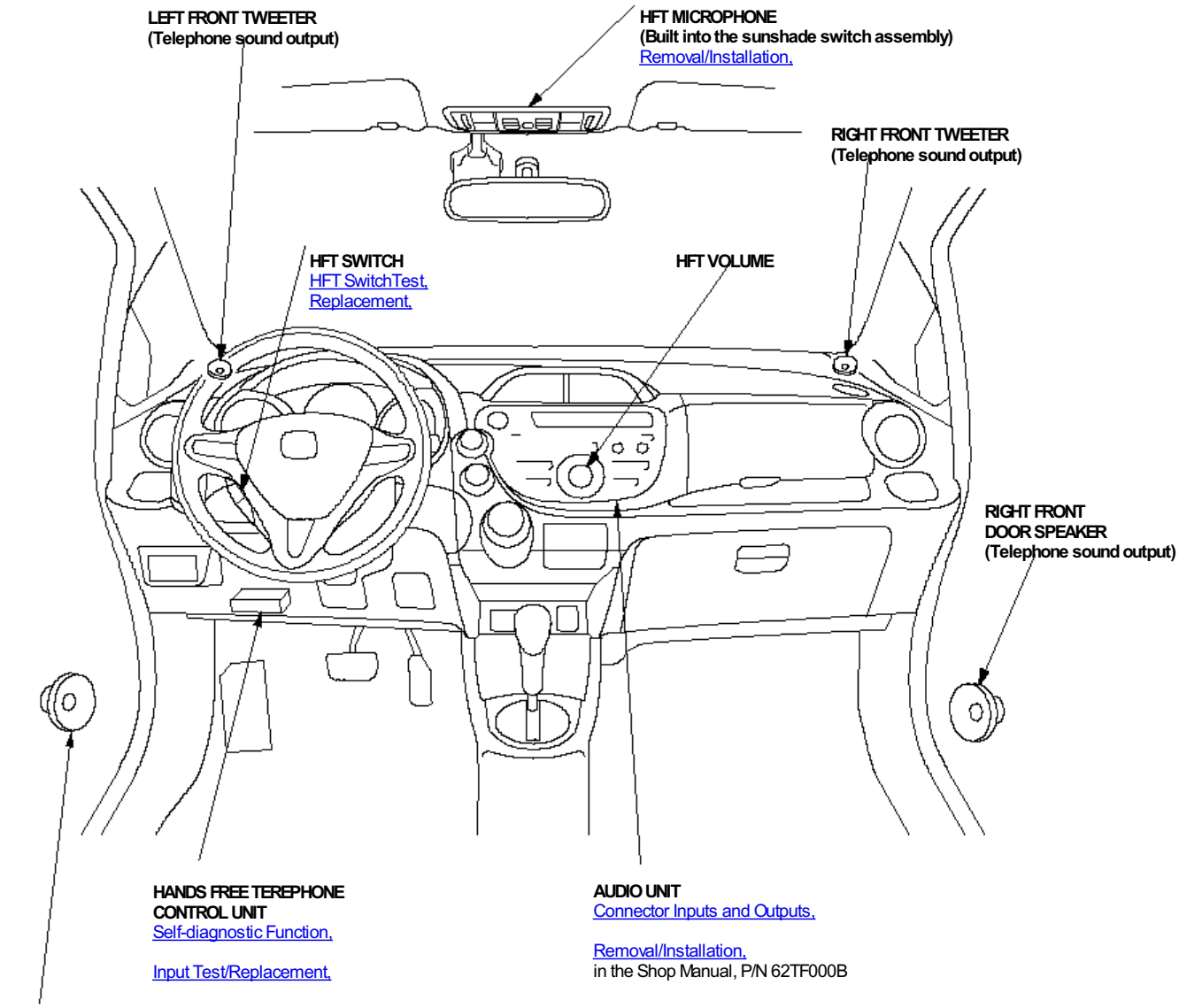


5. Measure the resistance between the front tweeter (A) terminal No. 2 and the outside terminal of the capacitor. There should be about 4 Ω.
6. If the resistance is not as specified, replace the front tweeter.

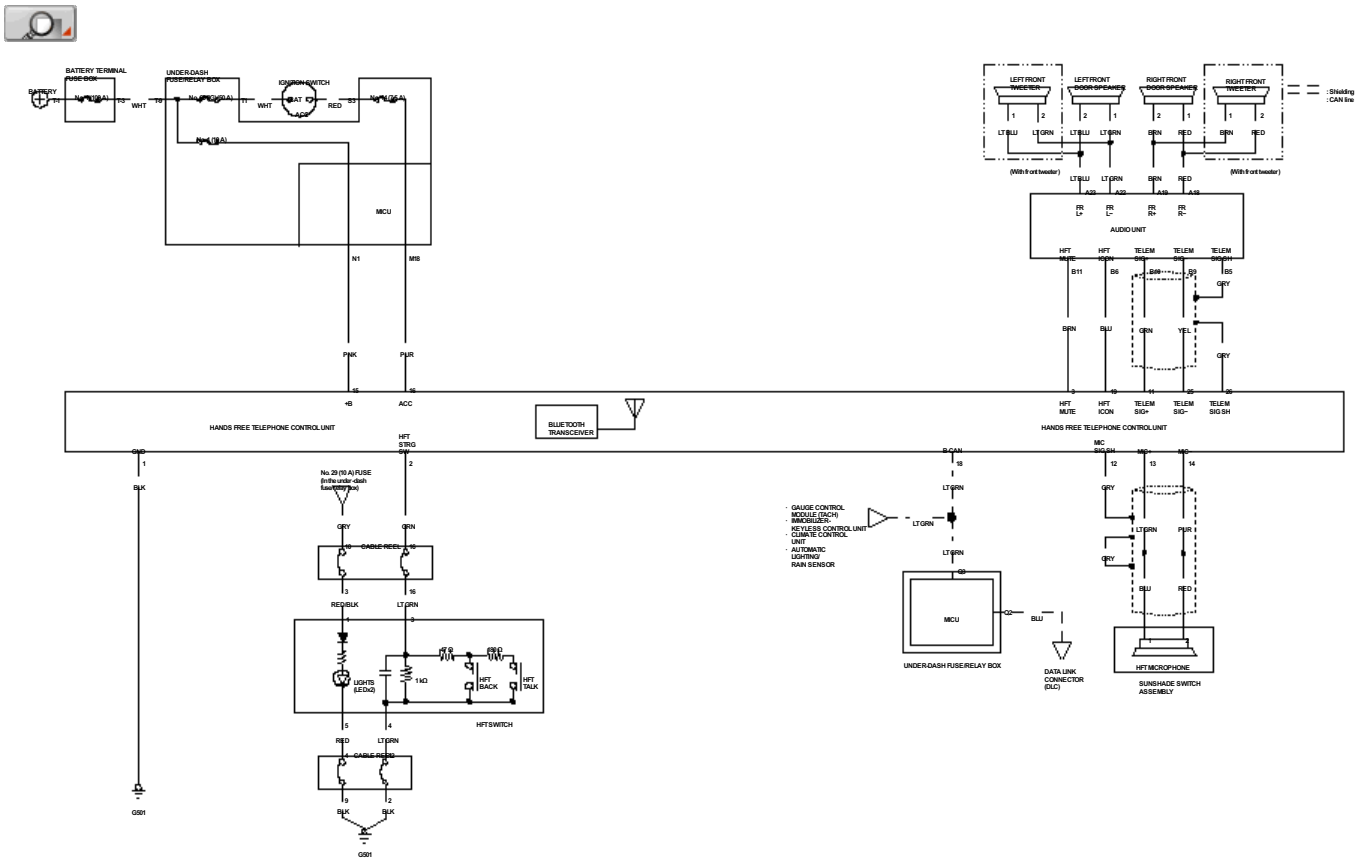
HFT System Description

[Hands Free Telephone Control Unit Inputs and Outputs]

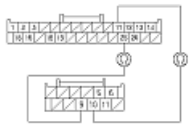
HFT System Component Location Index



HFT System Circuit Diagram



The HFT messages cannot be heard or are weak



1. Turn the ignition switch to ON (II).
2. Check that the audio system is operating normally and the speaker sound levels from different audio sources (AM, FM, CD, TA, etc.).

   Does the audio system work normally and is the audio output from the speaker normal when playing various audio sources?
   YES - Go to Step 3 .
   NO - Refer to the audio system symptom troubleshooting.■
3. Press the HFT talk button.

   Does the audio system mute when HFT messages are being played?
   YES - Go to Step 4 .
   NO - Go to Step 9 .
4. Turn the ignition switch to LOCK (0).
5. Disconnect audio unit connector B (20P) and the Hands Free Telephone control unit 28P connector.
6. Check for continuity between Hands Free Telephone control unit 28P connector terminals No. 11 and No. 25 and audio unit connector B (12P) terminals No. 10 and No. 9.

   Is there continuity?
   YES - Go to Step 7 .
   NO - Open in the wire(s) between Hands Free Telephone control unit and audio unit. Replace the affected harness.■

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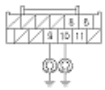
7. Check for continuity between body ground and audio unit connector B (12P) terminals No. 10 and No. 9 individually.



   Is there continuity?
   YES - Short to body ground in the wire(s) between Hands Free Telephone control unit and audio unit. Replace the affected shielded harness.■
   NO - Go to Step 8 .

---

8. Check for continuity between the terminals of audio unit connector B (12P) according to the table.

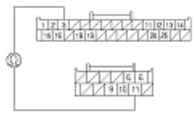
From terminal	To terminal
B10	B9, B5
B9	B5

   Is there continuity?
   YES - Short in the wire(s) between Hands Free Telephone control unit and audio unit. Replace the appropriate harness.■
   NO - Substitute a known-good Hands Free Telephone control unit and recheck. If the symptom goes away, replace the original Hands Free Telephone control unit. If the symptom does not go away, replace the audio unit. ■
9. Press the HFT talk button.

   Does the audio unit display show "TEL" when pressing the HFT talk button?
   YES - Go to Step 10 .
   NO - Go to Step 14 .
10. Turn the ignition switch to LOCK (0).
11. Disconnect the Hands Free Telephone control unit 28P connector and audio unit connector B (12P).

---

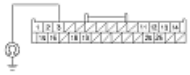
12. Check for continuity between Hands Free Telephone control unit 28P connector terminal No. 3 and audio unit connector B (12P) terminal No. 11.



    Is there continuity?
    YES - Go to Step 12 .
    NO - Repair open in the wire between Hands Free Telephone control unit and audio unit.■

---

13. Check for continuity between body ground and Hands Free Telephone control unit 28P connector terminal No. 3.



Is there continuity?

YES - Repair short to body ground in the wire between Hands Free Telephone control unit and audio unit.■

NO - Substitute a known-good Hands Free Telephone control unit and recheck. If symptom goes away, replace the original Hands Free Telephone control unit. If the symptom does not go away, replace the audio unit. ■

14. Turn the ignition switch to LOCK (0).

15. Disconnect the Hands Free Telephone control unit 28P connector and HFT switch 5P connector.

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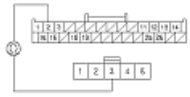
16. Check for continuity between Hands Free Telephone control unit 28P connector terminal No. 2 and HFT switch 5P connector terminal No. 3.

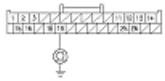


Is there continuity?

YES - Refer to HFT Switch Test. ■

NO - Repair open in the wire between Hands Free Telephone control unit and HFT switch.■

The Bluetooth icon does not display(the Bluetooth phone is linked)

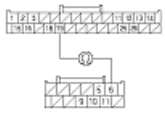


1. Turn the ignition switch to ON (II).
2. Disconnect audio unit connector B (12P) and Hands Free Telephone control unit 28P connector.
3. Check for continuity between body ground and Hands Free Telephone control unit 28P connector terminal No. 19.

   Is there continuity?

   YES - Repair short to body ground in the wire between Hands Free Telephone control unit and audio unit.■

   NO - Go to Step 4 .



4. Check for continuity between Hands Free Telephone control unit 28P connector terminal No. 19 and audio unit connector B (12P) terminal No. 6.

   Is there continuity?

   YES - Substitute a known-good Hands Free Telephone control unit and recheck. If the symptom/indication goes away, replace the original Hands Free Telephone control unit. If the symptom/indication is still present, replace the audio unit. ■

   NO - Repair open in the wire between Hands Free Telephone control unit and audio unit.■

Nothing happens

Diagnostic procedure

1. Control Unit Input Test

Also check for

- Check for DTCs
- The phone must be Honda approved Bluetooth phones and configured correctly

The HFT system does not recognize all voice prompts

Diagnostic procedure

1. Voice Control Tips

Also check for

- Check for DTCs

The HFT messages cannot be heard or are weak

Diagnostic procedure

1. Symptom Troubleshooting

Also check for

- Excessive interior noise (open windows, vents blowing on microphone, etc.)

The HFT system speaks in another country language

Diagnostic procedure

1. See the HFL section in the Owner's Manual for “Changing Language"

The HFT system is locked and the pass code has been lost or forgotten

Diagnostic procedure

1. Clearing the pass code

The Bluetooth icon does not display (the Bluetooth phone is linked)

Diagnostic procedure

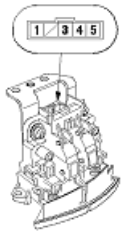
1. Symptom Troubleshooting

HFT System Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Nothing happens	Control Unit Input Test	• Check for DTCs • The phone must be Honda approved Bluetooth phones and configured correctly
The HFT system does not recognize all voice prompts	Voice Control Tips	Check for DTCs
The HFT messages cannot be heard or are weak	Symptom Troubleshooting	Excessive interior noise (open windows, vents blowing on microphone, etc.)
The HFT system speaks in another country language	See the HFL section in the Owner's Manual for “Changing Language"	
The HFT system is locked and the pass code has been lost or forgotten	Clearing the pass code	
The Bluetooth icon does not display (the Bluetooth phone is linked)	Symptom Troubleshooting	

HFT Switch Test

1. Remove the HFT switch.
2. Measure resistance between the No. 3 and No. 4 terminals in each switch position according to the table.



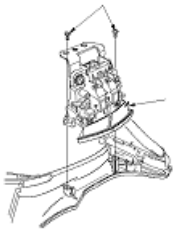
HFT Switch

Position	Resistance
No button pressed	About 1 kΩ
HFT Talk button pressed	About 185 Ω
HFT Back button pressed	About 45 Ω

3. If the resistance is not as specified, replace the HFT switch.

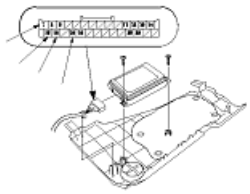
HFT Switch Replacement

SRS components are located in this area. Review the SRS component location.
Also review the precautions and procedures in the SRS section before doing repairs or service.



1. Remove the steering wheel.
2. Remove the steering wheel trim.
3. Remove the screws (A) from the HFT switch (B).
4. Install the HFT switch in the reverse order of removal.

HFT Control Unit Input Test/Replacement



1. Remove the driver's dashboard undercover.
2. Disconnect the 28P connector (A) from the Hands Free Telephone control unit (B).
3. Inspect the connector and socket terminals for a good pinfit to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to Step 4 .
4. Reconnect the connector and make these input tests at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to Step 5 .

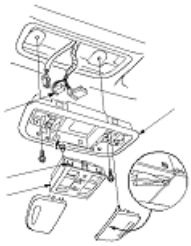
Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
1	BLK	Under all conditions	Check for voltage to ground: There should be less than 0.5 V.	• Poor ground (G602) • An open in the wire
15	PNK	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 1 (10 A) fuse in the under-hood fuse/relay box • An open in the wire
16	PUR	Ignition switch ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 14 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire

5. Disconnect the 28P connector again, and make this input test at the connector.
   - If the test indicates a problem, find and correct the cause, then recheck the system.
   - If the input test proves OK, the Hands Free Telephone control unit must be faulty, replace it.

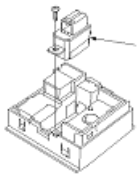
Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
18	LT GRN	Under all conditions	Check for continuity between No. 18 terminal and the driver's under-dash fuse/relay box connector Q (16P) terminal No. 3: There should be continuity.	An open in the wire
		Driver's under-dash fuse/relay box connector Q (16P) disconnected	Check for continuity to ground: There should be no continuity.	Short to ground

HFT Microphone Removal/Installation

1. Remove the front individual map light.
2. Disconnect the 3P connector (A) from the HFT microphone.
3. Carefully pry off the sunshade switch assembly (B) from the map light housing (C) while pressing in on the retaining tabs (D).



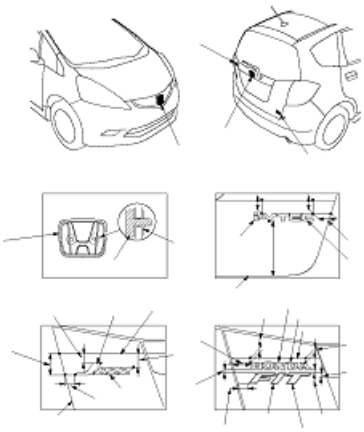
4. Remove the screw from the HFT microphone (A).
5. Install the HFT microphone in the reverse order of removal.



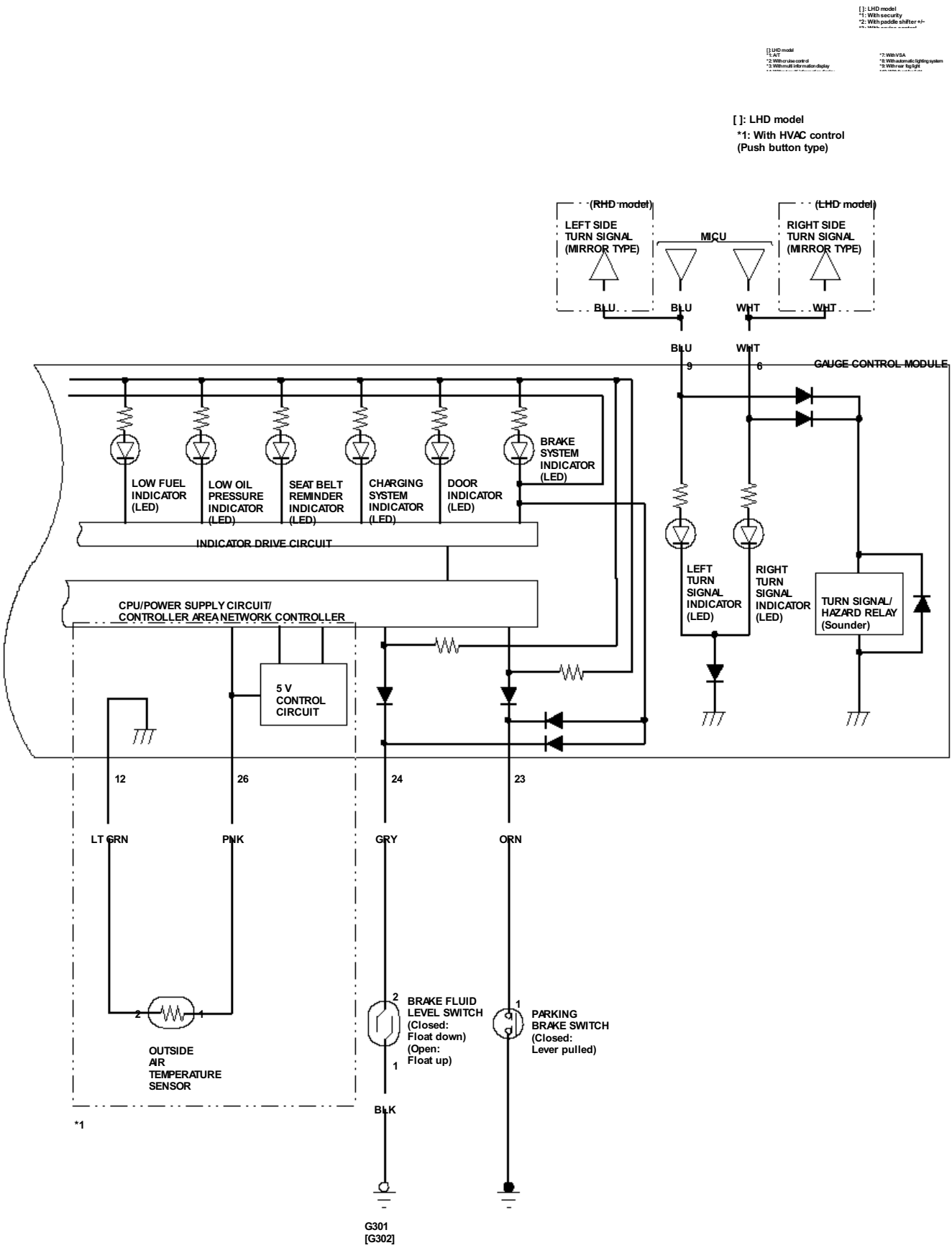
Emblem/Sticker Replacement

NOTE: When removing the emblems, take care not to scratch the body.

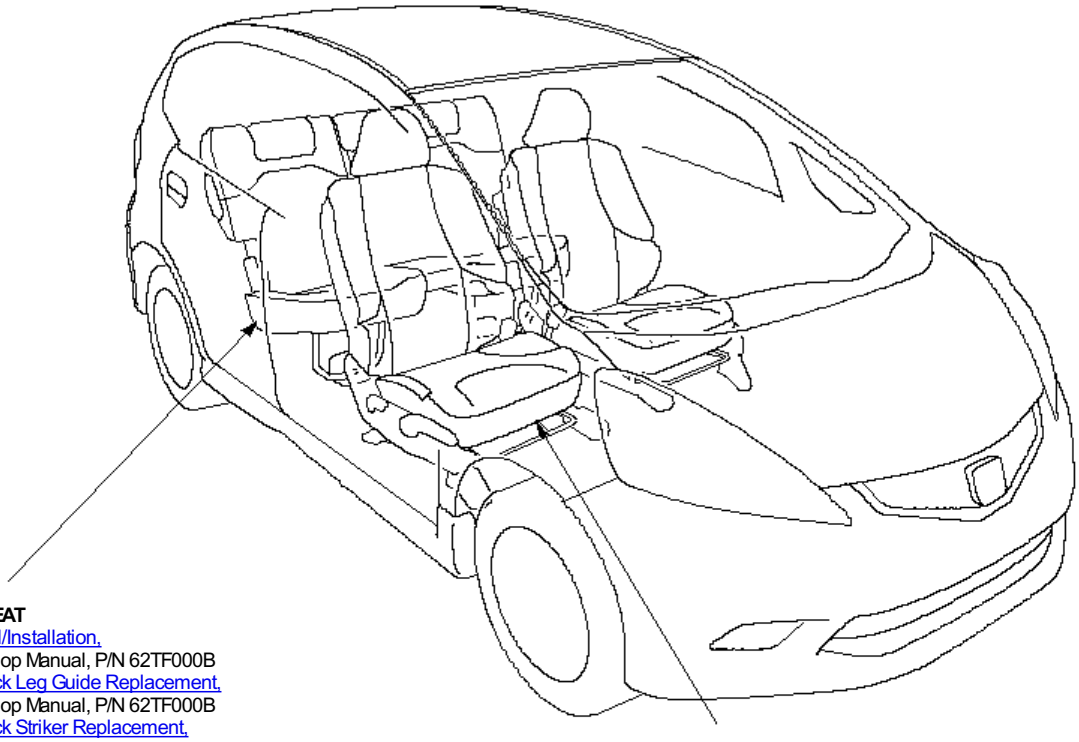
1. To remove the front “H" emblem, remove the upper front grille.
2. To remove the rear “H" emblem, remove the rear license trim.
3. Clean the body surface with a sponge dampened in isopropyl alcohol. After cleaning, keep oil, grease, and water from getting on the surface.
4. Apply the emblems where shown.



Gauges Circuit Diagram



Seats Component Location Index



REAR SEAT
Removal/Installation,
in the Shop Manual, P/N 62TF000B
Seat-back Leg Guide Replacement,
in the Shop Manual, P/N 62TF000B
Seat-back Striker Replacement,
in the Shop Manual, P/N 62TF000B
Disassembly/Reassembly,
in the Shop Manual, P/N 62TF000B
Seat-back Latch Replacement,
in the Shop Manual, P/N 62TF000B
Seat-back Cover/Pad Replacement,
in the Shop Manual, P/N 62TF000B
Seat-back Hinge Replacement,
in the Shop Manual, P/N 62TF000B
Cushion Cover/Pad Replacement,
in the Shop Manual, P/N 62TF000B
Control Cable Replacement,
in the Shop Manual, P/N 62TF000B
Cushion Leg Replacement,
in the Shop Manual, P/N 62TF000B
Armrest Replacement,

FRONT SEAT
Front Seat Active Head Restraint Inspection,
Removal/Installation,
Armrest Replacement,
in the Shop Manual, P/N 62TF000B
Frame Replacement,
in the Shop Manual, P/N 62TF000B
Seat-back Cover/Pad Replacement,
Recline Cover Removal/Installation,
in the Shop Manual, P/N 62TF000B
Cushion Cover/Pad Replacement,

How to Troubleshoot the Body Electrical

Troubleshoot the B-CAN Circuit Related Problems

How to check for DTCs with the HDS (preferred method)

The HDS can check the F-CAN and B-CAN communication status, read and clear the DTCs, display the data list, and perform function test.

Check for DTCs

1. Connect the HDS to the data link connector (A) located under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with vehicle.
   NOTE: If the HDS does not communicate with the vehicle, troubleshoot the DLC circuit.
4. Select the BODY ELECTRICAL, then select the desired TEST MODE menu, and check the DTCs. If the DTCs do not pertain to the select menu, select the All DTC Check icon to view all Body DTCs.
   NOTE: For specific operations, refer to the HDS user's manual.
5. If any DTCs are indicated, go to the indicated DTCs troubleshooting.
   NOTE: If the DTC B1000, B1150, B1178, B1200, B1750, B1900, B2350, and/or B2450 are stored, troubleshoot these DTCs first (beginning with the lowest number).

How to check for DTCs without the HDS (Use only if the HDS is unavailable)

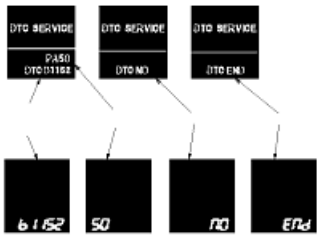
Special Tools Required

MPCS short connector
07WAZ-0010100

If the HDS is unavailable, using the following method, you can check the B-CAN communication status, DTCs, and some F-CAN communication status related with the gauge control module.

Check for DTCs

1. Turn the ignition switch to ON (II).
2. Connect the MPCS short connector (A) to the MICU service check connector (B), and turn the switch (C) ON.
3. After 5 to 10 seconds, the DTCs which have been detected and stored individually by various B-CAN unit, will be indicated one by one on the multi-information display or the odo/trip display if the communication line between the MICU and the gauge control module is OK. To scroll through the DTCs, press the select/reset button.



The unit that has stored the code can be identified by the number shown on the odo/trip display.

Control Unit	Control Unit I.D. Number
MICU	10
Gauge control module	50
Climate control unit	51
Automatic lighting/rain sensor	71
Headlight leveling control unit	75
Hands Free Telephone control unit	94
Immobilizer-keyless control unit	96

NOTE: Also you can check the B-CAN communication status by following methods:

- The MICU self-diagnostic function Test Mode 1 and Test Mode 2 can check some communication status and some switch circuits.
- The gauge control module self-diagnostic function can check the communication status.

How to Clear the DTCs with the HDS

1. Connect the HDS to the data link connector (A) located under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Clear the DTCs with the HDS.
4. Turn the ignition switch to LOCK (0), and disconnect the HDS from the data link connector (DLC).

How to Clear the DTCs without the HDS

1. While in DTCs indication status, press and hold the SELECT/RESET switch for more than 10 seconds.
2. Turn the MPCS short connector switch off, and disconnect the connector from the MICU service check connector.
3. Turn the ignition switch to LOCK (0).

HDS Inputs and Commands

Certain inputs happen so quickly that the HDS cannot update fast enough. Hold the switch that is being tested while monitoring the Data List. This should give the HDS time to update the signal on the Data List.
Because the HDS software is updated to support the release for newer vehicles it is not uncommon to see system function tests that are not supported.
Make sure that the most current software is loaded.

Input

System Menu	Data List	Data List Indication
Lighting	Driver's Door Switch	OFF/ON
	Hazard Switch	OFF/ON
	Headlight Switch (OFF)	OFF/ON
	Headlight Switch (PARKING)	OFF/ON
	Headlight Switch (HEADLIGHT)	OFF/ON
	Headlight Switch (AUTO)	OFF/ON
	Headlight Switch (High Beam)	OFF/ON
	Headlight Switch (PASSING)	OFF/ON
	Turn Signal Switch (LEFT)	OFF/ON
	Turn Signal Switch (RIGHT)	OFF/ON
	Fog Light Switch	OFF/ON
	Autolight Sensor input voltage	V
	Autolight Sensor Malfunction Detection voltage Max	V
	Autolight Sensor Malfunction Detection voltage Min	V
	Interior Light Command	OFF/ON
	Left Turn Signal Command	OFF/ON
	Right Turn Signal Command	OFF/ON
	Cargo Light Command	OFF/ON
	Autolight Small command	OFF/ON
	Autolight Headlight command	OFF/ON
	Autolight Warning command	OFF/ON
	Autolight Headlight Back-up line command	OFF/ON
	Headlight Command	OFF/ON
	Headlight High Beam Command	OFF/ON
	Parking Light Command	OFF/ON
	Fog Light Command	OFF/ON
	RLS Autolight Forward sensor	V
	RLS Autolight Ambient sensor	V

HDS Inputs and Commands

Input

System Menu	Data List	Data List Indication
Gauges	Cruise Control Main Switch (ACC switch)	OFF/ON
	Cruise Control Set Switch	OFF/ON
	Cruise Control Resume Switch	OFF/ON
	VSA/TCS Off Switch	OFF/ON
	Gauge Select/Reset Switch	OFF/ON
	Parking Brake Switch	OFF/ON
	Brake Fluid Level Switch	OFF/ON
	Fuel Sending Unit Input 1	———
	Fuel Sending Unit Input 2	v
	VSA/TCS Active Indicator	OFF/ON
	VSA/TCS Indicator (Warning)	OFF/ON
	ABS Indicator	OFF/ON
	EBD Indicator (Electronic Brake Distribution)	OFF/ON
	Cruise Control Main Switch Indicator	OFF/ON
	MIL Indicator	OFF/ON
	Low Oil Pressure Indicator	OFF/ON
	Charging System Indicator	OFF/ON

System Menu	Data List	Data List Indication
	High Beam Indicator	OFF/ON
	Parking Light ON Indicator	OFF/ON
	Low Fuel Warning Indicator	OFF/ON
	Security Indicator	OFF/ON
	Fog Light Indicator	OFF/ON
	Auto-light Indicator	OFF/ON
	Seat Belt Indicator	OFF/ON
	Speed Indicator (km/h) Command	km/h
	Speed Indicator (mph) Command	MPH
	Driver's Seat Belt Buckle Switch	OFF/ON
	A/T Gear Position Switch (R)	OFF/ON
	A/T Gear Position Switch (P)	OFF/ON

Input

System Menu	Data List	Data List Indication
Door Locks	Driver's Door Switch	OFF/ON
	Front Passenger's Door Switch	OFF/ON
	Driver's Rear Door Switch	OFF/ON
	Passenger's Rear Door Switch	OFF/ON
	Front Passenger's Door Lock Knob Switch (UNLOCK)	OFF/ON
	Driver's Rear Door Lock Knob Switch (UNLOCK)	OFF/ON
	Passenger's Rear Door Lock Knob Switch (UNLOCK)	OFF/ON
	Driver's Door Key Cylinder Switch (LOCK)	OFF/ON
	Driver's Door Key Cylinder Switch (UNLOCK)	OFF/ON
	Driver's Door Lock Switch (LOCK)	OFF/ON
	Driver's Door Lock Switch (UNLOCK)	OFF/ON
	Driver's Door Lock Knob Switch (LOCK)	OFF/ON
	Driver's Door Lock Knob Switch (UNLOCK)	OFF/ON
	Door LOCK Command	OFF/ON
	Door UNLOCK Command	OFF/ON
Wiper	Brake Pedal Position Switch	OFF/ON
	Windshield Wiper Switch (LOW)	OFF/ON
	Windshield Wiper Switch (HIGH)	OFF/ON
	Windshield Wiper Switch (MIST)	OFF/ON
	Windshield Wiper Switch (INT)	OFF/ON
	Windshield Washer Switch	OFF/ON
	Rear Washer Switch	OFF/ON
	Rear Wiper Switch	ON/OFF
	Windshield Wiper Motor PARK Switch	OFF/ON
	Rear Wiper Command	ON/OFF
	Rear Washer Command	ON/OFF
	Windshield Wiper Motor HI Command	OFF/ON
	Windshield Wiper Motor LO Command	OFF/ON
	Windshield Washer Motor Command	OFF/ON
	Rear Wiper Auto Stop Switch	OFF/ON
	RLS Glass Attachment	Normal/Check/Fail
	RLS Rain sensing (rain intensity)	NONE/DETECT

HDS Inputs and Commands

Input

System Menu	Data List	Data List Indication
Keyless	Driver's Door Switch	OFF/ON
	Front Passenger's Door Switch	OFF/ON
	Driver's Rear Door Switch	OFF/ON
	Passenger's Rear Door Switch	OFF/ON
	Trunk Lid/Tailgate Switch	OFF/ON
	Front Passenger's Door Lock Knob Switch (UNLOCK)	OFF/ON
	Driver's Rear Door Lock Knob Switch (UNLOCK)	OFF/ON
	Passenger's Rear Door Lock Knob Switch (UNLOCK)	OFF/ON
	Trunk Knob Sw. (UNLOCK)	OFF/ON
	Driver's Door Key Cylinder Switch (LOCK)	OFF/ON
	Driver's Door Key Cylinder Switch (UNLOCK)	OFF/ON
	Driver's Door Lock Switch (LOCK)	OFF/ON

System Menu	Data List	Data List Indication
	Driver's Door Lock Switch (UNLOCK)	OFF/ON
	Driver's Door Lock Knob Switch (LOCK)	OFF/ON
	Driver's Door Lock Knob Switch (UNLOCK)	OFF/ON
	Door LOCK Command	OFF/ON
	Door UNLOCK Command	OFF/ON

Input

System Menu	Data List	Data List Indication
Security	Ignition Key Cylinder Switch	OFF/ON
	Driver's Door Switch	OFF/ON
	Front Passenger's Door Switch	OFF/ON
	Driver's Rear Door Switch	OFF/ON
	Passenger's Rear Door Switch	OFF/ON
	Trunk Lid/Tailgate Switch	OFF/ON
	Front Passenger's Door Lock Knob Switch (UNLOCK)	OFF/ON
	Driver's Rear Door Lock Knob Switch (UNLOCK)	OFF/ON
	Passenger's Rear Door Lock Knob Switch (UNLOCK)	OFF/ON
	Hazard Switch	OFF/ON
	Hood Switch	OFF/ON
	Driver's Door Key Cylinder Switch (LOCK)	OFF/ON
	Driver's Door Key Cylinder Switch (UNLOCK)	OFF/ON
	Driver's Door Lock Switch (LOCK)	OFF/ON
	Driver's Door Lock Switch (UNLOCK)	OFF/ON
	Driver's Door Lock Knob Switch (LOCK)	OFF/ON
	Driver's Door Lock Knob Switch (UNLOCK)	OFF/ON
	Door LOCK Command	OFF/ON
	Door UNLOCK Command	OFF/ON
	Headlight Command	OFF/ON
	Headlight High Beam Command	OFF/ON
	Parking Light Command	OFF/ON
	Horn Command	ON/OFF
HVAC/Climate Control	A/C Pressure Switch/Thermal Protector	OFF/ON

Output

System Menu	HDS Description	Note
Door locks	LOCK all doors	Outputs LOCK signal 1 time (0.6 sec) to all door
	UNLOCK all doors	Outputs UNLOCK signal 1 time (0.6 sec) to all door
Lighting	Interior Light Command	Illuminates for 30 seconds
	Hazard flasher	Blinks turn signal (left and right) for 5 seconds
	LEFT Turn Signal Command	Blinks for 5 seconds
	RIGHT Turn Signal Command	Blinks for 5 seconds
	Headlight Command	Operates headlight (low) for 15 seconds
	Headlight HIGH Beam Command	Operates headlight (high) for 15 seconds
	Parking Light Command	Operates small lights for 15 seconds
	Rear Fog Light	Operates a relay of rear fog light for 30 seconds
	Cargo Area Light	Illuminates for 30 seconds
Security	Horn Command	Operates horn for 1 second
Wipers/washers	Windshield Wiper Motor LOW Command	Operates windshield wiper for 5 seconds (low speed)
	Windshield Wiper Motor HIGH Command	Operates windshield wiper for 5 seconds (high speed)
	Windshield Washer Command	Operates windshield washer for 5 seconds
	Rear window washer motor command	Operates for 5 seconds
	Rear Wiper motor	Operates for 5 seconds
	Front Wiper-LOW	Operates windshield wiper via RLS unit (low speed)
	Front Wiper-HIGH	Operates windshield wiper via RLS unit (high speed)
	Front Wiper-INT	Operates windshield wiper via RLS unit (intermittently)

System Menu	HDS Description	Note
	Rear Wiper	Operates rear wiper once

Loss of Communication DTC cross-reference chart

When an ECU is unable to communicate with the other ECUs on the CAN circuit, the other control units will set loss of communication DTCs. Use this chart to find the control unit that is not communicating.

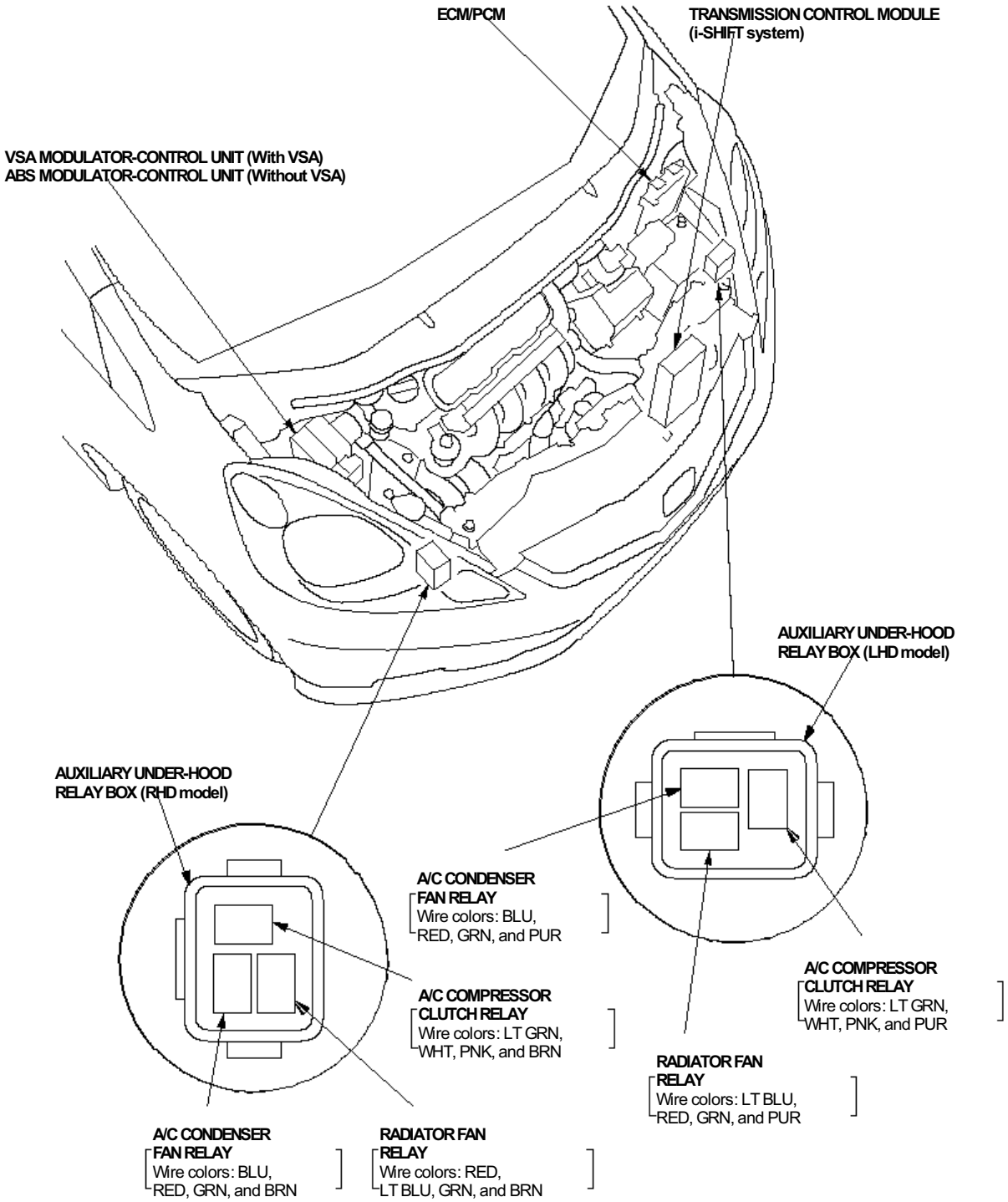
1. Find the Transmitting Control Unit that is in the same row as all of the loss of communication DTCs retrieved.
2. Perform the input test for the transmitting control unit.

Bus Off and Internal Error Codes

DTC type	Related Unit						
	MICU	Gauge Control Module	Climate Control Unit	Immobilizer-Keyless Control Unit	Automatic Lighting/ Rain Sensor	Hands Free Telephone Control Unit	Headlight Auto Leveling Control Unit
BUS OFF	B1000	B1150	B1200	B1900	B2350	B1750	B2450
ECU (EEPROM) Error	B1002	B1152			B2352		B2479

Transmitting Control Unit	Message	Receiving Unit/Loss of Communication DTC						
		MICU	Gauge Control Module	Climate Control Unit	Immobilizer-Keyless Control Unit	Automatic Lighting Rain Sensor	Hands Free Telephone Control Unit	Headlight Auto Leveling Control Unit
MICU	RM		B1188			B2357		
	HLSW		B1155			B2355		B2456
	WIPSW		B1156	B2969		B2356		
	MICU		B1157					
	DOORSW		B1159					
	DRLOCKSW		B1160		B1905			
Gauge Control Module	VSP/NE	B1011		B1205				B2455
	A/T				B1906			
	ENGTEMP			B1206				
	ILLUMI			B1207				
Automatic Lighting/Rain Sensor	AUTO LT							
PCM	ENG		B1168					
	A/T		B1169					
VSA Modulator-Control Unit	VSA		B1170					
EPS Control Unit	EPS		B1183					
SRS	SRS		B1187					

Relay and Control Unit Locations - Engine Compartment

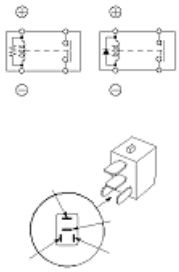


RHD model is shown, LHD model is similar.

Power Relay Test

Use this chart to identify the type of relay, then do the test listed for it.

Relay	Test
A/C compressor clutch relay	Normally-open type
A/C condenser fan relay	
A/F sensor relay	
Blower motor relay	
ETCS control relay	
Horn relay	
Ignition coil relay	
Lighting relay 1	
Lighting relay 2	
PGM-FI main relay 1 (FI MAIN)	
PGM-FI main relay 2 (FUEL PUMP)	
Power window relay (P/W)	
Radiator fan relay	
Rear window defogger relay	
Starter cut relay (Starter relay 1)	
Starter cut relay (Starter relay 2)	
Front fog light relay	
Rear fog light relay	
Driver's seat heater relay (high)	
Front passenger's seat heater relay (high)	
Driver's seat heater relay (low)	Five-terminal type
Front passenger's seat heater relay (low)	
Front super locking relay	
Rear super locking relay	
Daytime running lights relay	
Driver's door unlock relay	



Normally-open type

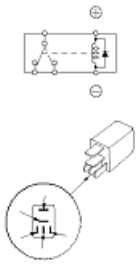
Check for continuity between the terminals:

- There should be continuity between the No. 1 and No. 2 terminals when battery power is connected to the No. 4 terminal, and body ground is connected to the No. 3 terminal.
- There should be no continuity between the No. 1 and No. 2 terminals when power is disconnected.

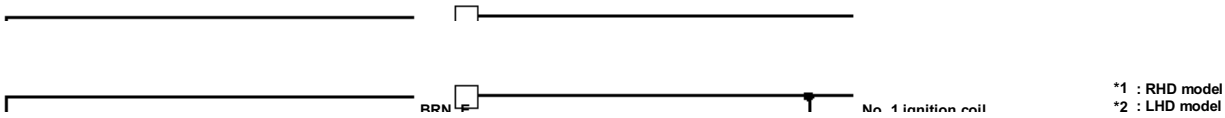
Five-terminal type

Check for continuity between the terminals:

- There should be continuity between the No. 1 and No. 2 terminals when battery positive terminal is connected to the No. 5 terminal, and battery negative terminal is connected to the No. 3 terminal.
- There should be continuity between the No. 1 and No. 4 terminals when power is disconnected.



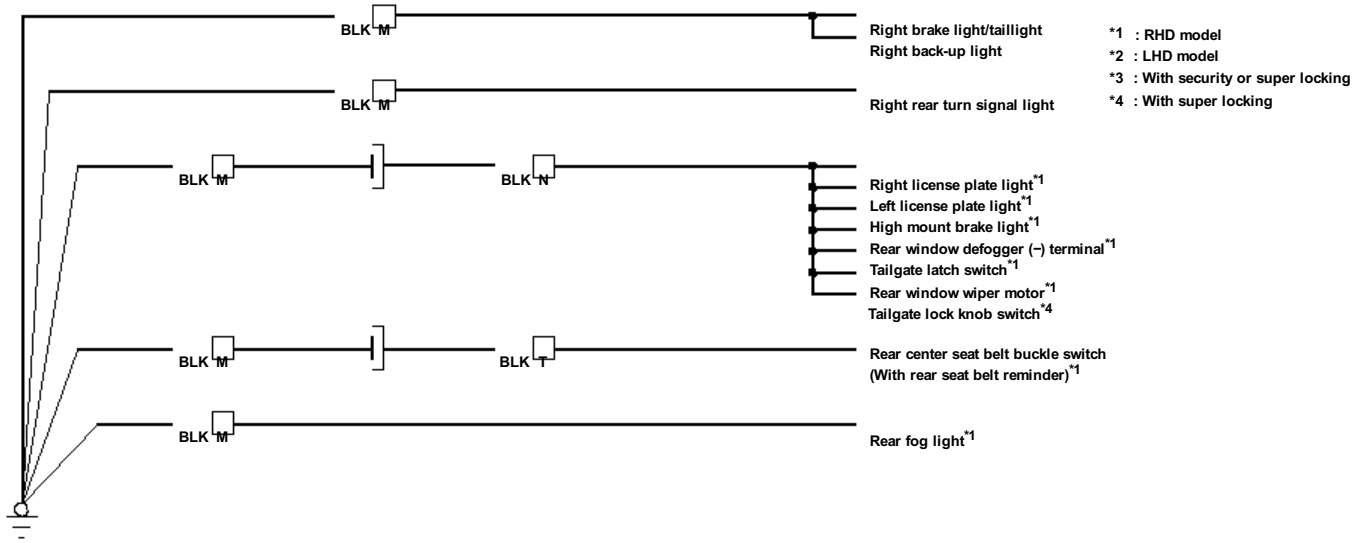
Ground Circuit Identification



*1 : RHD model
*2 : LHD model

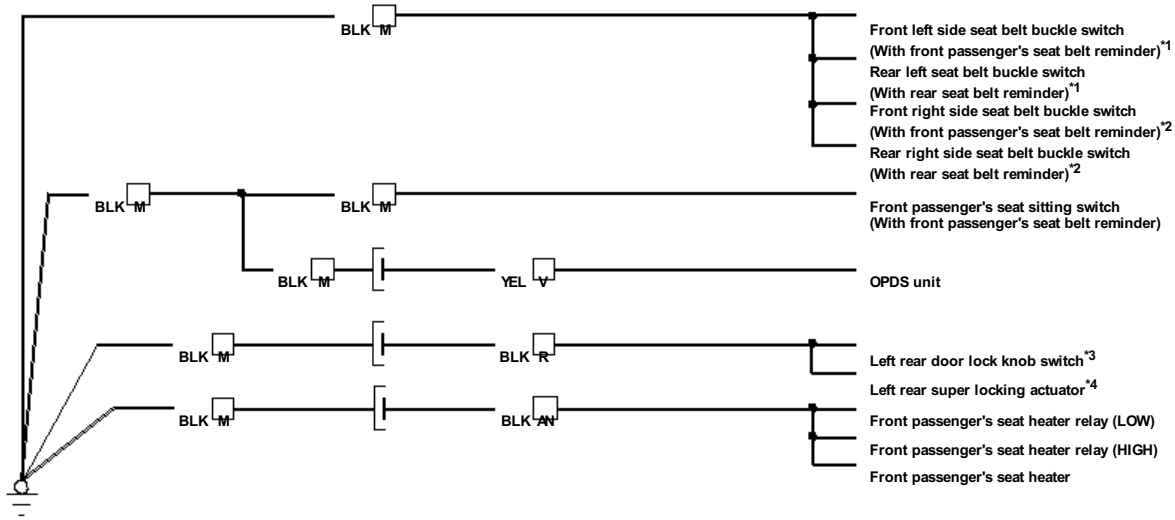
*1 : M/T (KE model)
*2 : i-SHIFT system

*1 : M/T (KG model)

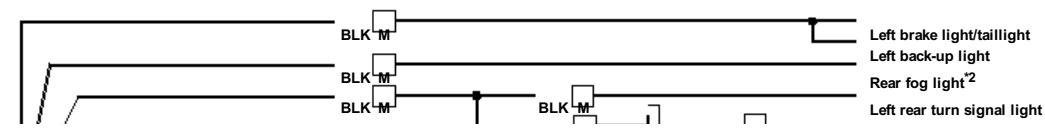


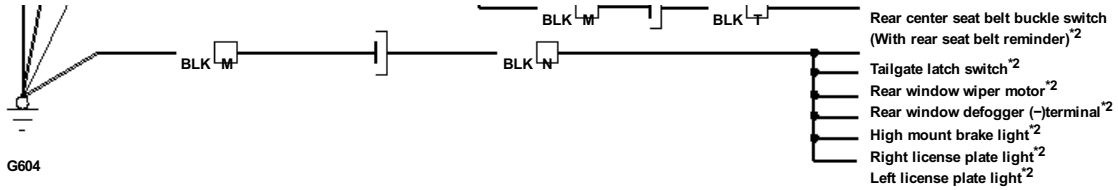
*1 : RHD model
*2 : LHD model
*3 : With security or super locking
*4 : With super locking

G602



G603





M : Floor wire harness

N : Tailgate wire harness

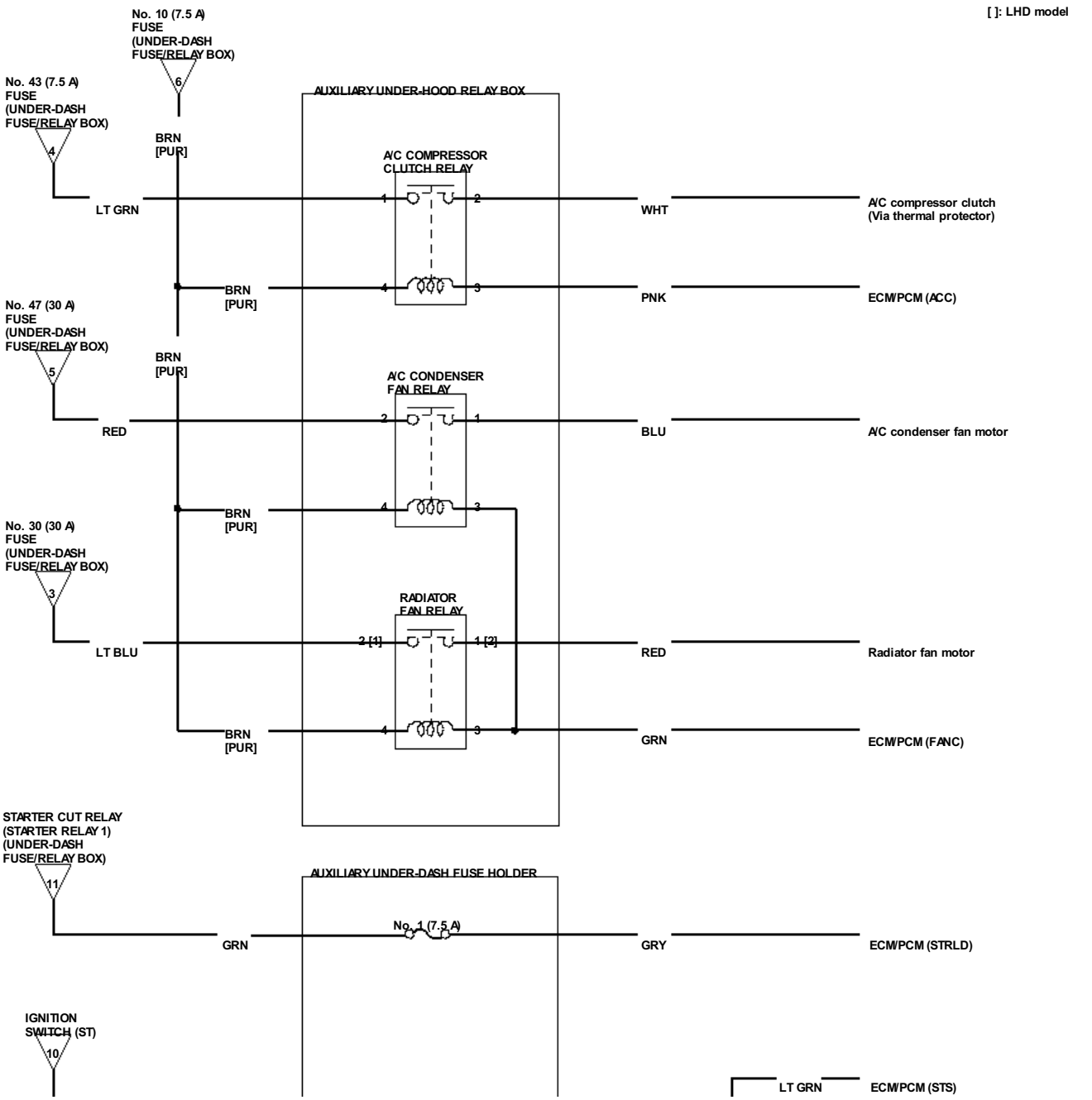
R : Left rear door wire harness

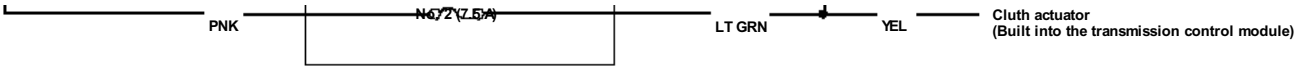
T : Reminder wire harness

V : OPDS unit harness

AN : Front passenger's seat wire harness

Power Circuit Identification




PNK
LT GRN
YEL
Cluth actuator
(Built into the transmission control module)

Under-dash fuse/relay box

Fuse Number	Amps	Component(s) or Circuit(s) Protected
1	10 A	Audio unit, Cargo area light, Ceiling light, Data link connector (DLC), Gauge control module, Immobilizer-keyless control unit, Individual map light, MICU (+B BACK UP), Automatic lighting/rain sensor, Hands free telephone control unit
2	10 A	Rear fog light relay, Rear fog light (Via rear fog light relay)
3	20 A	Power window master switch
4	———	Not used
5	10 A	MICU (IG BACK LT) (A/T), Back-up lights (Via back-up light switch) (M/T or i-SHIFT system), Headlight leveling control unit (With HID), Headlight leveling switch (Without HID), Headlight leveling motors (Without HID)
6	10 A	SRS unit (VB)
7	10 A	PCM (VBSOL)
8	7.5 A	SRS unit (VA), OPDS unit, Passenger's airbag off indicator
9	20 A	Front fog light relay, Front fog lights (Via front fog light relay)
10	7.5 A	A/C compressor clutch relay *2, A/C condenser fan relay *2, A/C switch indicator *4, Blower motor relay, Optional connector, Power mirror switch, Radiator fan relay *2, Rear window defogger relay, Rear window defogger switch indicator light *4, Climate control unit *5, HVAC control unit *6, Recirculation control motor *6, Seat heater switch indicators, Seat heater relays (Via seat heater switches)
11	7.5 A	ABS modulator-control unit (MTR) (Without VSA), EPS control unit, VSA modulator-control unit (MTR) (With VSA), Yaw rate-lateral/longitudinal acceleration sensor (With VSA)
12	10 A	MAF sensor, ECM/PCM (BKSWNC) (Via brake pedal position switch), EVAP canister purge valve, Secondary HO2S, Alternator, Gear shift control module (i-SHIFT system), Transmission control module (i-SHIFT system)
13	20 A	Accessory power socket, Cigarette lighter
14	7.5 A	Key interlock solenoid (A/T), Audio unit, MICU (ACC)
15 *7	7.5 A	Daytime running lights relay
16	10 A	Rear window wiper motor
17	20 A	Front passenger's power window motor (Via front passenger's power window switch), Power window master switch
18	20 A	Power window master switch, Right rear power window motor (Via right rear power window switch)
19	20 A	Left rear power window motor (Via left rear power window switch), Power window master switch
20	15 A	ECM/PCM (IG1), Fuel pump (Via PGM-FI main relay 2 (FUEL PUMP)), Immobilizer-keyless control unit
21	15 A	MICU (IG1 WASHER)
22	7.5 A	Electrical load detector (ELD), Gauge control module, Shift lock solenoid (A/T), Automatic lighting/rain sensor, MICU (IG1 METER)
23	10 A	MICU (+B HAZARD)
24	15 A	ECM/PCM (BKSW) *3, High mount brake light *3, Horn (High) (Via horn relay), Horn (Low) (Via horn relay), Horn relay *1, Left brake light *3, Right brake light *3, MICU (+B HORN) (Without security)
25	———	Not used
26	10 A	A/F sensor (Via A/F sensor relay), A/F sensor relay, No. 31 (7.5 A) fuse (Via A/F sensor relay)
27	30 A	MICU (+B DOOR LOCK)
28 *8	20 A	MICU (+B H/L MAIN)

[ ]: LHD model

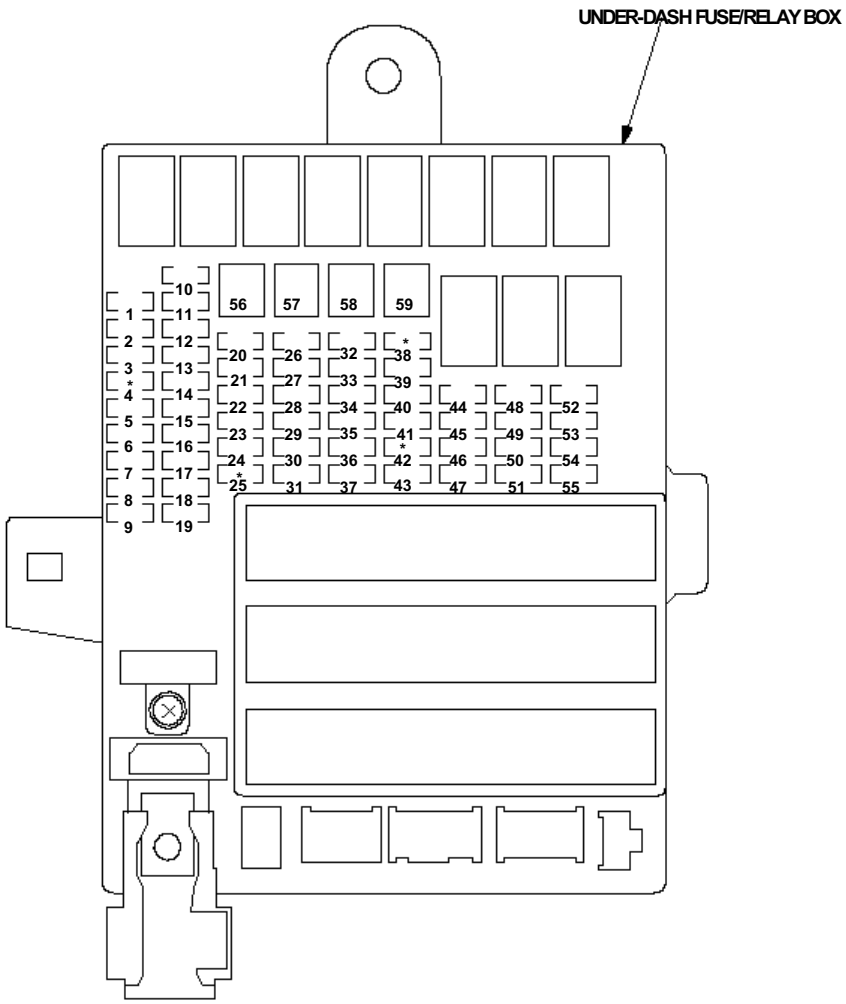
*1: With security
*2: In the auxiliary under-hood relay box
*3: Via brake pedal position switch
*4: With HVAC control (Lever type)
*5: With climate control
*6: With HVAC control (Push button type)
*7: With daytime running light
*8: With HID

Fuse Number	Amps	Component(s) or Circuit(s) Protected
29	10 A	MICU (+B SMALL LT)
30	30 A	Radiator fan motor (Via radiator fan relay)
31	7.5 A	Engine oil level sensor
32	15 A	Right HID unit (With HID)
	10 A	Right headlight (LO) (Without HID)
33	15 A	Ignition coil relay, Ignition coils (Via ignition coil relay)
34	10 A	Left headlight (LO) (Without HID), Left high/low beam switching solenoid (With HID)
35	15 A	Front passenger's door lock actuator, Left [Right] rear door lock actuator, Tailgate lock actuator
36	15 A	Driver's door lock actuator, Fuel lid lock actuator, Right [Left] rear door lock actuator
37	30 A	ABS modulator-control unit (FSR) (Without VSA), VSA modulator-control unit (FSR) (With VSA)
38	———	Not used
39	15 A	CKP sensor, CMP sensor, ECM/PCM (IGP), Electronic throttle control system (ETCS) control relay *1, Injectors, PGM-FI main relay 1 (FI MAIN), PGM-FI main relay 2 (FUEL PUMP) *1
40	20 A	Driver's seat heater (Via driver's seat heater relay), Front passenger's seat heater (Via front passenger's seat heater relay)
41 *2	10 A	Front position lights (Via daytime running lights relay), Taillights (Via daytime running lights relay), License plate lights (Via daytime running lights relay)
42	———	Not used
43	7.5 A	A/C compressor clutch (Via A/C compressor clutch relay)

Fuse Number	Amps	Component(s) or Circuit(s) Protected
44 *7	7.5 A	Starter cut relay (Starter relay 1)
45	15 A *3	Driver's door unlock relay, Fuel lid actuator (Via driver's door unlock relay), Driver's door lock actuator (Via driver's door unlock relay)
	20 A *4	Front super locking relay, Rear super locking relay, Driver's super locking actuator (Via front super locking relay), Passenger's super locking actuator (Via front super locking relay), Right rear super locking actuator (Via rear super locking relay), Left rear super locking actuator (Via rear super locking relay)
46	20 A	Sunshade motor/control unit
47	30 A	A/C condenser fan motor (Via A/C condenser fan relay)
48	15 A	Left HID unit (With HID)
	10 A	Left headlight (HI) (Without HID)
49	15 A	Front passenger's door lock actuator, Left [Right] rear door lock actuator, Tailgate lock actuator
50	15 A	Driver's door lock actuator, Fuel lid lock actuator, Right [Left] rear door lock actuator
51	10 A	Right headlight (HI) (Without HID), Right high/low beam switching solenoid (With HID)
52	15 A	ECM/PCM (IG1ETCS) (Via electronic throttle control system (ETCS) control relay)
53	10 A	Transmission control module (i-SHIFT system)
54 *5	20 A	Rear window defogger
55 *5	10 A	Power mirror defoggers
56	30 A	MICU (IG1 FR WIPER)
57	30 A	Blower motor (Via blower motor relay)
58	30 A	ABS modulator-control unit (MTR) (Without VSA), VSA modulator-control unit (MTR) (With VSA)
59	20 A *6	Rear window defogger (Via rear window defogger relay)
	30 A *5	No. 54 (20 A) fuse (Via rear window defogger relay), No. 55 (10 A) fuse (Via rear window defogger relay)
60	(IGN)50 A	Ignition switch
	(AMT)40 A	Gear shift control module (i-SHIFT system)

[ ]: LHD model

*1: Via PGM-FI main relay 1 (FI MAIN)
*2: With daytime running light
*3: Power door locks 2 motion
*4: With super locking
*5: With power mirror defogger
*6: Without power mirror defogger
*7: A/T



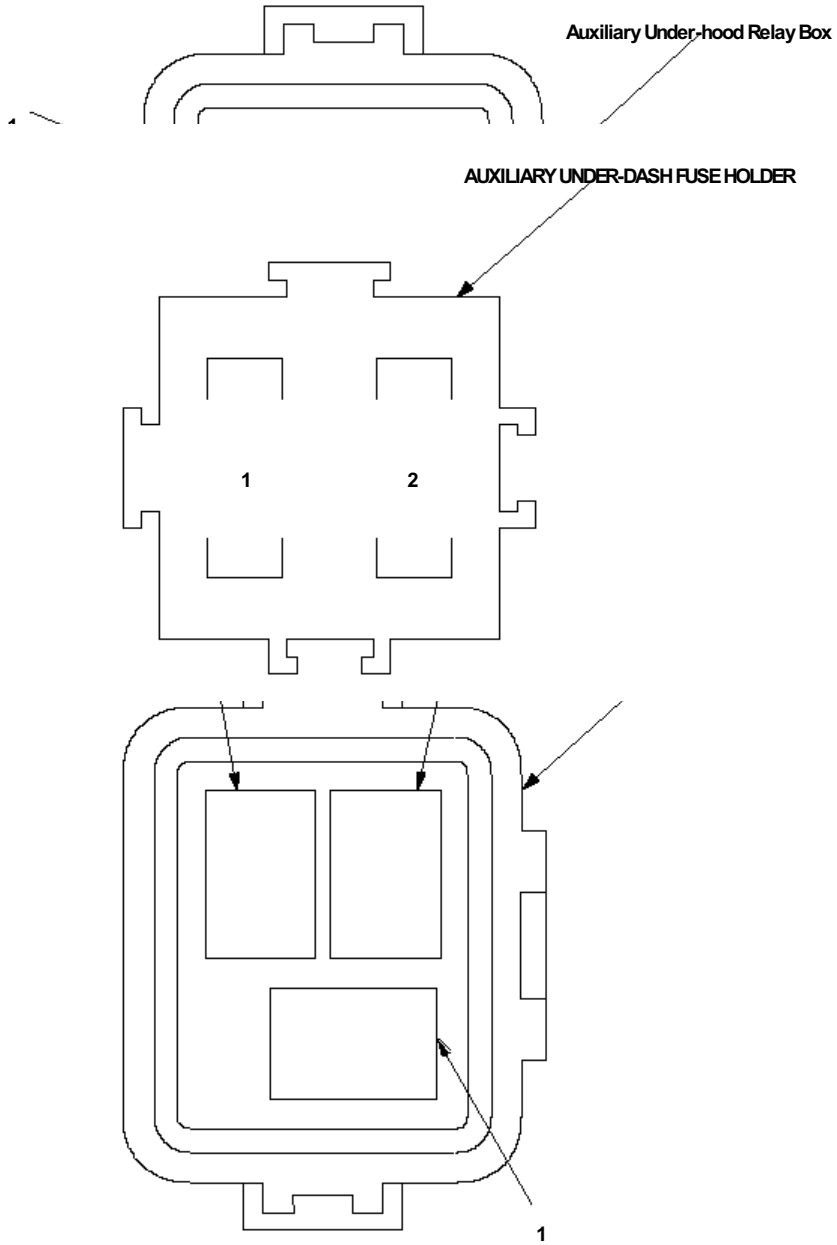
*: Not used

Auxiliary Under-hood Relay Box

Socket	Ref	Terminal	Connects to
A/C compressor clutch relay	1	4	Right [Left] engine compartment wire harness
A/C condenser fan relay	2	4	Right [Left] engine compartment wire harness
Radiator fan relay	3	4	Right [Left] engine compartment wire harness

[ ]: LHD model

RHD model



How to Troubleshoot the HFT System

How to Check for DTCs with the HDS

1. Make sure the ignition switch is turned to LOCK (0).
2. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
3. Turn the ignition switch to ON (II).
4. Make sure the HDS communicates with the vehicle and the Hands Free Telephone control unit. If it doesn't, troubleshoot the DLC circuit.
5. Select HandsFreeLink in the BODY ELECTRICAL menu.
6. Select DTCs in the HandsFreeLink menu.
7. Check for DTCs. If any DTCs are indicated, write down the DTCs, then go to the indicated DTC troubleshooting. If no DTCs are indicated, refer to symptom troubleshooting.
   NOTE:
   - After troubleshooting, clear the DTCs with the HDS.
   - For specific operations, refer to the HDS user's manual.

The HFT gives the user the convenience of hands free operation. It can't control the phone's performance (call quality and signal strength). To avoid performance problems, don't put the phone in a metal briefcase or in a purse under the seat.
This guide shows you just a few of the HFT's many features. You will see how to pair your phone to the HFT and then make and receive calls, all using simple voice commands. If you want a complete description of this system, please refer to the owner's manual and quick start guide.

Voice Control Tips

To give any voice command, press and release the Talk button. Always wait for the beep, then give your command in a clear, natural voice. The HFT microphone is on the ceiling, by the front individual map lights.
If the HFT doesn't recognize your voice command, you'll hear ‘‘Pardon." If after repeating your command, it still doesn't recognize it, you'll hear ‘‘Please repeat." If after repeating your command again, it still doesn't recognize it, the HFT sends you to the Help menu.
To hear a list of available options at any time, say ‘‘Hands free help."
You can give many voice commands together. For example, you can say ‘‘Dial 123-456-7890."
To give a string of numbers in a call or dial voice command, you can say them all at once, or separate them into blocks of 3, 4, 7, 10, or 11.
To skip a voice prompt, press and release the Talk button while the HFT is speaking. The HFT begins listening for your next voice command.
To go back a step in a voice command sequence, press and release the Back button, or say ‘‘Go back."
If you don't say anything while the HFT is listening for your voice command, it will time out and stop its voice recognition. The next time you press and release the Talk button, the HFT begins listening from the point where it timed out.
To stop a voice command sequence at any time, press and hold the Back button, or press and release the Talk button, wait for the beep, and say ‘‘Cancel." The next time you press and release the Talk button, the HFT begins from its main menu.
When you're done with a voice command sequence, the HFT goes back to its main menu. The next time you press and release the Talk button, you'll be at the main menu.
Remember to press and hold the Back button until you exit the main menu, otherwise, the audio system stays muted.

Pairing Your Cell Phone (A One Time Procedure)

NOTE:

- You cannot pair a phone if the vehicle is moving.
- Your phone must be in its Discovery mode.
- Up to six Bluetooth compatible phones can be paired by the HFT.

1. Turn on your phone, and follow the prompts to activate Bluetooth.
2. Give these voice commands to the HFT by pressing the talk button.

You say	You'll hear
‘‘Phone setup"	‘‘Phone setup options are status, pair, edit, delete, and list."
‘‘Pair"	‘‘The pairing process requires operation of your mobile phone. For safety, only perform this function while the vehicle is stopped. State a four-digit code for pairing. Note this code, it will be requested by the phone."
‘‘1. 2. 3. 4." (This can be any four-digit code you want.)	‘‘1. 2. 3. 4. is this correct?"
‘‘Yes"	‘‘Searching for a Bluetooth phone. Make sure the phone you are trying to pair is in Discovery mode!"

3. Follow the cell phone manufacturer's instructions to put the phone in its Discovery mode. The phone will search for the HFT. When you see Hands Free Telephone in the device list on the phone, select it.
4. When prompted, enter the four-digit PIN from step 2 into the phone. You will hear the HFT say ‘‘A new phone has been found. Would you like to name this phone?"
5. Press and release the Talk button, and say what the phone name will be. For example, say ‘‘John's phone". You'll hear ‘‘John's phone has been successfully paired", returning to the main menu.
6. To pair another phone, repeat Step 1 thru 5.

Clearing the Pass Code

If the system is locked and the pass code is lost or forgotten, do the following.

1. Connect the HDS to the DLC.
2. Turn the ignition switch to ON (II).
3. From the ‘‘Body Electrical menu", then select ‘‘HandsFreeLink".
4. Select ‘‘Miscellaneous Tests", then select ‘‘Pass code reset".
5. Follow the HDS system prompts to reset the pass code.

Self-diagnostic Function

NOTE: This procedure should be used only if HDS is unavailable.
To run the self-diagnostic function, do the following:

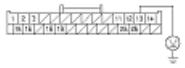
1. Turn the ignition switch to ON (II).
2. Press and hold the HFT Back button for more than 5 seconds.
3. When the Hands Free Telephone system enters the self-diagnostic function, the following will occur.
   - If there is no DTC, the Hands Free Telephone control unit audibly outputs ‘‘European Hands Free system is OK" and ‘‘Europe no handsfree system wa ok desu".
   - If there is any DTC, the Hands Free Telephone control unit audibly outputs ‘‘European Hands Free system needs to be serviced" and ‘‘Europe no handsfree system wa service ga hitsuyou desu".

NOTE:

- The self-diagnostic function can only be initiated while the HFT is in its idle state.
- The self-diagnostic function is considered to start once the 5 seconds press and hold is detected, and ends when the units returns to idle state.

DTC Troubleshooting: B1775

DTC B1775:
Microphone Input/Output Short to Battery or Open or Microphone Failure



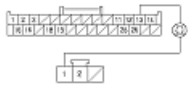
1. Connect the HDS to the DLC.
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

   Is DTC B1775 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch to LOCK (0).
6. Remove the HFT microphone and the driver's dashboard undercover.
7. Disconnect the 3P connector from the HFT microphone and the 28P connector from the Hands Free Telephone control unit.
8. Turn the ignition switch to ON (II).
9. Measure the voltage between Hands Free Telephone control unit 28P connector terminal No. 13 and body ground.

   Is there voltage?
   YES - Replace the faulty harness between the Hands Free Telephone control unit and the HFT microphone.■
   NO - Go to Step 10 .
10. Turn the ignition switch to LOCK (0).

---

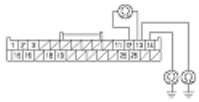
11. Check for continuity between Hands Free Telephone control unit 28P connector terminal No. 13 and HFT microphone 3P connector terminal No. 1.



   Is there continuity?
   YES - Substitute a known-good Hands Free Telephone control unit, then recheck. If the symptom goes away, replace the original Hands Free Telephone control unit .■
   NO - Replace the faulty harness between the Hands Free Telephone control unit and the HFT microphone.■

DTC Troubleshooting: B1776

DTC B1776:
Microphone Input/Output Short to Ground or Microphone Failure or Open

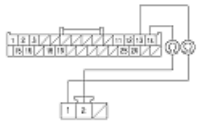


1. Connect the HDS to the DLC.
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

   Is DTC B1776 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch to LOCK (0).
6. Remove the HFT microphone and the driver's dashboard undercover.
7. Disconnect the 3P connector from the HFT microphone and the 28P connector from the Hands Free Telephone control unit.
8. Check for continuity between body ground and terminals No. 13 and No. 14 of the Hands Free Telephone control unit 28P connector individually, then between terminals No. 12 and No. 13.

   Is there continuity?
   YES - Replace the faulty harness between the Hands Free Telephone control unit and the HFT microphone.■
   NO - Go to Step 9 .

9. Check for continuity between the terminals shown of the Hands Free Telephone control unit 28P connector and the HFT microphone 3P connector.



   Is there continuity?
   YES - Substitute a known-good Hands Free Telephone control unit, then recheck. If the symptom goes away, replace the original Hands Free Telephone control unit. If the symptom does not go away, replace the faulty HFT microphone.■
   NO - Replace the faulty harness between the Hands Free Telephone control unit and the HFT microphone.■

DTC Troubleshooting: B1779

DTC B1779:
Hands Free Telephone Steering Wheel Open or Short to Battery or Switch Failure

1. Connect the HDS to the DLC.
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0), then start the vehicle and turn the steering wheel back and forth several times.
4. Check for DTCs with the HDS.

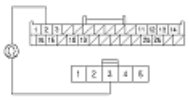
   Is DTC B1779 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch to LOCK (0).
6. Do the HFT switch test.

   Is the switch OK?
   YES - Go to Step 7 .
   NO - Replace the HFT switch. ■
7. Remove the driver's dashboard undercover.
8. Disconnect Hands Free Telephone control unit 28P connector.
9. Disconnect HFT switch 5P connector.
10. Turn the ignition switch to ON (II).
11. Measure the voltage of the HFT switch connector (5P) terminal No. 3 to body ground.

    Is there voltage?
    YES - Repair short in the wire between the Hands Free Telephone control unit and the HFT switch.■
    NO - Go to Step 12 .
12. Turn the ignition switch to LOCK (0).

---

13. Check for continuity between Hands Free Telephone control unit 28P connector terminal No. 2 and HFT switch 5P connector terminal No. 3.



    Is there continuity?
    YES - Go to Step 14 .
    NO - Repair open in the wire between the HFT switch and the Hands Free Telephone control unit.■
14. Turn the ignition switch to ON (II).

---

15. Measure the voltage between Hands Free Telephone control unit 28P connector terminal No. 2 and body ground.

    Is there voltage?
    YES - Repair short to body ground in the wire between the Hands Free Telephone control unit and the HFT switch.■
    NO - Go to Step 15 .
16. Turn the ignition switch to LOCK (0).

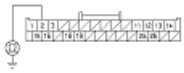
---

17. Check for continuity between HFT switch connector (5P) terminal No. 4 and body ground.

    Is there continuity?
    YES - Replace the Hands Free Telephone control unit. ■
    NO - Repair open in the wire between the HFT switch and body ground (G501).

DTC Troubleshooting: B1780

DTC B1780:
Hands Free Telephone Steering Wheel Short to Ground or Switch Failure



1. Connect the HDS to the DLC.
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0), then start the vehicle and turn the steering wheel back and forth several times.
4. Check for DTCs with the HDS.

   Is DTC B1780 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time.■
5. Turn the ignition switch to LOCK (0).
6. Do the HFT switch test.

   Is the switch OK?
   YES - Go to Step 7 .
   NO - Replace the HFT switch. ■
7. Remove the driver's dashboard undercover.
8. Disconnect the Hands Free Telephone control unit 28P connector.
9. Disconnect the HFT switch 5P connector.
10. Check for continuity between Hands Free Telephone control unit 28P connector terminal No. 2 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the Hands Free Telephone control unit and HFT switch.■
    NO - Replace the Hands Free Telephone control unit. ■

DTC Troubleshooting: B1792

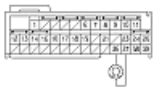
DTC B1792:
Hands Free Telephone Control Module Error

1. Connect the HDS to the DLC.
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC B1792 indicated?
YES - Replace the Hands Free Telephone control unit. ■
NO - Intermittent failure, the system is OK at this time.■

SRS DTC Troubleshooting: 43-11

DTC 43-11:
No Signal From the Left Side Impact Sensor (first)
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures , General Troubleshooting Information , and Battery Terminal Disconnection/Reconnection.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 43-11 indicated?
   YES -
   - If DTC 43-11 is indicated alone, go to Step 4 .
   - If DTC 43-11 and 45-11 are indicated, faulty left side impact sensor (first); replace the left side impact sensor (first). ■

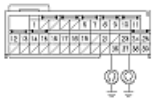
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.■
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Check the connections between SRS unit connector B (39P) and the SRS unit, between the floor wire harness 2P or 4P connector and the left side impact sensor (first), and at floor wire harness 2P or 4P connector.
   - 2P: With side airbag/without side curtain airbag
   - 4P: With side airbag and side curtain airbag

   Are the connections OK?
   YES - Go to Step 7 .
   NO - Repair the poor connections and retest.■
7. Disconnect SRS unit connector B (39P) from the SRS unit.
8. Disconnect the floor wire harness 2P or 4P connector from the left side impact sensor (first). ■
   - 2P: With side airbag/without side curtain airbag
   - 4P: With side airbag and side curtain airbag
9. Measure the resistance between No. 36 and No. 37 terminals of SRS unit connector B (39P). There should be an open circuit or at least 1 MΩ.

   Is the resistance as specified?
   YES - Go to Step 10 .
   NO - Short in the floor wire harness; replace the floor wire harness.■

---

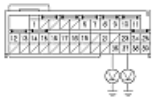
10. Measure the resistance between No. 36 terminal of SRS unit connector B (39P) and body ground, and between the No. 37 terminal and body ground.
    There should be an open circuit or at least 1 MΩ.



    Is the resistance as specified?
    YES - Go to Step 11 .
    NO - Short to ground in the floor wire harness; replace the floor wire harness.■
11. Reconnect the negative cable to the battery.
12. Turn the ignition switch to ON (II).

---

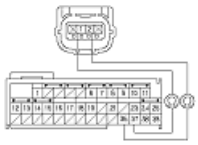
13. Measure the voltage between No. 36 terminal of SRS unit connector B (39P) and body ground, and between the No. 37 terminal and body ground. There should be less than 1.0 V.



    Is the voltage as specified?
    YES - Go to Step 14 .
    NO - Short to power in the floor wire harness; replace the floor wire harness.■
14. Turn the ignition switch to LOCK (0).

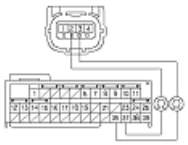
---

15. Measure the resistance between the following terminals of the floor wire harness 2P or 4P connector, and the SRS unit connector B (39P). There should be less than 1.0 Ω.



- With side airbag/without side curtain airbag

2P:	39P:
No. 2	No. 36
No. 1	No. 37



- With side airbag and side curtain airbag

4P:	39P:
No. 3	No. 36
No. 2	No. 37

Is the resistance as specified?

YES - Go to Step 16 .

NO - Open in the floor wire harness; replace the floor wire harness.■

16. Substitute a known-good left side impact sensor (first) and recheck.

17. Connect SRS unit connector B (39P) to the SRS unit.

18. Clear the DTC memory.

19. Turn the ignition switch to ON (II), then wait for 10 seconds.

20. Read the DTC.

Is DTC 43-11 indicated?

YES - Faulty SRS unit; replace the SRS unit. ■

NO - Faulty left side impact sensor (first); replace the left side impact sensor (first). ■

SRS DTC Troubleshooting: 44-11

DTC 44-11:
No Signal From the Right Side Impact Sensor (first)
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures , General Troubleshooting Information , and Battery Terminal Disconnection/Reconnection.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 44-11 indicated?
   YES -
   - If DTC 44-11 is indicated alone, go to Step 4 .
   - If DTC 44-11 and 46-11 are indicated, faulty right side impact sensor (first); replace the right side impact sensor (first). ■

   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.■
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Check the connections between SRS unit connector B (39P) and the SRS unit, between the floor wire harness 2P or 4P connector and the left side impact sensor (first), and at floor wire harness 2P or 4P connector.
   - 2P: With side airbag/without side curtain airbag
   - 4P: With side airbag and side curtain airbag

   Are the connections OK?
   YES - Go to Step 7 .
   NO - Repair the poor connections and retest.■
7. Disconnect SRS unit connector B (39P) from the SRS unit.
8. Disconnect the floor wire harness 2P or 4P connector from the right side impact sensor (first).
   - 2P: With side airbag/without side curtain airbag
   - 4P: With side airbag and side curtain airbag
9. Measure the resistance between No. 38 and No. 39 terminals of SRS unit connector B (39P). There should be an open circuit or at least 1 MΩ.

   Is the resistance as specified?
   YES - Go to Step 10 .
   NO - Short in the floor wire harness; replace the floor wire harness.■

---

10. Measure the resistance between No. 38 terminal of SRS unit connector B (39P) and body ground, and between the No. 39 terminal and body ground. There should be an open circuit or at least 1 MΩ.

    Is the resistance as specified?
    YES - Go to Step 11 .
    NO - Short to ground in the floor wire harness; replace the floor wire harness.■
11. Reconnect the negative cable to the battery.
12. Turn the ignition switch to ON (II).

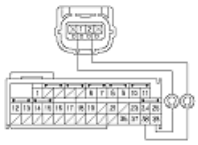
---

13. Measure the voltage between No. 38 terminal of SRS unit connector B (39P) and body ground, and between the No. 39 terminal and body ground. There should be less than 1.0 V.

    Is the voltage as specified?
    YES - Go to Step 14 .
    NO - Short to power in the floor wire harness; replace the floor wire harness.■
14. Turn the ignition switch to LOCK (0).

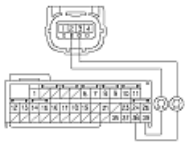
---

15. Measure the resistance between the following terminals of the floor wire harness 2P or 4P connector, and the SRS unit connector B (39P). There should be less than 1.0 Ω.



- With side airbag/without side curtain airbag

2P:	39P:
No. 2	No. 38
No. 1	No. 39



- With side airbag and side curtain airbag

4P:	39P:
No. 3	No. 38
No. 2	No. 39

Is the resistance as specified?

YES - Go to Step 16 .

NO - Open in the floor wire harness; replace the floor wire harness.■

16. Substitute a known-good right side impact sensor (first) and recheck.
17. Connect SRS unit connector B (39P) to the SRS unit.
18. Clear the DTC memory.
19. Turn the ignition switch to ON (II), then wait for 10 seconds.
20. Read the DTC.

Is DTC 44-11 indicated?

YES - Faulty SRS unit; replace the SRS unit. ■

NO - Faulty right side impact sensor (first); replace the right side impact sensor (first). ■

SRS DTC Troubleshooting: 68-1x

DTC 68-1x ("x" can be 0 thru 9 or A thru F):
Open in the Front Passenger's Airbag ON/OFF Switch
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to LOCK (0), then wait for 10 seconds.
3. Turn the ignition switch to ON (II).
4. Read the DTC.

   Is DTC 68-1x indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.■
5. Turn the ignition switch to LOCK (0).
6. Remove the dashboard side lid, then disconnect the dashboard wire harness 4P connector from the front passenger's airbag on/off switch.
7. Measure the resistance between the No. 1 and No. 4 terminals of front passenger's airbag on/off switch 4P connector according to the table.

Position	Resistance
ON	3.11−3.88 kΩ
OFF	0.68−0.83 kΩ

   Is the resistance as specified?
   YES - Go to Step 8 .
   NO - Faulty front passenger's airbag on/off switch or poor connection at front passenger's airbag on/off switch 4P connector and the front passenger's airbag on/off switch. Check the connection between the connector and the front passenger's airbag on/off switch. If the connection is OK, replace the front passenger's airbag on/off switch. ■

8. Install a jumper wire between the No. 1 and the No. 4 terminals of dashboard wire harness 4P connector.

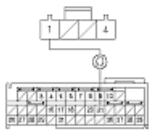
9. Measure the voltage between the dashboard wire harness 4P connector No. 1 and No. 4 terminals.

   Is there battery voltage?
   YES - Short in the dashboard wire harness; replace the dashboard wire harness.■
   NO -
   - If voltage is about 0 V, go to Step 10 .
   - If voltage is 5 V, reconnect the front passenger's airbag on/off switch, then check the DTC. If no DTCs are indicated, intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, replace the SRS unit.

10. Turn the ignition switch to LOCK (0).
11. Disconnect the negative cable from the battery, then wait at least 3 minutes.
12. Disconnect SRS unit connector A (39P) from the SRS unit.

13. Check for continuity between the No. 1 terminal of the dashboard wire harness 4P connector and the No. 21 terminal of the SRS unit connector A (39P).

    Is there continuity?
    YES - Go to Step 14 .
    NO - Open in the dashboard wire harness; replace the dashboard wire harness.■



14. Check for continuity between the No. 4 terminal of the dashboard wire harness 4P connector and body ground.

    Is there continuity?
    YES - Faulty SRS unit or poor connection at SRS unit connector A (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit. ■
    NO - Open between the dashboard wire harness 4P connector and body ground (G502) or poor connection at G502.■

SRS DTC Troubleshooting: 68-2x

DTC 68-2x ("x" can be 0 thru 9 or A thru F):
Short in the Front Passenger's Airbag ON/OFF Switch
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to LOCK (0), then wait for 10 seconds.
3. Turn the ignition switch to ON (II).
4. Read the DTC.

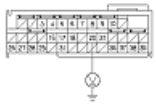
   Is DTC 68-2x indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.■
5. Turn the ignition switch to LOCK (0).
6. Remove the dashboard side lid, then disconnect the dashboard wire harness 4P connector from the front passenger's airbag on/off switch.
7. Turn the ignition switch to ON (II).
8. Read the DTC.

   Is DTC 68-2x indicated?
   YES - Go to Step 9 .
   NO - Faulty front passenger's airbag on/off switch or poor connection at front passenger's airbag on/off switch 4P connector and the front passenger's airbag on/off switch. Check the connection between the connector and the front passenger's airbag on/off switch. If the connection is OK, replace the front passenger's airbag on/off switch. ■
9. Turn the ignition switch to LOCK (0).
10. Disconnect the negative cable from the battery, then wait at least 3 minutes.
11. Disconnect SRS unit connector A (39P) from the SRS unit.
12. Check for continuity between the No. 4 terminals of the dashboard wire harness 4P connector and body ground.

    Is there continuity?
    YES - Short in the dashboard wire harness; replace the dashboard wire harness.■
    NO - Faulty SRS unit; replace the SRS unit. ■

SRS DTC Troubleshooting: 92-1x

DTC 92-1x (‘‘x" can be 0 thru 9 or A thru F):
Short to Power in the Passenger's Airbag Off Indicator
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Troubleshoot DTC A1-1x before doing this troubleshooting procedure.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

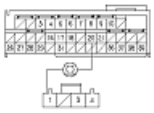
1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 92-1x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.■
4. Disconnect the passenger's airbag off indicator 6P connector.
5. Turn the ignition switch to LOCK (0).
6. Disconnect the negative cable from the battery, then wait at least 3 minutes.
7. Disconnect SRS unit connector A (39P) from the SRS unit.
8. Reconnect the negative cable to the battery.
9. Turn the ignition switch to ON (II).
10. Measure the voltage between the No. 20 terminal of SRS unit connector A (39P) and body ground. There should be less than 0.5 V.

    Is the voltage as specified?
    YES - Faulty SRS unit or passenger's airbag off indicator; replace the passenger's airbag off indicator. If the problem is still present, replace the SRS unit. ■
    NO - Short to power in the dashboard wire harness or the audio wire harness; replace the faulty harness.■

SRS DTC Troubleshooting: 92-2x

DTC 92-2x (‘‘x" can be 0 thru 9 or A thru F):
Open or Short to Ground in the Passenger's Airbag Off Indicator
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Troubleshoot DTC A1-1x before doing this troubleshooting procedure.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 92-2x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.■
4. Disconnect the passenger's airbag off indicator 4P connector.
5. Turn the ignition switch to LOCK (0).
6. Do the battery terminal disconnection procedure.
7. Disconnect SRS unit connector A (39P) from the SRS unit.
8. Measure the resistance between the No. 20 terminal of SRS unit connector A (39P) and the No. 1 terminal of the passenger's airbag off indicator 4P connector. There should be less than 1.0 Ω.

   Is the resistance as specified?
   YES - Go to Step 9 .
   NO - Open in the dashboard wire harness; replace the dashboard wire harness.■

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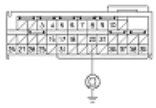
9. Measure the resistance between No. 20 terminal of SRS unit connector A (39P) and body ground. There should be more than 1 MΩ.

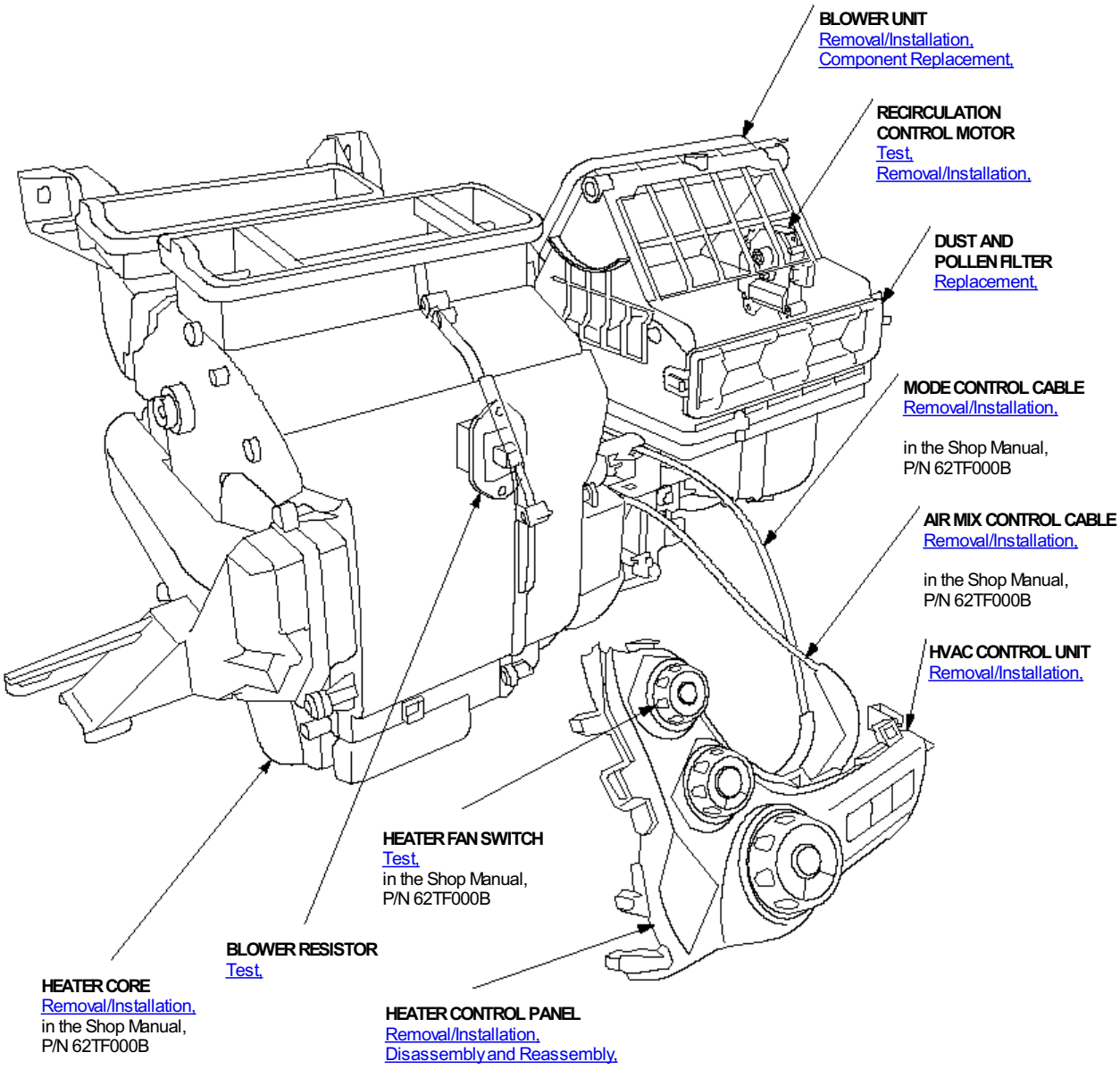


   Is the resistance as specified?
   YES - Faulty SRS unit or passenger's airbag off indicator; replace the passenger's airbag off indicator. If the problem is still present, replace the SRS unit. ■
   NO - Short to ground in the dashboard wire harness or the audio wire harness; replace the faulty harness.■

Heating System Description

[HVAC Control Unit Inputs and Outputs]

Heating Component Location Index

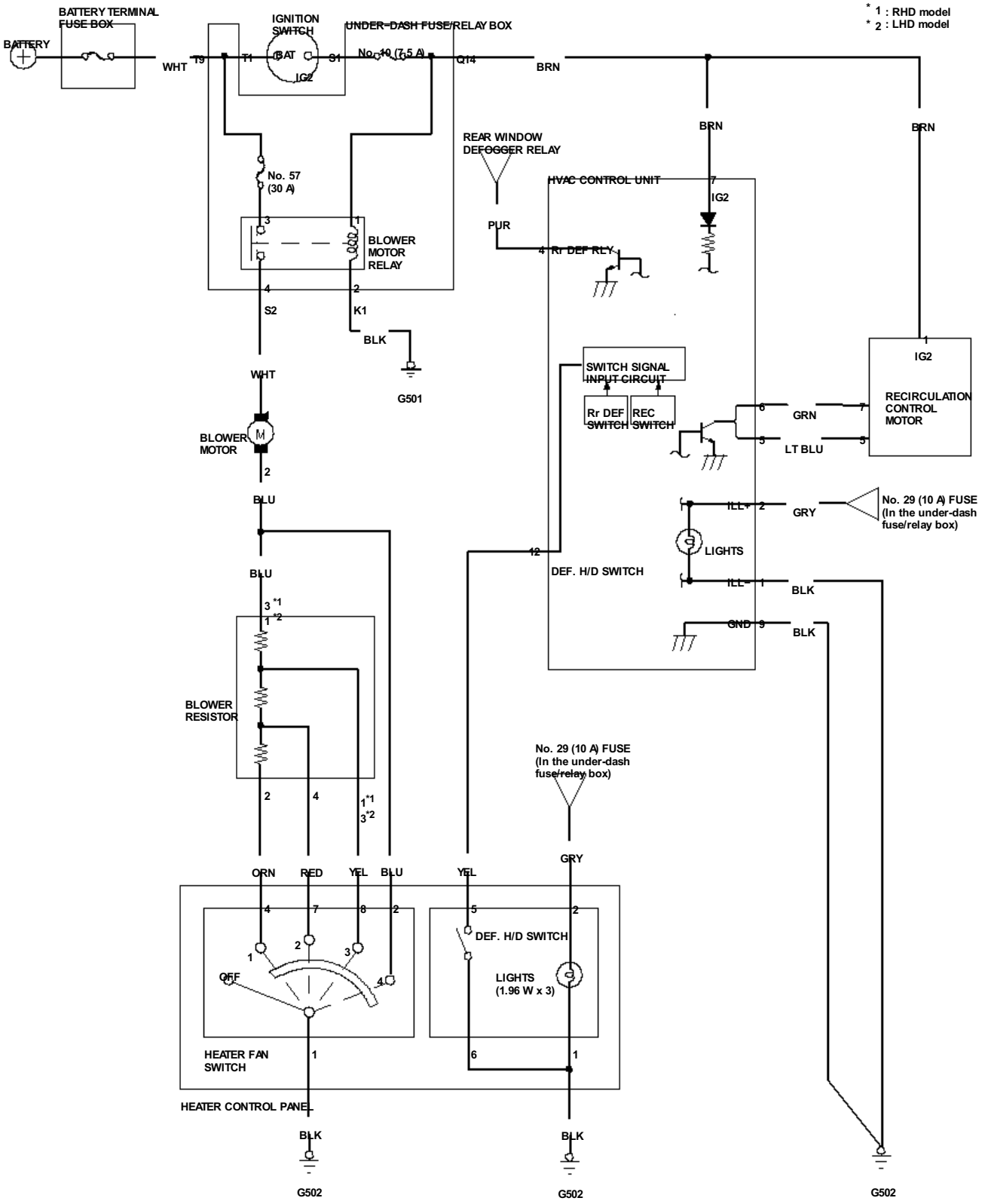


LHD model is shown, RHD model is similar.

A/C CONDENSER FAN RELAY
Test,

LHD model is shown, RHD model is similar.

Heating Circuit Diagram



Blower motor runs, but one or more speeds are inoperative

Diagnostic procedure

1. Blower motor circuit troubleshooting

Also check for

- Cleanliness and tightness of all connectors

Blower motor does not run at all

Diagnostic procedure

1. Blower motor circuit troubleshooting

Also check for

- Blown fuse No. 10 (7.5 A) and No. 57 (30 A) in the under-dash fuse/relay box
- Poor ground at G501
- Cleanliness and tightness of all connectors

Recirculation control doors do not change between Fresh and Recirculate

Diagnostic procedure

1. Recirculation Control motor circuit troubleshooting

Also check for

- Blown fuse No. 10 (7.5 A) in the under-dash fuse/relay box
- Cleanliness and tightness of all connectors

Heater Control do not work

Diagnostic procedure

1. HVAC control power and ground circuit troubleshooting

Also check for

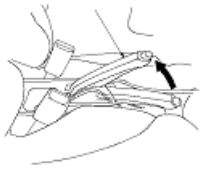
- Blown fuse No. 10 (7.5 A) in the under-dash fuse/relay box
- Poor ground at G502
- Cleanliness and tightness of all connectors

Heating Symptom Troubleshooting

Symptom	Diagnostic procedure	Also check for
Blower motor runs, but one or more speeds are inoperative	Blower motor circuit troubleshooting	Cleanliness and tightness of all connectors
Blower motor does not run at all	Blower motor circuit troubleshooting	• Blown fuse No. 10 (7.5 A) and No. 57 (30 A) in the under-dash fuse/relay box • Poor ground at G501 • Cleanliness and tightness of all connectors
Recirculation control doors do not change between Fresh and Recirculate	Recirculation Control motor circuit troubleshooting	• Blown fuse No. 10 (7.5 A) in the under-dash fuse/relay box • Cleanliness and tightness of all connectors
Heater Control do not work	HVAC control power and ground circuit troubleshooting	• Blown fuse No. 10 (7.5 A) in the under-dash fuse/relay box • Poor ground at G502 • Cleanliness and tightness of all connectors

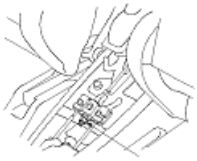
Parking Brake Inspection and Adjustment

Inspection



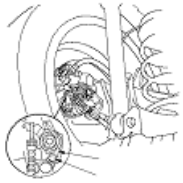
1. Pull the parking brake lever (A) with 196 N (20 kgf, 44 lbf) of force to fully apply the parking brake. The parking brake lever should be locked within the specified number of clicks.
   Lever locked clicks:
   Rear Disc Brake Model: 6 to 8
   Rear Drum Brake Model: 5 to 7
2. If the number of lever clicks is not as specified, adjust the parking brake.

Adjustment - Rear Disc Brake Type



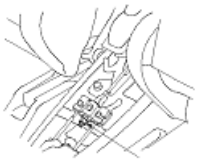
NOTE: After servicing the rear brake caliper, loosen the parking brake adjusting nut, start the engine, and press the brake pedal several times to set the self-adjusting brake before adjusting the parking brake.

1. Release the parking brake lever fully.
2. Press the brake pedal several times.
3. Remove the center console.
4. Loosen the parking brake adjusting nut (A).
5. Raise the rear of the vehicle, and support it with safety stands in the proper locations.
6. Remove the rear wheels.



7. Make sure the lever (A) on the rear brake caliper contacts the stop pin (B).
   NOTE: When the parking brake lever does not contact the stop pin, loosen the adjusting nut in the center console until the parking brake lever contacts the stop pin, then start the engine, and press the brake pedal several times.
8. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the rear wheels.
9. Pull the parking brake lever 1 click.
10. Tighten the parking brake adjusting nut until the parking brakes drag slightly when the rear wheels are turned.
11. Release the parking brake lever fully, and check that the parking brakes do not drag when the rear wheels are turned. Readjust if necessary.
12. Make sure the parking brake lever within the specified number of clicks (6 to 8 clicks).
13. Install the center console.

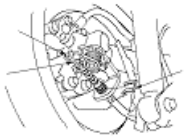
Adjustment - Rear Drum Brake Type



NOTE: After servicing the rear brake shoe, press the brake pedal several times before adjusting the parking brake.

1. Release the parking brake lever fully.
2. Press the brake pedal several times.
3. Remove the center console.
4. Loosen the parking brake adjusting nut (A).
5. Raise the rear of the vehicle, and support it with safety stands in the proper locations.
6. Remove the rear wheels.
7. Pull the parking brake lever 1 click.
8. Tighten the parking brake adjusting nut until the parking brakes drag slightly when the rear wheels are turned.
9. Release the parking brake lever fully, and check that the parking brakes do not drag when the rear wheels are turned. Readjust if necessary.
10. Make sure the parking brake lever within the specified number of clicks (5 to 7 clicks).
11. Install the center console.

Parking Brake Cable Replacement



Exploded View

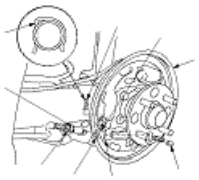
Rear Disc Brake Model

NOTE:

- The parking brake cables must not be bent or distorted. This will lead to stiff operation and premature cable failure.
- Refer to the Exploded View as needed during this procedure.

1. Release the parking brake lever fully.
2. Loosen the parking brake cable adjustment nut.
3. Remove the parking brake cable clip (A) from the brake cable (B).
4. Disconnect the parking brake cable from the lever (C).
5. Remove the parking brake cable mounting hardware, then remove the cable.
6. Install the parking brake cable in the reverse order of removal, and note these items:
   - Be careful not to bend or distort the cable.
   - Make sure the parking brake cable clip is fully seated on the cable housing.
   - Adjust the parking brake.

Rear Drum Brake Model



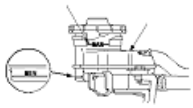
NOTE:

- The parking brake cables must not be bent or distorted. This will lead to stiff operation and premature cable failure.
- Refer to the Exploded View as needed during this procedure.

1. Release the parking brake lever fully.
2. Loosen the parking brake cable adjusting nut.
3. Remove the brake drum and shoes, and disconnect the parking brake cable (A) from the parking brake lever.
4. Remove the cable clip (B) from the cable insertion part (C) at the reverse side of the backing plate (D).
5. Pull the parking brake cable and remove it from the backing plate.
6. Install the parking brake cable in the reverse order of removal, and note these items:
   - Be careful not to bend or distort the cable.
   - Align the projection (E) of the parking cable holder with the cutout (F) at the backing plate insertion part.
   - Insert until the groove (G) in the cable holder aligns with the cutout (H) at the cable insertion part.
   - Install the cable clip by inserting the straight end (I) of the clip into the cutout at the cable insertion part and secure the parking cable holder securely.
   - Connect the parking brake cable to the brake lever, and install the brake shoes and drum.
   - Adjust the parking brake. Apply the parking brake firmly 10 times then adjust it again.

Brake System Bleeding

NOTE:



- Do not reuse the drained fluid. Use only clean genuine Honda DOT 3 or DOT 4 Brake Fluid from an unopened container. Using a non-Honda brake fluid can cause corrosion and shorten the life of the system.
- Make sure no dirt or other foreign matter is allowed to contaminate the brake fluid.
- Do not spill brake fluid on the vehicle, it may damage the paint; if brake fluid does contact the paint, wash it off immediately with water.
- The reservoir connected to the master cylinder must be at the MAX (upper) level mark at the start of the bleeding procedure and checked after bleeding each wheel location. Add fluid as required.

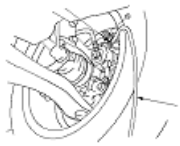
Brake System Bleeding

1. Make sure the brake fluid level in the reservoir (A) is at the MAX (upper) level line (B).
2. Have someone slowly pump the brake pedal several times, then apply steady pressure.

3. Start the bleeding at the driver's side of the front brake system.
   NOTE: Bleed the calipers or the wheel cylinders in the sequence shown.

4. Attach a length of clear drain tube (A) to the bleed screw (B), then, loosen the bleed screw to allow air to escape from the system. Then tighten the bleed screw securely.
5. Refill the master cylinder reservoir to the MAX (upper) level line.
6. Repeat the procedure for each brake circuit until there are no air bubbles are in the fluid.

Front



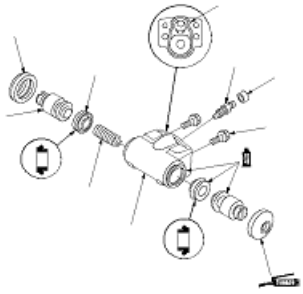
Rear - disc type

Rear - drum type

To replace all brake fluid for models with service reminder system

1. If the service reminder system required to replace the brake fluid, reset the service reminder system, and this procedure is complete. If the service reminder system did not require to replace the brake fluid, go to Step 2 and reset the brake fluid life with the HDS.
2. Connect the HDS to the DLC (A), located under the driver's side of the dashboard.
3. Turn the ignition switch to ON (II). Make sure the HDS communicates with the PCM. If it does not, go to the DLC circuit troubleshooting.
4. Select GAUGES in the BODY ELECTRICAL menu with the HDS.
5. Select ADJUSTMENT in the GAUGES MENU with the HDS.
6. Select EU MAINTENANCE MINDER in the ADJUSTMENT menu with the HDS.
7. Select SERVICE REMINDER in the EU MAINTENANCE MINDER menu with the HDS.
8. Select Service Reminder ITEM 7, and reset the brake fluid life with the HDS.

Rear Wheel Cylinder Disassembly/Inspection

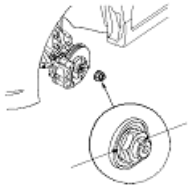


Remove, disassemble, inspect, reassemble, and install the wheel cylinder, and note these items:

- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
- To prevent dripping brake fluid, cover disconnected line joints with rags or shop towels.
- Clean all parts in brake fluid and air dry; blow out all passages with compressed air.
- Before reassembling, check that all parts are free of dirt and other foreign particles.
- Replace parts with new ones as specified in the illustration.
- Make sure no dirt or other foreign matter gets into the brake fluid.
- Make sure no grease or oil gets on the brake linings or the brake drum.
- Do not reuse drained brake fluid. Use only clean genuine Honda DOT 3 or DOT 4 Brake Fluid from an unopened container. Using a non-Honda brake fluid can cause corrosion and shorten the life of the system.
- Coat the piston cup groove, and the wheel cylinder bore with clean brake fluid.
- After installing the wheel cylinder, check the brake hose and line for leaks, interference, and twisting.
- Apply Cemedine 366E sealant or equivalent between the wheel cylinder and backing plate and install the wheel cylinder.
- Use recommended greases in the wheel cylinder seal set.
- Bleed the brake system.

Driveshaft Removal

Special Tools Required

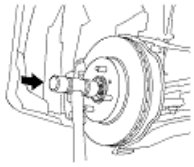


Ball joint remover, 28 mm
07MAC-SL00201

1. Raise the vehicle on a lift.
2. Remove the front wheels.
3. Pry up the locking tab (A) on the spindle nut (B), then remove the nut.
4. Drain the transmission fluid. Reinstall the drain plug using a new sealing washer:
   - Manual transmission
   - Automatic transmission
   - i-SHIFT system transmission
5. With HID lamp model: If removing the left side driveshaft, disconnect the suspension stroke sensor from the lower arm.

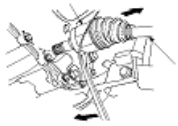
6. Remove the lock pin (A) from the lower arm ball joint, and remove the castle nut (B), then separate the ball joint from the knuckle using the ball joint remover.
   NOTE:
   - Be careful not to damage the ball joint boot when installing the remover.
   - Do not force or hammer on the lower arm, or pry could damage the ball joint.

7. Pull the knuckle outward, and separate the outboard joint from the front hub using a plastic hammer.

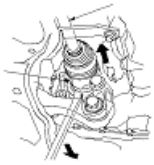


8. Left and Right driveshaft (M/T model, i-SHIFT model)/Left driveshaft (A/T model): Pry the inboard joint (A) from the differential with a prybar. Remove the driveshaft as an assembly.
   NOTE:
   - Do not pull on the driveshaft (B), or the inboard joint may come apart. Pull the inboard joint straight out to avoid damaging the oil seal.
   - Be careful not to damage the oil seal with the prybar.

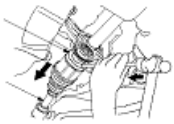
Left



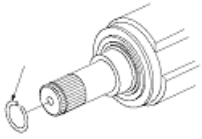
Right



9. Right driveshaft (A/T model): Drive the inboard joint (A) off of the intermediate shaft using a drift and a hammer. Remove the driveshaft as an assembly.
   NOTE: Do not pull on the driveshaft (B), or the inboard joint may come apart.



10. Remove the set ring (A) from the inboard joint (Except A/T model right driveshaft).

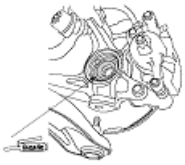


11. Remove the set ring (A) from the intermediate shaft (A/T model right driveshaft).

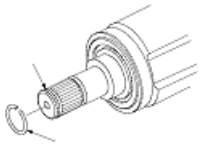
Driveshaft Installation

NOTE: Before starting installation, make sure the mating surfaces of the joint and the splined section are clean.

1. Apply about 5 g (0.18 oz) molybdenum grease to the contact area (A) of the outboard joint and the front wheel bearing.
   NOTE: The grease helps to prevent noise and vibration.

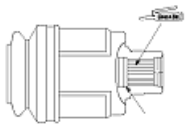


2. Install a new set ring (A) onto the set ring groove (B) of the driveshaft inboard joint (except A/T model right driveshaft).



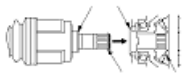
3. Install a new set ring (A) onto the set ring groove (B) of the intermediate shaft (A/T model).

4. Apply 0.5−1.0 g (0.02−0.04 oz) of molybdenum grease to the whole splined surface (A) of the right driveshaft. After applying grease, remove the grease from the splined grooves at intervals of 2−3 splines and from the set ring groove (B) so that air can bleed from the intermediate shaft.
5. Clean the areas where the driveshaft contacts the differential thoroughly with solvent or brake cleaner, and dry with compressed air.
   NOTE: Do not wash the rubber parts with solvent.

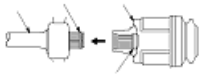


6. Insert the inboard end (A) of the driveshaft into the differential (B) or intermediate shaft (C) until the set ring (D) locks in the groove (E).
   NOTE: Insert the driveshaft horizontally to prevent damaging the oil seal.

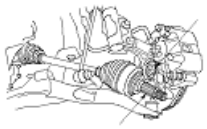
Left



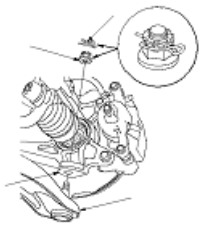
Right



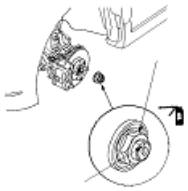
7. Install the outboard joint (A) into the front hub (B) on the knuckle.



8. Wipe off any grease contamination from the ball joint tapered section and threads, then install the knuckle (A) onto the lower arm (B). Be careful not to damage the ball joint boot. Wipe off the grease before tightening the nut at the ball joint. Torque the new castle nut (C) to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole.
   NOTE:
   - Make sure the ball joint boot is not damaged or cracked.
   - Do not align the nut by loosening it.
9. Install the lock pin (D) into the ball joint pin hole.
10. With HID lamp model: If the left side driveshaft was removed, connect the suspension stroke sensor to the lower arm.



11. Apply a small amount of engine oil to the seating surface of the new spindle nut (A).

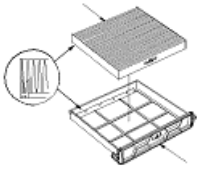


12. Install the spindle nut, then tighten it. After tightening, use a drift to stake the spindle nut shoulder (B) against the driveshaft.
13. Clean the mating surfaces of the brake disc and the wheel, then install the front wheels.
14. Turn the front wheel by hand, and make sure there is no interference between the driveshaft and surrounding parts.
15. Refill the transmission with the recommended transmission fluid:
    - Manual transmission
    - Automatic transmission
    - i-SHIFT system transmission
16. Lower the vehicle on the lift.
17. Check the wheel alignment, and adjust it if necessary.
18. With HID lamp model: If the left side driveshaft was removed, do the headlight initial position learning procedure.
19. Test-drive the vehicle.

Dust and Pollen Filter Replacement

LHD model (Except FO model)

1. Open the glove box. Remove the glove box stop on each side, then let the glove box hang down.
2. Pull out the dust and pollen filter assembly (A) from the blower unit.



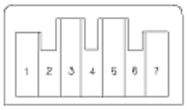
3. Remove the filter (A) from the housing (B), and replace the filter.
4. Install the filter in the reverse order of removal. Make sure that there is no air leaking out of the blower unit.
5. If the service reminder system required to replace the dust and pollen filter, reset the service reminder system, this procedure is complete. If the service reminder system did not required to replace the dust and pollen filter, go to Step 6 and reset the dust and pollen filter life with the HDS.
6. Connect the HDS to the data link connector (DLC) located under the driver's side of the dashboard.
7. Turn the ignition switch to ON (II).
8. Make sure the HDS communicates with the vehicle and the climate control unit. If it doesn't, troubleshoot the DLC circuit.
9. Select BODY ELECTRICAL with the HDS.
10. Select ADJUSTMENT in GAUGE MENU with the HDS.
11. Select SERVICE REMINDER in the EU MAINTENANCE MINDER with the HDS.
12. Select SERVICE REMINDER ITEM 2 with the HDS.

RHD model and LHD (FO) model

1. Open the glove box. Remove the glove box stop on each side, then let the glove box hang down.
2. Remove the lid (A) from the blower unit.
3. Pull out the dust and pollen filter (B).
4. Install the filter in the reverse order of removal. Make sure that there is no air leaking out of the blower unit.

Recirculation Control Motor Test

1. Disconnect the 7P connector from the recirculation control motor.



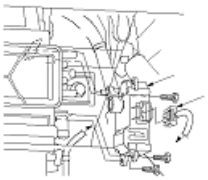
NOTICE

Incorrectly applying power and ground to the recirculation control motor will damage it. Follow the instructions carefully.

2. Connect battery power to the No. 1 terminal of the recirculation control motor, and ground the No. 5 and No. 7 terminals; the recirculation control motor should run smoothly. To avoid damaging the recirculation control motor, do not reverse power and ground. Disconnect the No. 5 or No. 7 terminals from ground; the recirculation control motor should stop at Fresh (when the No. 7 terminal is disconnected) or Recirculate (when the No. 5 terminal is disconnected). Don't cycle the recirculation control motor for a long time.

3. If the recirculation control motor did not run in Step 2 , remove it, then check the recirculation control linkage and door for smooth movement.
   - If the linkage and door move smoothly, replace the recirculation control motor.
   - If the linkage or door stick or bind, repair them as needed.

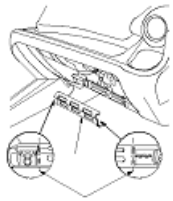
Recirculation Control Motor Replacement



1. Open the glove box. Release the glove box stop on each side, then let the glove box hang down.
2. Disconnect the 7P connector (A) from the recirculation control motor (B). Remove the self-tapping screws and the recirculation control motor from the blower unit.
3. Install the motor in the reverse order of removal. Make sure the pin on the motor is properly engaged with the linkage. After installation, make sure the motor runs smoothly.

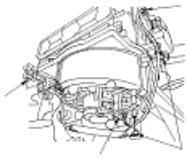
Blower Unit Removal/Installation

1. Remove the passenger's dashboard undercover and the glove box.
2. Cut the plastic cross brace (A) in the glove box opening with diagonal cutters in the area (B). Retain plastic cross brace to be reinstalled later.

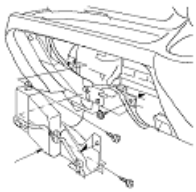


3. Remove the bolts, and the glove box frame (A).

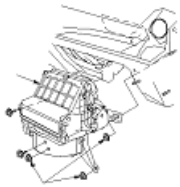
4. Disconnect the connectors (A) from the blower motor and the recirculation control motor. Remove the clips (B).



5. Remove the self-tapping screws and the passenger's heater duct (A).

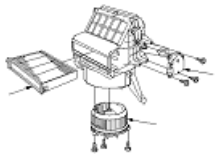


6. Remove the self-tapping screws, the mounting nuts, and the blower unit (A).
7. Install the unit in the reverse order of removal. Make sure that there is no air leakage.



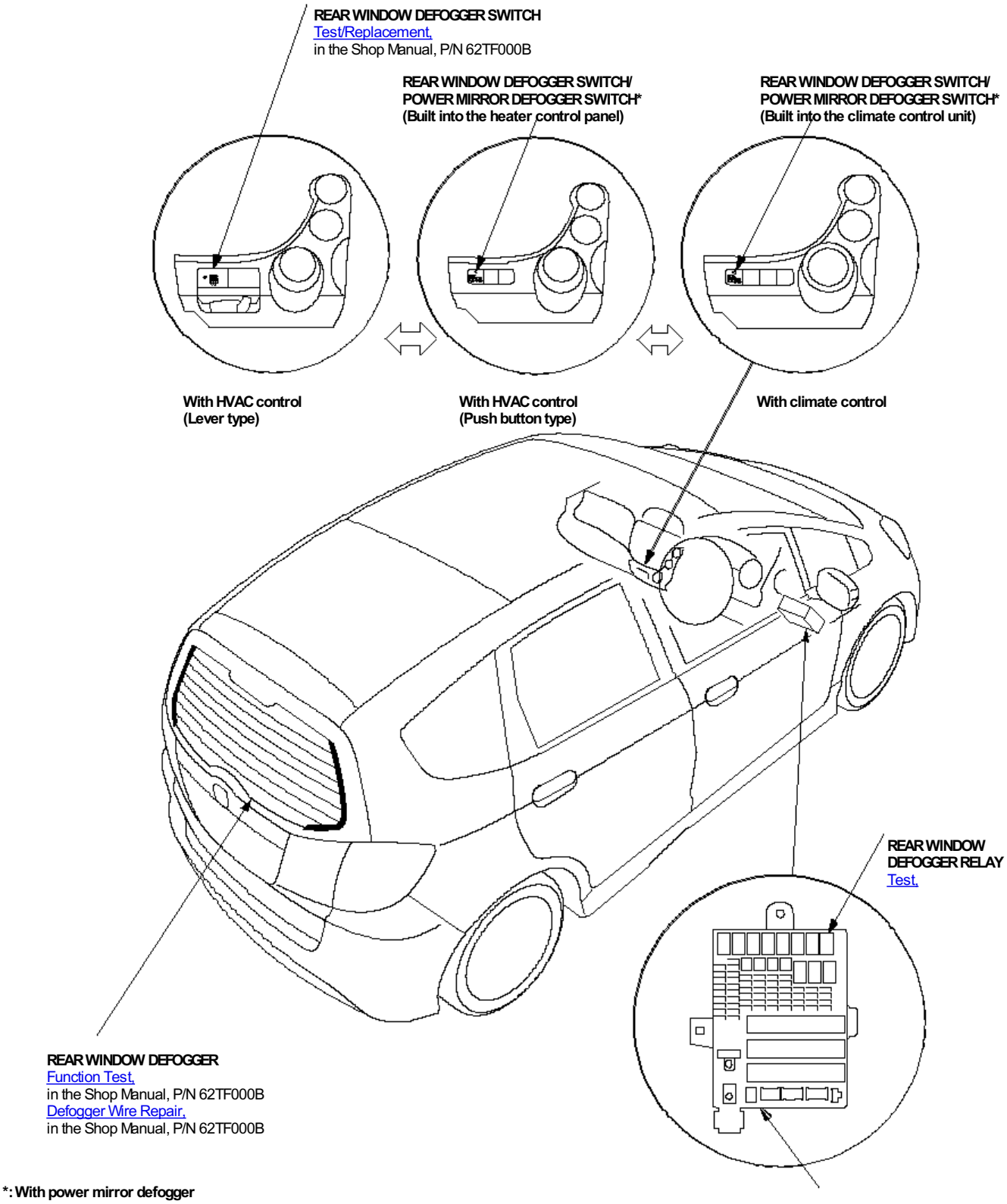
Blower Unit Component Replacement

Note these items when overhauling the blower unit:



- The recirculation control motor (A), blower motor (B), and the dust and pollen filter (C) can be replaced without removing the blower unit.
- Before reassembly, make sure that the recirculation control linkage and door move smoothly without binding.
- After reassembly, make sure the recirculation control motor runs smoothly.

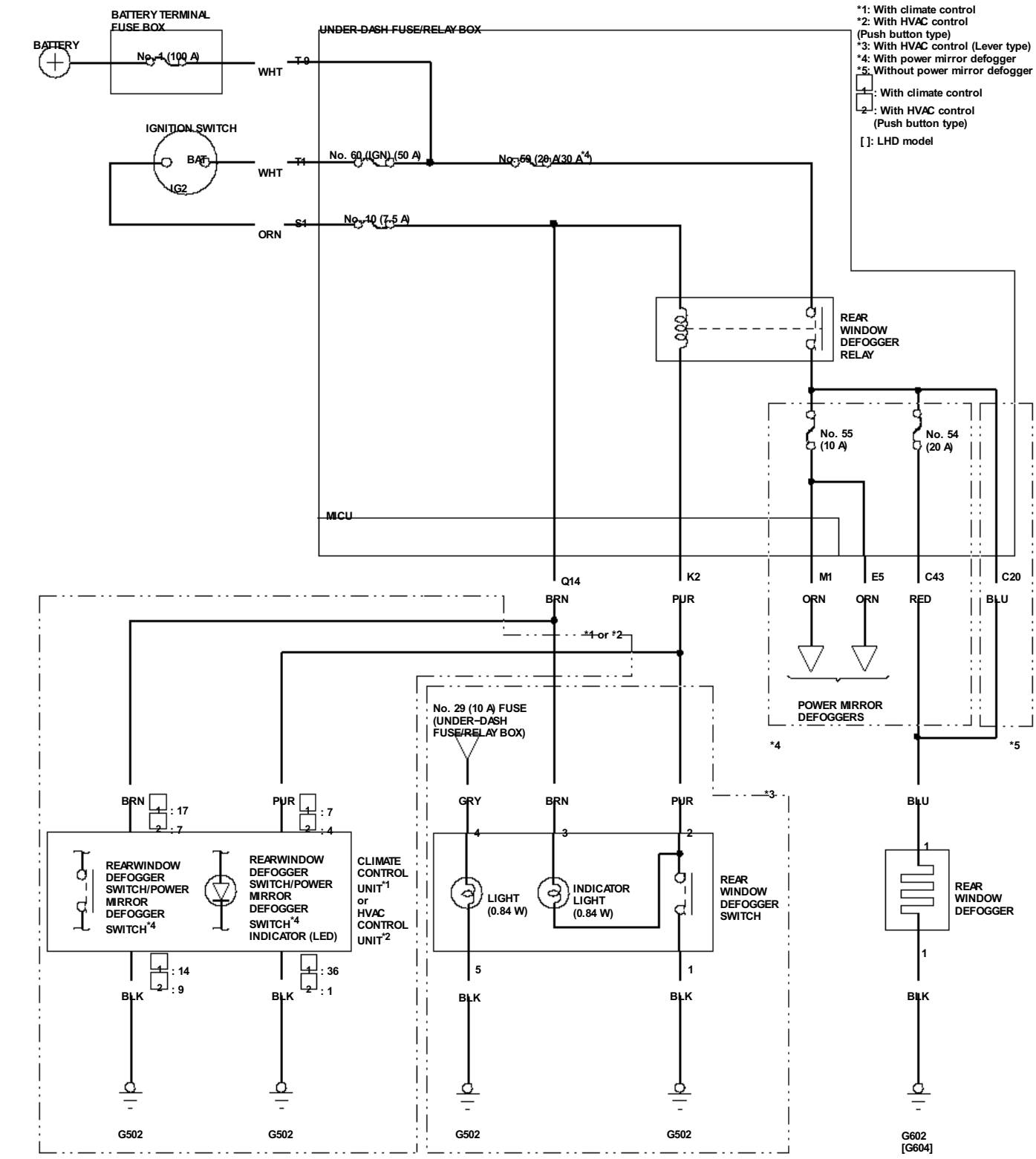
Rear Window Defogger Component Location Index



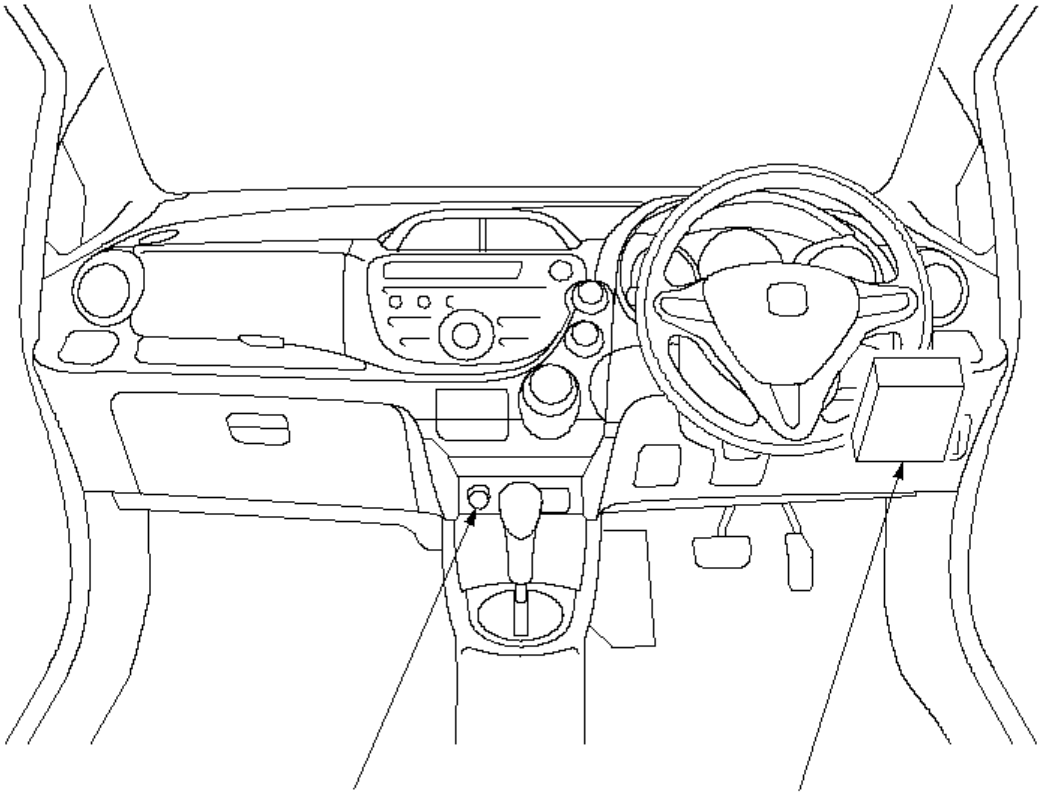
***: With power mirror defogger**

RHD model is shown, LHD model is similar.

Rear Window Defogger Circuit Diagram



Cigarette Lighter Component Location Index

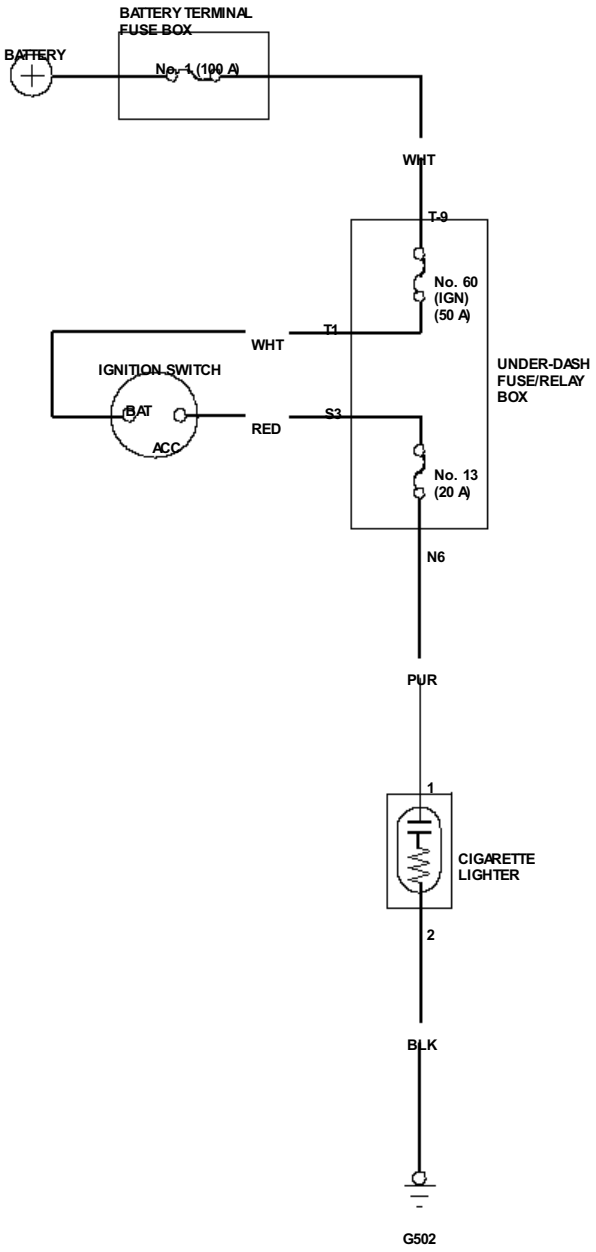


CIGARETTE LIGHTER
Test/Replacement.

UNDER-DASH FUSE/RELAY BOX

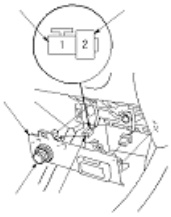
RHD type is shown, LHD type is similar.

Cigarette Lighter Circuit Diagram



Cigarette Lighter Test/Replacement

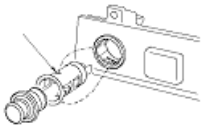
NOTE: If the cigarette lighter does not work, check the No. 13 (20 A) fuse in the under-dash fuse/relay box and ground (G502) first.



1. Remove the center lower trim (A).
2. Disconnect the 2P connector (B) from the cigarette lighter (C).
3. Inspect the connector terminals to be sure they are all making good contact.
   - If the terminals are bent, loose, or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to Step 4 .
4. Turn the ignition switch to ACC (I).
5. Measure the voltage between the cigarette lighter socket 2P connector No. 1 terminal and body ground. There should be battery voltage.
   - If there is battery voltage, go to Step 6 .
   - If there is no battery voltage, check for an open in the wire.
6. Check for continuity between the No. 2 terminal and body ground. There should be continuity.
   - If there is continuity, go to Step 7 .
   - If there is no continuity, check for an open in the wire.

---

7. Remove the socket (A).



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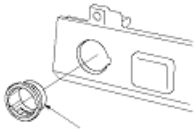
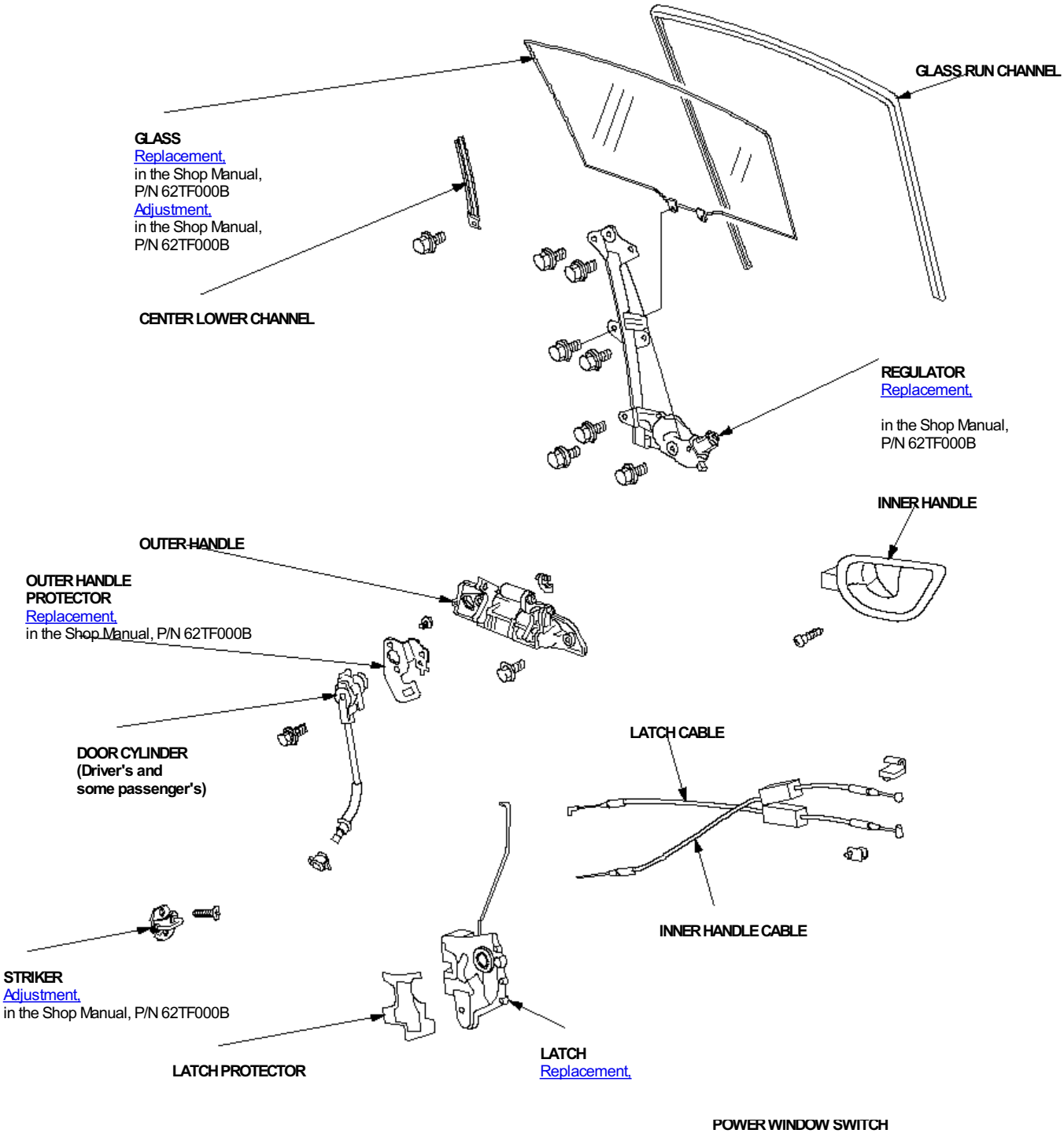
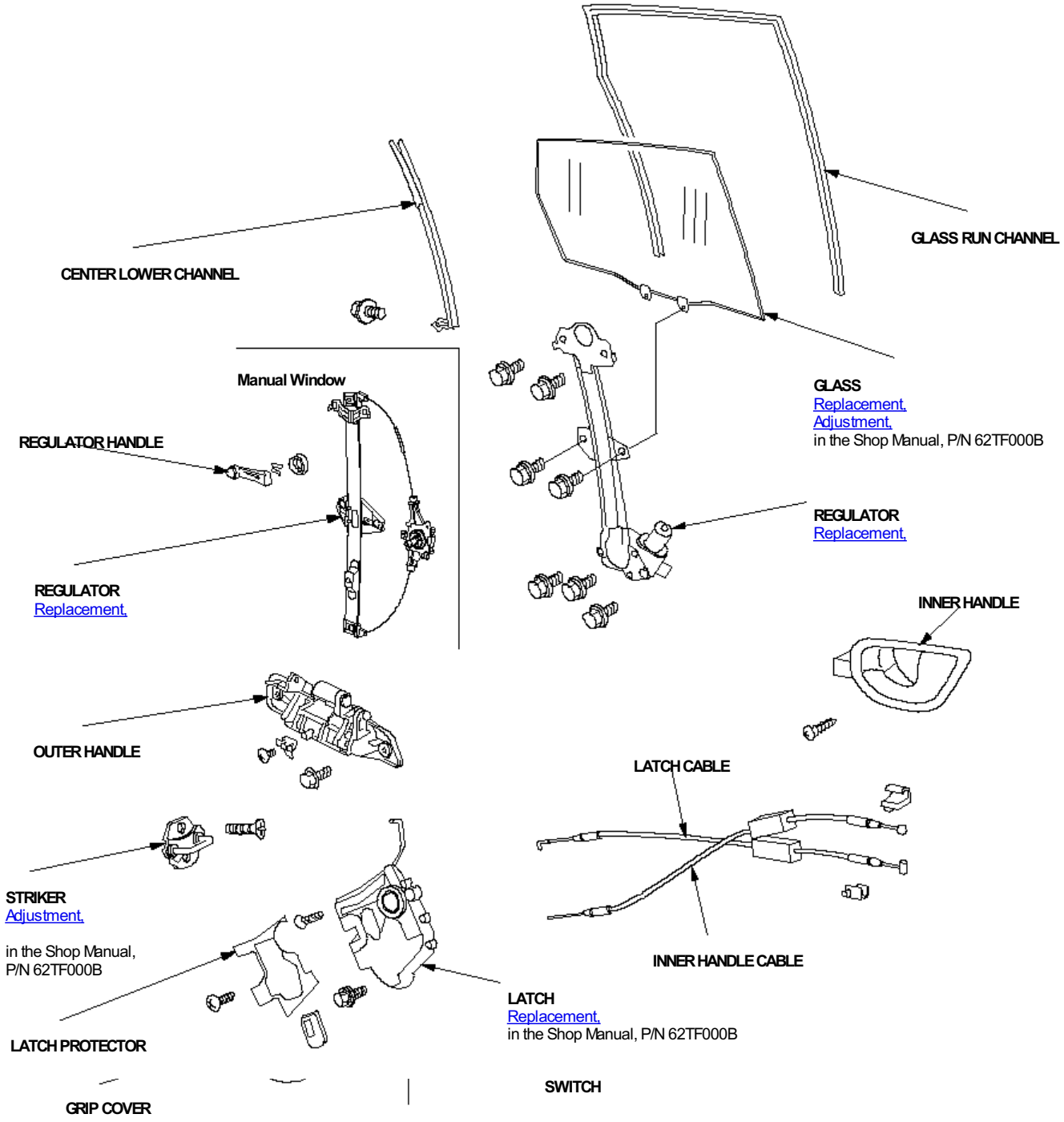
8. Remove the housing (A) from the center lower trim.
9. Install in the reverse order of removal.



Front Door Component Location Index



Rear Door Component Location Index

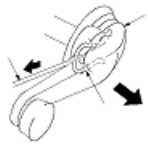


Rear Door Panel Removal/Installation

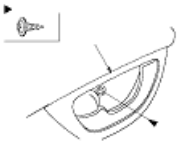
NOTE:

- LHD model is shown; RHD model is symmetrical.
- Take care not to scratch the door and related parts.
- When removing components, use the trim tools or equivalent.

1. Manual window: Remove the regulator handle (A) by pulling the clip (B) out with a wire hook (C)

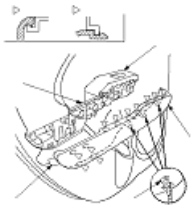


2. Remove the screw securing the inner handle (A).

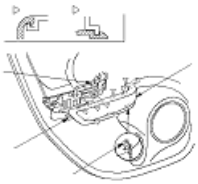


3. Remove the grip cover (A).
   -1. Using a flat-tip screwdriver wrapped with protective tape, pry out the front bottom edge of the cover while pushing up the hooks (B).
   -2. From front to rear, pry out along the edge of the cover to release the hooks (C, D) from the power window switch panel (E) and the grip base (F).
   -3. Release the rear hook (G), while pulling the cover forward.

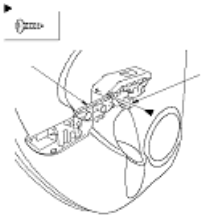
Power window



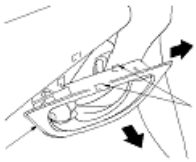
Manual window



4. Power window: Disconnect the power window switch connector (A). Remove the screw from the grip base (B).

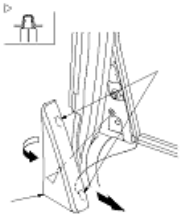


5. Pull the inner handle (A) forward and out half-way to release the hooks (B).

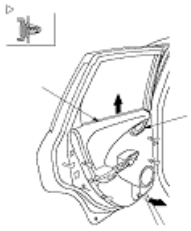


6. Apply protective tape (A) to the door panel (B) as shown.

7. Pull out the rear edge on the quarter inner trim (A) to detach the clip, then remove it by releasing the hooks (B).

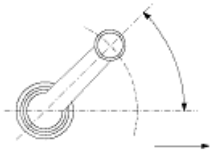


8. Remove the door panel (A) with as little bending as possible to avoid creasing or breaking it.
   -1. Start at the bottom edge of the door panel, release the clips with a commercially available trim pad remover.
   -2. Detach the upper clips.
   -3. Starting at the rear, pull the door panel upward.
   NOTE: Do not pull the door panel up too far, or the door panel will be damaged by the inner handle (B).



9. Remove the door panel (A) while pulling the inner handle (B) out through the hole in the door panel.

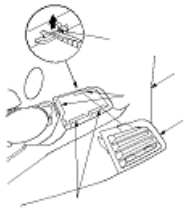
10. Install the door panel in the reverse order of removal, and note these items:
    - If the clips are damaged or stress-whitened, replace them with new ones.
    - Make sure the connector is plugged in properly.
    - If applicable, install the regulator handle so it points forward and up at a 45 ° angle with the glass fully closed.



Front Bumper Fog Cover Replacement

For Some Models

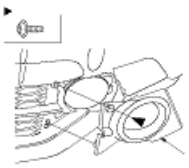
NOTE: Take care not to scratch the front bumper.



1. Remove the front fog light trim.
2. Remove the hooks (A) by using flat-tip screwdriver wrapped with the protective tape, then remove the front bumper fog cover (B) from the front bumper (C).
3. Install the front bumper fog cover by pushing on the hook portions until the hooks snap into place.

Front Fog Light Trim Replacement

Without Front Air Spoiler

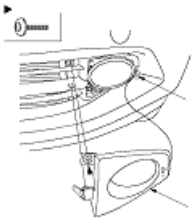


NOTE:

- Take care not to scratch the front bumper.
- Put on gloves to protect your hands.

1. Remove the screw, then remove the front fog light trim (A).
2. Install the front fog light trim in the reverse order of removal.

With Front Air Spoiler



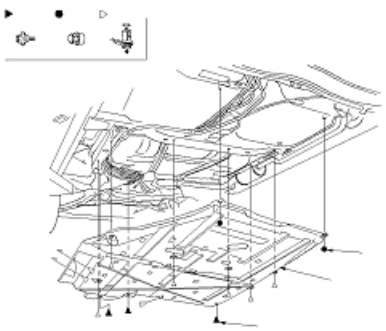
NOTE:

- Take care not to scratch the front bumper.
- Put on gloves to protect your hands.

1. Remove the screw and release the hook (A), then remove the front fog light trim (B).
2. Install the front fog light trim in the reverse order of removal.

Floor Undercover Replacement

For Some Models



NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the body.

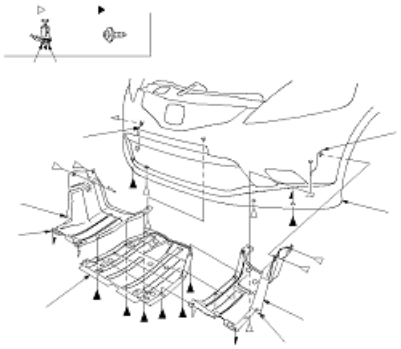
1. Remove the floor undercover (A).
   -1. Remove the nuts and the clips and the bolts, then remove the floor undercover.

2. Install the floor undercover in the reverse order of removal, and note these items:
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the clips into place securely.

Splash Shield Replacement

NOTE:

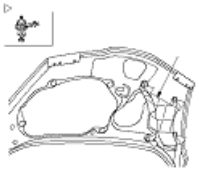
- Put on gloves to protect your hands.
- Take care not to scratch the body.



1. Remove the splash shield (A).
   -1. From the wheel arch on both sides, remove the clips (B) securing the front splash shield and the front inner fender (C) to the body, and remove the clips (D) securing the front splash shield to the body.
   -2. From under the front bumper (E), remove the clips (F) and the screws (G).
   -3. From under the body, remove the clips (H).
   -4. Release the hooks (I) of the front splash shield from the front inner fender, then pull the splash shield out.
   -5. If necessary remove the screw (J), then remove the engine under cover (K) (for some models).
   NOTE: To remove the clips, pry the inner pin up at the edge near the line (L) on its head.
2. Install the splash shield in the reverse order of removal, and note these items:
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the clips and the hooks into place securely.

Hood Cooling Duct Replacement

NOTE: Take care not to scratch the hood and hood insulator.



1. Remove the cilps, then remove the cooling duct (A).
2. Install the cooling duct in the reverse order of removal, and note these items:
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the clips into place securely.

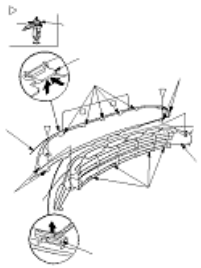
Lower Front Grille Replacement

NOTE:

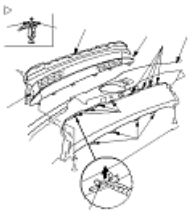
- Put on gloves to protect your hands.
- Take care not to scratch the front bumper.

1. Remove the front bumper.
2. Remove the front fog light.
3. Detach the clips and the hooks (A) by using a flat-tip screwdriver wrapped with the protective tape, then remove the front bumper lower grille (B) from the front bumper (C).
   NOTE: To remove the clips, pry the inner clip up at the edge near the line (D) on its head.
4. Install the grille in the reverse order of removal, and note these items:
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Push the clips and the hooks into place securely.

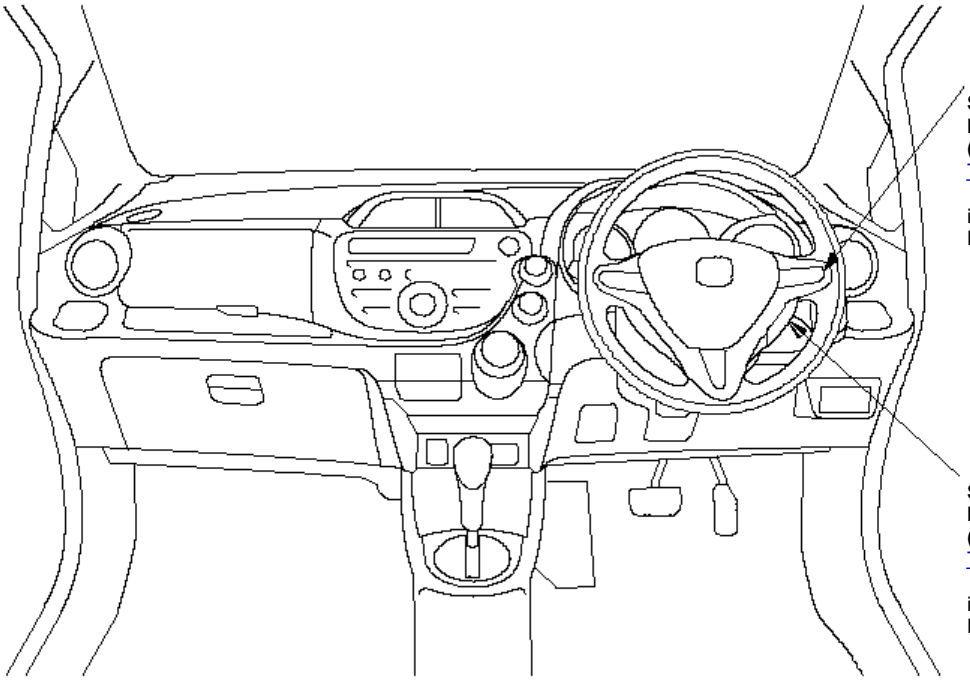
With front air spoiler



Without front air spoiler



Gauges Component Location Index



SELECT/RESET/ INFORMATION SWITCH (Without cruise control)
Test/Replacement,

in the Shop Manual, P/N 62TF000B

SELECT/RESET/ INFORMATION SWITCH (With cruise control)
Test/Replacement,

in the Shop Manual, P/N 62TF000B

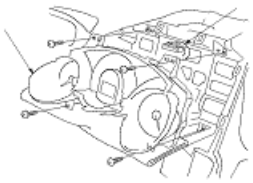
RHD model is shown, LHD model is similar.

Test,
in the Shop Manual, P/N 62TF000B

Data to a New Gauge Control Module, Replacement,

Gauge Control Module Replacement

NOTE: Before replacing the gauge control module, retrieve the ODO value and the service reminder system information from the gauge control module with the HDS.



1. Remove the instrument panel.
2. Remove the four screws from the gauge control module (A).
3. Disconnect the 32P connector (B) from the gauge control module.
4. Install the gauge control module in the reverse order of removal.
5. Write the ODO value and service reminder system information to the new gauge control module.

Rewriting the ODO Data and Transferring the Service Reminder System Data to a New Gauge Control Module

NOTE:

- Obtain a new gauge control module before starting the rewriting process.
- Rewriting is not possible on a gauge control module that will not communicate with the HDS.
- Make sure that the HDS shows the correct VIN for the vehicle you are working on.
- Once you have started this procedure, you must complete it before removing the HDS from the DLC.
- Connect a battery jumper box (not a battery charger) to insure that correct battery voltage will be maintained.

Rewriting and Transferring

1. Before replacing the gauge control module, connect the HDS.
2. Select GAUGES from the BODY ELECTRICAL system select menu with the HDS.
3. Select Gauge Control Module Replacement (ODO Rewrite) from the ADJUSTMENT menu, and follow the instructions on the display to retrieve the ODO value and the Service Reminder System Information.
4. Replace the gauge control module.
5. Follow the instructions on the display to write the new ODO value and Service Reminder System Data to the new gauge control module. If the data transfer fails, refer to the instructions below to release the locked ODO value.

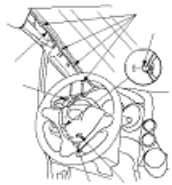
Release Locked odometer mileage to the original gauge control module.

If, after you attempt to transfer mileage, the odometer display has dashes (---), is garbled, or shows an incorrect value, the original gauge control module needs to be unlocked and restored to its original state:

1. Confirm that you have the latest HDS version of software.
2. Make sure that the HDS shows the correct VIN for the vehicle you are working on.
3. With the ignition switch in LOCK (0), reconnect the original gauge control module.
4. Completely re-boot the HDS.
5. Clear any stored DTCs.
6. Navigate to Body Electric/Gauges/Adjustment/Instrument Panel Replacement.
7. Select 3. Releasing Locked ODO Value.
8. Follow the prompts and the odometer mileage will be restored.
9. Start over and make sure the screen prompts are followed.

Headliner Removal/Installation

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:



- Put on gloves to protect your hands.
- When removing components, use the trim tools or equivalent.
- Take care not to bend or scratch the trim and panels.
- LHD model is shown; RHD model is symmetrical.

1. Do the battery terminal disconnection procedure, then wait at least 3 minutes before beginning work.
2. Remove these items:
   - Driver's dashboard undercover
   - Front pillar trim, both sides:
     - Without side curtain airbags
     - With side curtain airbags
   - Center pillar upper/lower trim, both sides:
     - Without side curtain airbags
     - With side curtain airbags
   - Quarter pillar trim, both sides:
     - Without side curtain airbags
     - With side curtain airbags
   - Individual map light
   - Ceiling light
   - Sunvisors, both sides
   - Grab handles, four places
   - Ultrasonic sensor (for some models)
   - Automatic lighting/rain sensor (for some models)
3. Remove the roof wire harness (A) by detaching the harness clips (B, C, D) and disconnect the roof wire harness connector (E), (F) (with HFT unit) from the driver's side front pillar.

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4. Remove the antenna lead (A) by detaching the harness clips (B) and disconnect the antenna lead connector (C) from the passenger's side front pillar.

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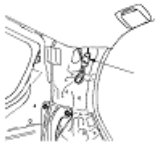
5. Disconnect the roof harness connector (A).

---

6. Disconnect the antenna lead connector (A).



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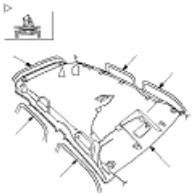
7. Lower the headliner (A).
   -1. Remove the front door inner seals (B), rear door inner seals (C), and tailgate weatherstrip (D) from each roof portion.
   -2. Detach the clips from the body.
   -3. With glass roof: Remove the roof trim (E) from the headliner.
   -4. Lower the headliner.

With glass roof model

Without glass roof model



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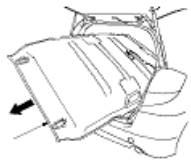
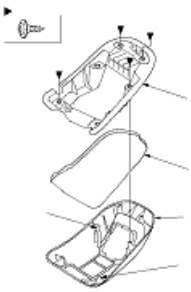
8. With the help of an assistant, pull the headliner (A) out through the tailgate opening. Do not bend the headliner. Bending the headliner will crease and damage it.

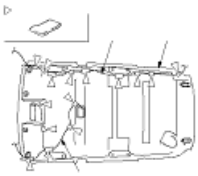


9. For some models: Remove the screws, and release the hooks (A), then remove the retractor cover bracket (B) and retractor cover (C) from the headliner (D).

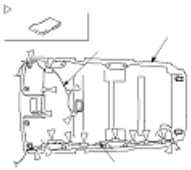


10. Remove the cushion tapes, then remove the roof wire harness (A) and antenna lead (B) from the headliner (C).

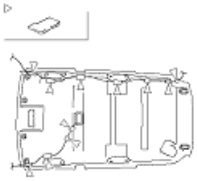
Without glass roof - LHD model



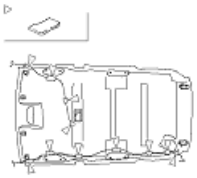
Without glass roof - RHD model



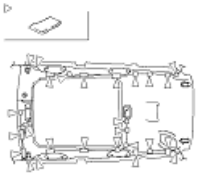
Without glass roof and map light - LHD model



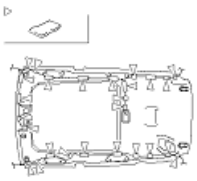
Without glass roof and map light - RHD model



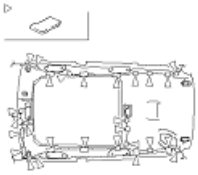
With glass roof - LHD model



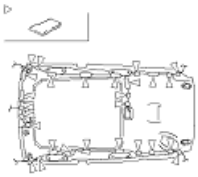
With glass roof - RHD model



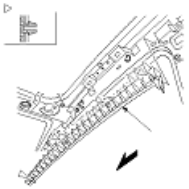
With glass roof and automatic lighting/rain sensor - LHD model



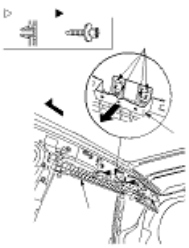
With glass roof and automatic lighting/rain sensor - RHD model



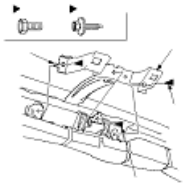
11. Without side curtain airbags: If necessary, detach the hooks, then remove the front roof side pad (A).



12. Without side curtain airbags: If necessary, remove the hooks and screws, and remove the center roof side pad (A) with a glove rail bracket (B), then release the hooks (C) and remove the bracket from the pad.

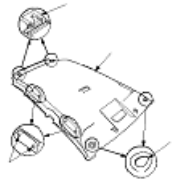


13. With side curtain airbags: If necessary, remove the grab handle bracket mounting bolts (A) and the side curtain airbag mounting screw (B), then remove the grab handle bracket (C) from each side by releasing the hooks (D).

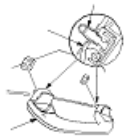


14. Install the headliner in the reverse order of removal, and note these items:
    - If the side curtain airbag has deployed, replace the headliner and removed trim pieces with new ones.
    - To prevent the side curtain airbags from deploying improperly and possibly causing injury, inspect removed pieces and replace them if they have any of these types of damage:
        - Any crease or tears in the headliner (A)
        - Any cracks or breakages in the grab handle (B)
        - Any damages around the grab handle holes (C) or sunvisor holes in the headliner
        - Any cracks in the sunvisor stay base (D)
        - Any bends or cracks in the sunvisor stay shaft (E)
        - Any cracks in the sunvisor base (F)
        - Any cracks or breakages in the vanity mirror base (G)
        - Any clip bases (H) which have come off the headliner
    - When installing the grab handle, push on the handle against the bracket (I) until the clips (J) snap into place securely.
    - If the clips are damaged or stress-whitened, replace them with new ones.
    - Replace the removed cushion tape with new ones.
    - Check that both sides of the headliner are securely attached to the trim.
    - Make sure the headliner overlaps the trim pieces correctly.
    - When reinstalling the headliner through the tailgate opening, be careful not to fold or bend it. Also, be careful not to scratch the body.

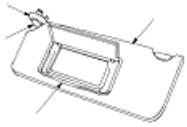
Headliner



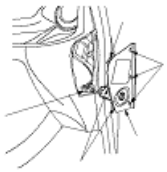
Grab handle



Sunvisor



Dashboard Side Lid Removal/Installation



SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:

- Take care not to scratch the dashboard and its related parts.
- When removing components, use the trim tools or equivalent.
- LHD model is shown; RHD model is symmetrical.

1. Lower the glove box.
2. Remove the Passenger's dashboard side lid (A).
   -1. Insert a hand through the opening of the glove box and push the back side of the lid, and release the hooks (B).
   -2. Release the hooks (C) from the dashboard and disconnect the front passenger's airbag ON/OFF switch connector (for some models) (D), then remove the lid.
3. Install the lid in the reverse order of removal, and push the hooks into place securely.

Dashboard/Steering Hanger Beam Removal/Installation

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:

- Put on gloves to protect your hands.
- Have an assistant help you when removing and installing the dashboard/steering hanger beam.
- Take care not to scratch the dashboard, body and other related parts.
- LHD model is shown; RHD model is symmetrical.

1. Do the battery terminal disconnection procedure, then wait at least 3 minutes before beginning work.
2. Remove these items:
   - Front seats, both sides
   - Driver's dashboard undercover
   - Kick panels, both sides
   - Center console
   - Glove box
   - Fuse lid panel:
     - RHD model
     - LHD model
   - Passenger's dashboard undercover
   - Front pillar trim, both sides:
     - Without side curtain airbags
     - With side curtain airbags
   - Steering column
   - AC control cables

Driver's side

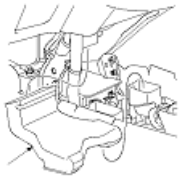
3. From under the dash, disconnect the right engine compartment wire harness connector (A), the left engine compartment wire harness connector (B), the floor wire harness connectors (C), the driver's door wire harness connectors (D), roof wire harness connector (E), and remove the bolt (F), then release the left engine compartment wire harness (G) from the driver's under-dash fuse/relay box (H).

Center

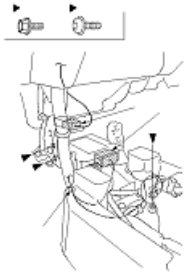
4. From under the dash, disconnect the air hose (A), then remove it.

5. Disconnect the blower resister sub harness connectors (A).

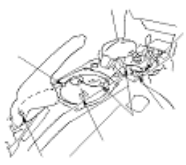
6. Remove the heater joint duct (A).



7. From under dash, disconnect SRS control unit connector A and yaw rate-lateral/longitudinal sensor B and remove the bolts (C). Remove the ground bolt (D) using a TORX T30 bit and harness clip (E).

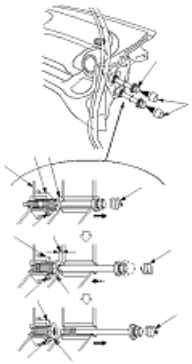


8. Detach the wire harness clips (A), then disconnect the parking brake switch connector (B), fuel pump connector (C), and A/T position switch connector (D) (A/T model).

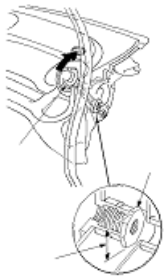


Passenger's side

9. From under the dash, disconnect the passenger's door wire harness connector (A), the left engine compartment wire harness connectors (RHD model)/the right engine compartment wire harness connectors (LHD model) (B), dashboard wire harness connector (with front passenger's airbag ON/OFF switch) (C) and SRS sensor sub harness connector (D).
10. Detach all of the harness and the connector clips.



11. Remove the special bolts (A, B) from outside the passenger's door. LHD model is shown; RHD model is symmetrical.
    -1. Remove the caps (C).
    -2. Loosen the special bolts until its threads have come off the side bracket (D) of the steering hanger beam. The bolt will be screwed into the inside threads of the collar bolt (E) by loosening the bolt. Because of the thread lock on the threads of the bolt, the bolt and the collar bolt will be fixed.
    -3. Loosen the bolt again to screw the collar bolt into the fixed space adjuster (F) until it is stopped by the stopper (G). This will provide a gap (H) between the collar bolt and the body.
    -4. Remove the bolts.



12. If the collar bolts (A) are not screwed fully into the fixed space adjuster when removing the special bolts, slightly screw the collar bolt into the space adjuster with a 21 mm open-end wrench (B). In this case, the special bolt should be replaced with a new one because its thread locks were worn out.

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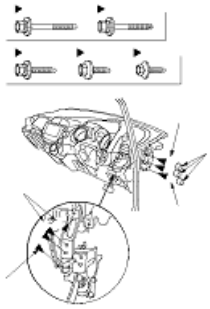
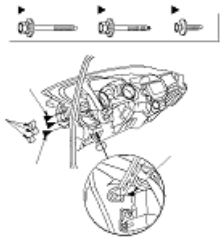
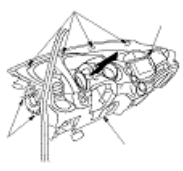
13. From outside the driver's door, remove the caps (A), then remove the bolts (B, C, D, E, F).

RHD model



LHD model



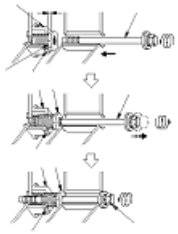


14. Lift up on the dashboard (A) to release it from the guide pins (B, C). Carefully remove the dashboard through the front door opening. Take care not to scratch the body with the collar nuts on the passenger's side.
    NOTE: Do not rest the dashboard on its lower center cover opening, or it may be damaged. Lay it on its front or back.

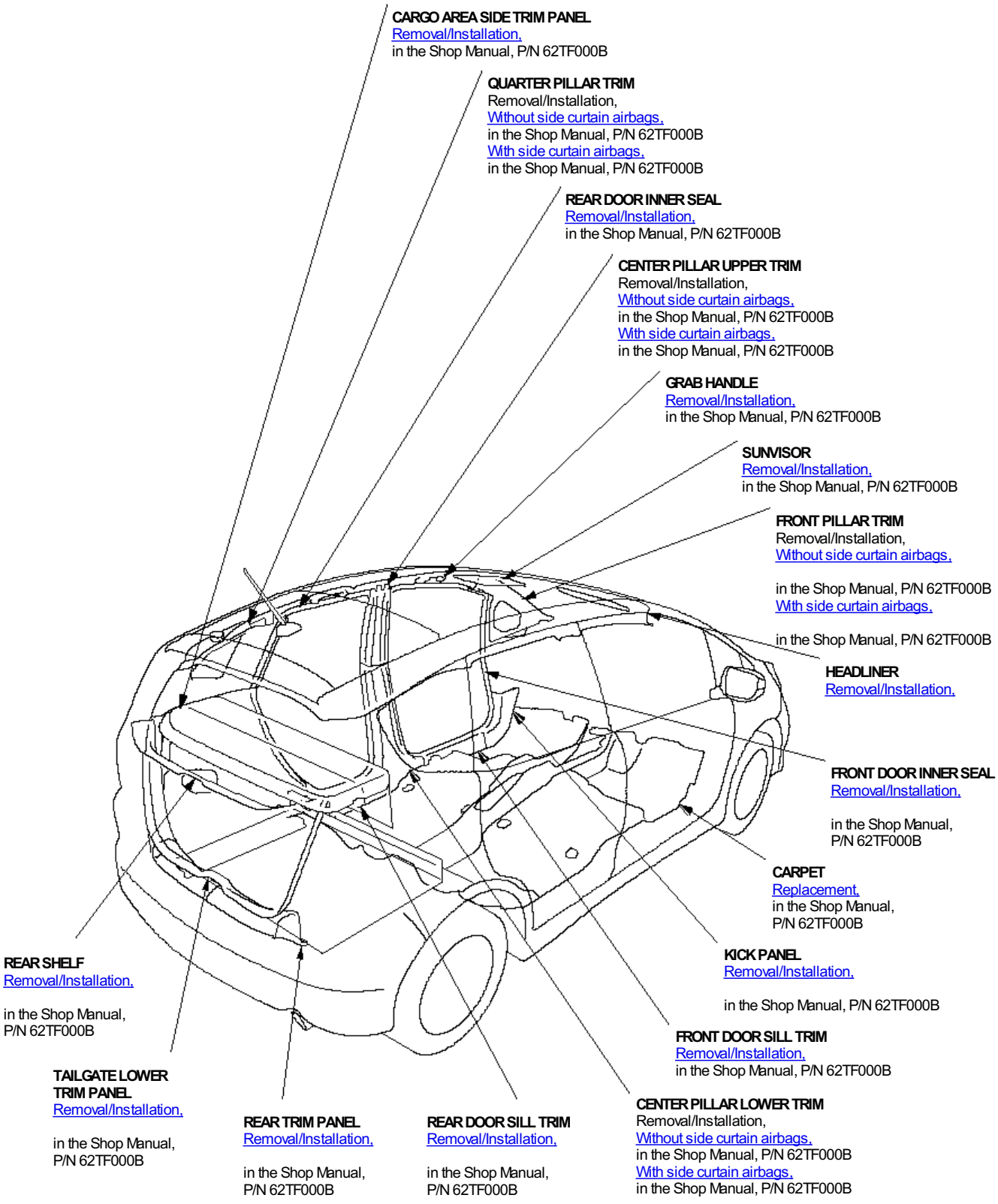
---

15. Install the dashboard in the reverse order of removal, and note these items:
    - Make sure the dashboard fits onto the guide pins correctly.
    - Before tightening the bolts, make sure the wire harnesses are not pinched.
    - Make sure the connectors are plugged in properly.
    - Before reinstalling the dashboard, be sure the collar bolt (A) on passenger's side can be screwed/unscrewed lightly by hand, and then screw all of them into the fixed space adjuster (B) until they contact the stoppers (C) by hand. Do not tighten them fully with any tools.
    - Before reinstalling the dashboard, try to screw the special bolt (D) into the loosened collar bolt. If the collar bolt is not unscrewed by screwing the special bolt, replace this special bolt with a new one.
    - After setting the dashboard on the body, reinstall all of the mounting bolts to the dashboard, tighten the driver's side bracket to the specified torque, then torque the special bolt D on the passenger's side. First screw the special bolt into the collar bolt A, they will be fixed because of the thread lock on the bolt. Continue tightening the bolt with the collar bolt, they are loosened from the fixed space adjuster B until the collar bolt contacts the inside face of the body. Then tighten the bolts again to the specified torque.
    - Apply medium strength type liquid thread lock to the bolts securing the center joint bracket and the dashboard before reinstallation.
    - After tightening the dashboard mounting bolts, tighten the center joint bracket mounting bolts, and then tighten the center frame mounting bolts.
    - Do the battery terminal reconnection procedure.
    - Check for any DTCs that may have been set during repairs, and clear them.

Special bolt tightening on passenger's side



Interior Trim Component Location Index



CARGO AREA SIDE TRIM PANEL
Removal/Installation,
in the Shop Manual, P/N 62TF000B

QUARTER PILLAR TRIM
Removal/Installation,
Without side curtain airbags,
in the Shop Manual, P/N 62TF000B
With side curtain airbags,
in the Shop Manual, P/N 62TF000B

REAR DOOR INNER SEAL
Removal/Installation,
in the Shop Manual, P/N 62TF000B

CENTER PILLAR UPPER TRIM
Removal/Installation,
Without side curtain airbags,
in the Shop Manual, P/N 62TF000B
With side curtain airbags,
in the Shop Manual, P/N 62TF000B

GRAB HANDLE
Removal/Installation,
in the Shop Manual, P/N 62TF000B

SUNVISOR
Removal/Installation,
in the Shop Manual, P/N 62TF000B

FRONT PILLAR TRIM
Removal/Installation,
Without side curtain airbags,

in the Shop Manual, P/N 62TF000B
With side curtain airbags,

in the Shop Manual, P/N 62TF000B

HEADLINER
Removal/Installation,

FRONT DOOR INNER SEAL
Removal/Installation,

in the Shop Manual,
P/N 62TF000B

CARPET
Replacement,
in the Shop Manual,
P/N 62TF000B

KICK PANEL
Removal/Installation,

in the Shop Manual, P/N 62TF000B

FRONT DOOR SILL TRIM
Removal/Installation,
in the Shop Manual, P/N 62TF000B

CENTER PILLAR LOWER TRIM
Removal/Installation,
Without side curtain airbags,
in the Shop Manual, P/N 62TF000B
With side curtain airbags,
in the Shop Manual, P/N 62TF000B

REAR DOOR SILL TRIM
Removal/Installation,

in the Shop Manual,
P/N 62TF000B

REAR TRIM PANEL
Removal/Installation,

in the Shop Manual,
P/N 62TF000B

REAR SHELF
Removal/Installation,

in the Shop Manual,
P/N 62TF000B

TAILGATE LOWER TRIM PANEL
Removal/Installation,

in the Shop Manual,
P/N 62TF000B

Outside Air Temperature Indicator Calibration

NOTE: To test the outside air temperature sensor, refer to the outside air temperature sensor test procedure.

Description

The outside temperature sensor is located behind the center of the front bumper. The gauge control module uses measurements from this sensor to display the outside air temperature.
Because of the location of the sensor, it may be affected by heat reflection from the road, engine and radiator heat or hot exhaust from surrounding traffic.
These conditions can soak the outside air temperature sensor in heat and cause inaccurate readings. Logic has been written into the gauge control module to help prevent abnormal or fluctuating outside air temperature indicator readings.

Outside Air Temperature Indicator Logic

Initial outside air temperature is indicated after the ignition switch is turned ON (II).

- If the engine coolant temperature is 60 °C (140 °F) or higher when the ignition switch is turned ON (II), the outside air temperature indicated the last time the key was turned off will be displayed regardless of the current temperature measured by the outside air temperature sensor.
- If the engine coolant temperature is 59 °C (139 °F) or lower when the ignition switch is turned ON (II), the current temperature measured by the outside air temperature sensor will be indicated.

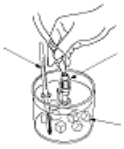
Troubleshooting

If the indicator displays — — — °C (or — — — °F) for more than 2 seconds after selecting the outside air temperature display mode, check the outside air temperature sensor, or gauge control module self-diagnostic function.

Calibration

The outside air temperature indicator's displayed temperature can be recalibrated ±3 °C (or ±5 °F) to meet the customer's expectations.

1. Turn the ignition switch ON (II).
2. Push and hold the INFO switch for more than 3 seconds to enter the customizing mode.
3. While in the customizing mode, select and enter the “CHG SETTING". Then select and enter the “ADJUST OUTSIDE TEMP. DISPLAY", and calibrate the value with the SEL/RESET switch and the INFO switch.



4. When the desired correction value appears on the display, release the button, and the recalibrated outside air temperature will be displayed.

Example:

Incorrect value	**=**	**20 °C (68 °F)**
Desired correction value	**=**	**+1 °C (+2 °F)**
Correct value	**=**	**21 °C (70 °F)**
Desired correction value	**=**	**−1 °C (−2 °F)**
Correct value	**=**	**19 °C (66 °F)**

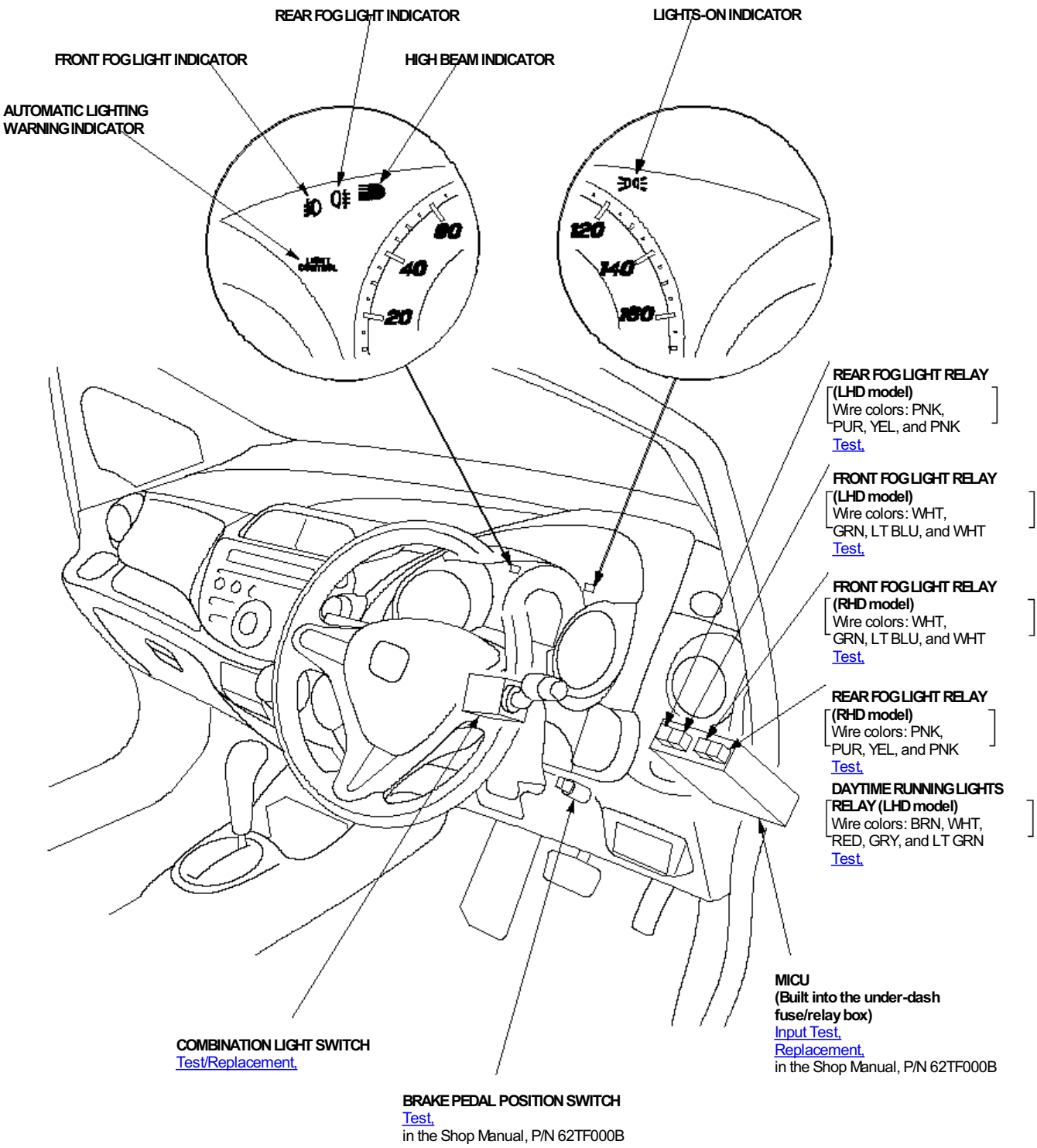
NOTE: The recalibration temperature is not the value the sensor sees.
Therefore the temperature can only be adjusted ±5 degrees from sensors.
NOTE: To recalibrate the display to the true temperature, remove the outside air temperature sensor (A), but leave it connected. Submerge the sensor and a thermometer (B) in a container of ice water (C). Select the calibration mode as described above, then recalibrate the display to the true temperature.

5. Snow mark is enlarged when the temperature becomes 3 °C (37 °F) or less for the first time during turning the ignition switch ON (II).

Exterior Lights System Description

[Automatic Lighting System](#)
[Daytime Running Lights](#)

Exterior Lights Component Location Index

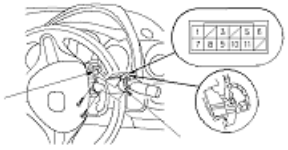


RHD model is shown, LHD model is similar.

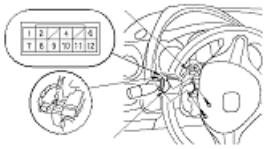
Combination Light Switch Test/Replacement

1. Remove the steering column covers.
2. Disconnect the 12P connector (A) from the combination light switch (B).
3. Remove the two screws, then slide out the combination light switch.

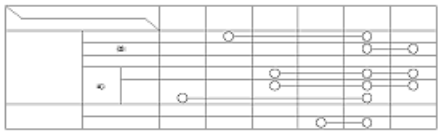
RHD model (Except KE and KN models)

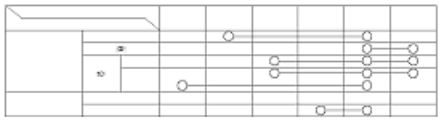


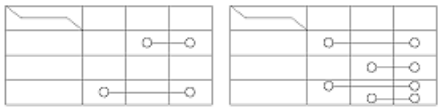
LHD model (Include KE and KN models)



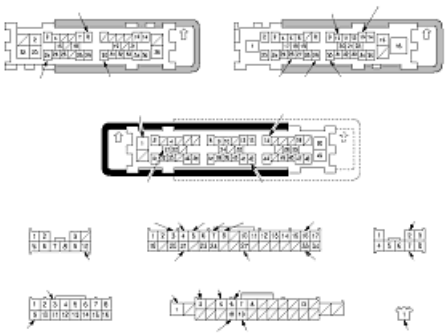
4. Inspect the connector terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, check for continuity between the terminals in each switch position according to the tables.
     - If the continuity is not as specified, replace the switch.







Exterior Lights (MICU) Input Test



NOTE:

- Before performing the input tests, check the No. 1, No. 2, No. 5, No. 9, No. 15, No. 22, No. 24, No. 28, No. 29, No. 32, No. 34, No. 41, No. 48, No. 51, and No. 60 fuses in the under-dash fuse/relay box.
- The illustration shows the RHD model and the black portion shows the lock lever. The lock lever for LHD model is shown as the dashed lines.

1. Turn the ignition switch to LOCK (0).
2. RHD model: Remove the fuse lid panel , and remove the driver's dashboard lower cover.
   LHD model: Remove the fuse lid panel.
3. Disconnect under-dash fuse/relay box connectors A, B, C, K, M, N, Q, R, and W.
   NOTE: All connector views are wire side of female terminals.
4. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to Step 5 .
5. With the connectors still disconnected, make these input tests at the connectors.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the MICU must be faulty; replace the under-dash fuse/relay box.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
N2	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
K10	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • An open in the wire
M16	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
Q9	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • An open in the wire
W1	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 60 (IGN) (50 A) fuse in the under-dash fuse/relay box • Faulty ignition switch • An open in the wire
A8	GRY	Ignition switch ON (II)	Connect W1 terminal and A8 terminal with a jumper wire: The right front position light should come on.	• Blown bulb • Poor ground (G202) [G401] • An open in the wire
B30	GRY	Ignition switch ON (II)	Connect W1 terminal and B30 terminal with a jumper wire: The left front position light should come on.	• Blown bulb • Poor ground (G401) [G202] • An open in the wire
C42	GRY	Ignition switch ON (II)	Connect W1 terminal and C42 terminal with a jumper wire: The taillights and license plate lights should come on.	• Blown bulb • Poor ground (G602, G604) • An open in the wire
C21	GRN	Ignition switch ON (II)	Connect W1 terminal and C21 terminal with a jumper wire: The back-up lights should come on.	• Blown bulb • Poor ground (G602, G604) • An open in the wire

[ ]: LHD model

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
A24	PNK	Ignition switch ON (II)	Connect W1 terminal and A24 terminal with a jumper wire: The right headlight (low beam) should come on.	• Blown bulb • Poor ground (G301) *1 • Poor ground (G202) [G401] *2 • An open in the wire
A30	PNK *1	Ignition switch ON (II)	Connect W1 terminal and A30 terminal with a jumper wire: The right high/low beam switching solenoid should operate.	• Faulty right high/low beam switching solenoid • Poor ground (G201) • An open in the wire
	GRN *2		Connect W1 terminal and A30 terminal with a jumper wire: The right headlight (high beam) should come on.	• Blown bulb • Poor ground (G202) [G401] • An open in the wire
B29	GRY *1	Ignition switch ON (II)	Connect W1 terminal and B29 terminal with a jumper wire: The left high/low beam switching solenoid should operate.	• Faulty left high/low beam switching solenoid • Poor ground (G401) • An open in the wire
	BRN *2		Connect W1 terminal and B29 terminal with a jumper wire: The left headlight (low beam) should come on.	• Blown bulb • Poor ground (G401) [G202] • An open in the wire
B13	BRN *1	Ignition switch ON (II)	Connect W1 terminal and B13 terminal with a jumper wire: The left headlight (low beam) should come on.	• Blown bulb • Poor ground (G401) • An open in the wire
	GRY *2		Connect W1 terminal and B13 terminal with a jumper wire: The left headlight (high beam) should come on.	• Blown bulb • Poor ground (G401) [G202] • An open in the wire
N7 *3	GRY	Under all conditions	Connect battery power to the N7 terminal: The front position lights, taillights and license plate lights should come on.	• Poor ground (G202, G401, G602, G604) • Faulty daytime running lights relay • Blown bulb • An open in the wire
M27 *3	LT GRN	Under all conditions	Check for continuity between the M27 terminal and R3 terminal: There should be continuity.	• Faulty daytime running lights relay • An open in the wire
R3 *3	RED			
C1 *3	WHT	Under all conditions	Connect battery power to the M27 terminal and ground the R3 terminal momentarily, then connect battery power to the C1 terminal: The front position lights, taillights and license plate lights should come on.	• Poor ground (G202, G401, G602, G604) • Faulty daytime running lights relay • Blown bulb • An open in the wire
C14	LT GRN	Ignition switch ON (II)	Connect W1 terminal and C14 terminal with a jumper wire: Brake lights and the high mount brake lamp should come on.	• Blown bulb • Poor ground (G604, G602) • An open in the wire

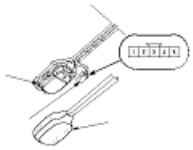
*1:With HID
*2:Without HID
*3:With daytime running lights

[ ]: LHD model

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
M8·M33	BLU·BLK	Combination light switch OFF	Check for continuity between M8 and M33 terminals: There should be continuity.	• Faulty combination light switch • An open in the wire
		Combination light switch in any other position than OFF	Check for continuity between M8 and M33 terminals: There should be no continuity.	• Faulty combination light switch • A short in the wire
M7·M33	GRY·BLK	Combination light switch (SMALL position) ON	Check for continuity between M7 and M33 terminals: There should be continuity.	• Faulty combination light switch • An open in the wire
		Combination light switch OFF	Check for continuity between M7 and M33 terminals: There should be no continuity.	• Faulty combination light switch • A short in the wire
M5·M33	BLU·BLK	Combination light switch (headlight) ON	Check for continuity between M5 and M33, or M5 and M7 terminals: There should be continuity.	• Faulty combination light switch • An open in the wire
		Combination light switch OFF	Check for continuity between M5 and M33, or M5 and M7 terminals: There should be no continuity.	• Faulty combination light switch • A short in the wire
M4·M33	WHT·BLK	Combination light switch lever pulled (Passing)	Check for continuity between M4 and M33 terminals: There should be continuity.	• Faulty combination light switch • An open in the wire
		Combination light switch lever released (OFF)	Check for continuity between M4 and M33 terminals: There should be no continuity.	• Faulty combination light switch • A short in the wire
M3·M33	LT BLU·BLK	Combination light switch (Dimmer) in high beam position	Check for continuity between M3 and M33 terminals: There should be continuity.	• Faulty combination light switch • An open in the wire
		Combination light switch (Dimmer) in low beam position	Check for continuity between M3 and M33 terminals: There should be no continuity.	• Faulty combination light switch • A short in the wire
B10 (M/T) (i-SHIFT system)	LT GRN	Ignition switch ON (II) and shift lever in R position	Connect W1 terminal and B10 terminal with a jumper wire: The back-up lights should come on.	• Blown bulb • Faulty back-up light switch • Poor ground (G602, G604) • An open in the wire
B26(A/T)	GRN	Shift lever in R position	Check for continuity to ground: There should be continuity.	• Faulty transmission range switch • Poor ground (G101) • An open in the wire
Q3	LT GRN	Under all condition	Check for continuity between the Q3 terminal and the gauge control module No. 18 terminal: There should be continuity.	An open in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
			Check for continuity to ground: There should be no continuity.	A short to ground in the wire
R6·M33	PUR·BLK	Combination light switch in REAR FOG or FRONT/REAR FOG position	Check for continuity between the R6 terminal and M33 terminal: There should be continuity.	• Faulty combination light switch • An open in the wire
		Combination light switch OFF or in FRONT FOG position	Check for continuity between the R6 terminal and M33 terminal: There should be no continuity.	• Faulty combination light switch • A short in the wire
R19·M33	GRN·BLK	Combination light switch in FRONT FOG or FRONT/REAR FOG position	Check for continuity between the R19 terminal and M33 terminal: There should be continuity.	• Faulty combination light switch • An open in the wire
		Combination light switch OFF or in REAR FOG position	Check for continuity between the R19 terminal and M33 terminal: There should be no continuity.	• Faulty combination light switch • A short in the wire
R1·R18	WHT·LT BLU	Under all conditions	Check for continuity between the R1 terminal and R18 terminal: There should be continuity.	• Faulty front fog light relay • An open in the wire
M21·R5	PNK·YEL	Under all conditions	Check for continuity between the M21 terminal and R5 terminal: There should be continuity.	• Faulty rear fog light relay • An open in the wire

Automatic Lighting/Rain Sensor Input Test



1. Remove the cover (A) from the automatic lighting/rain sensor (B).
2. Disconnect the 5P connector (C) from the automatic lighting/rain sensor.
3. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to Step 4 .
4. With the connector still disconnected, make these input tests at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, replace the automatic lighting/rain sensor.

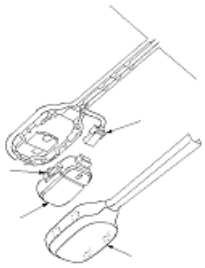
Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
3	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
1	LT BLU	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 1 (10 A) fuse in the under-hood fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
2	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 22 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • Faulty ignition switch • An open in the wire
4	PUR	Under all conditions	Check for continuity between the No. 4 terminal and No. 9 (No. 10) * terminal of the combination light switch 12P connector: There should be continuity.	An open in the wire
5	GRN	Under all conditions	Check for continuity between the No. 5 terminal and No. 3 terminal of the under-dash fuse/relay box connector Q (16P): There should be continuity.	An open in the wire

*: LHD model (Include KE and KN models)

Automatic Lighting/Rain Sensor Replacement

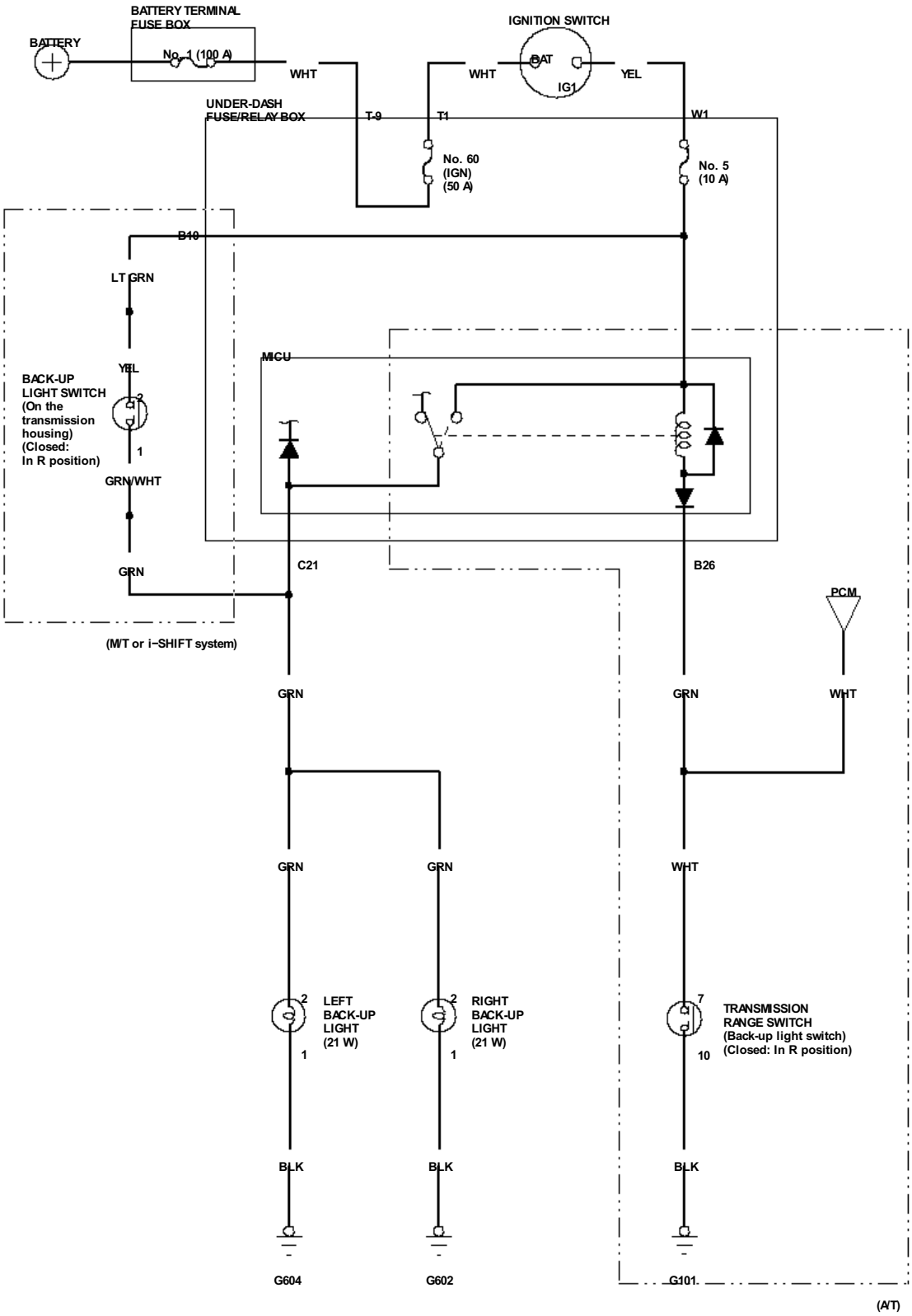
NOTE:

- If the automatic lighting/rain sensor 5P connector is connected after the battery terminal is connected, the automatic lighting/rain sensor is not confirmed by the MICU.
- If the MICU does not confirm the automatic lighting/rain sensor, automatic wiper system does not work.
- Connect the automatic lighting/rain sensor 5P connector first, then connect the battery terminal.

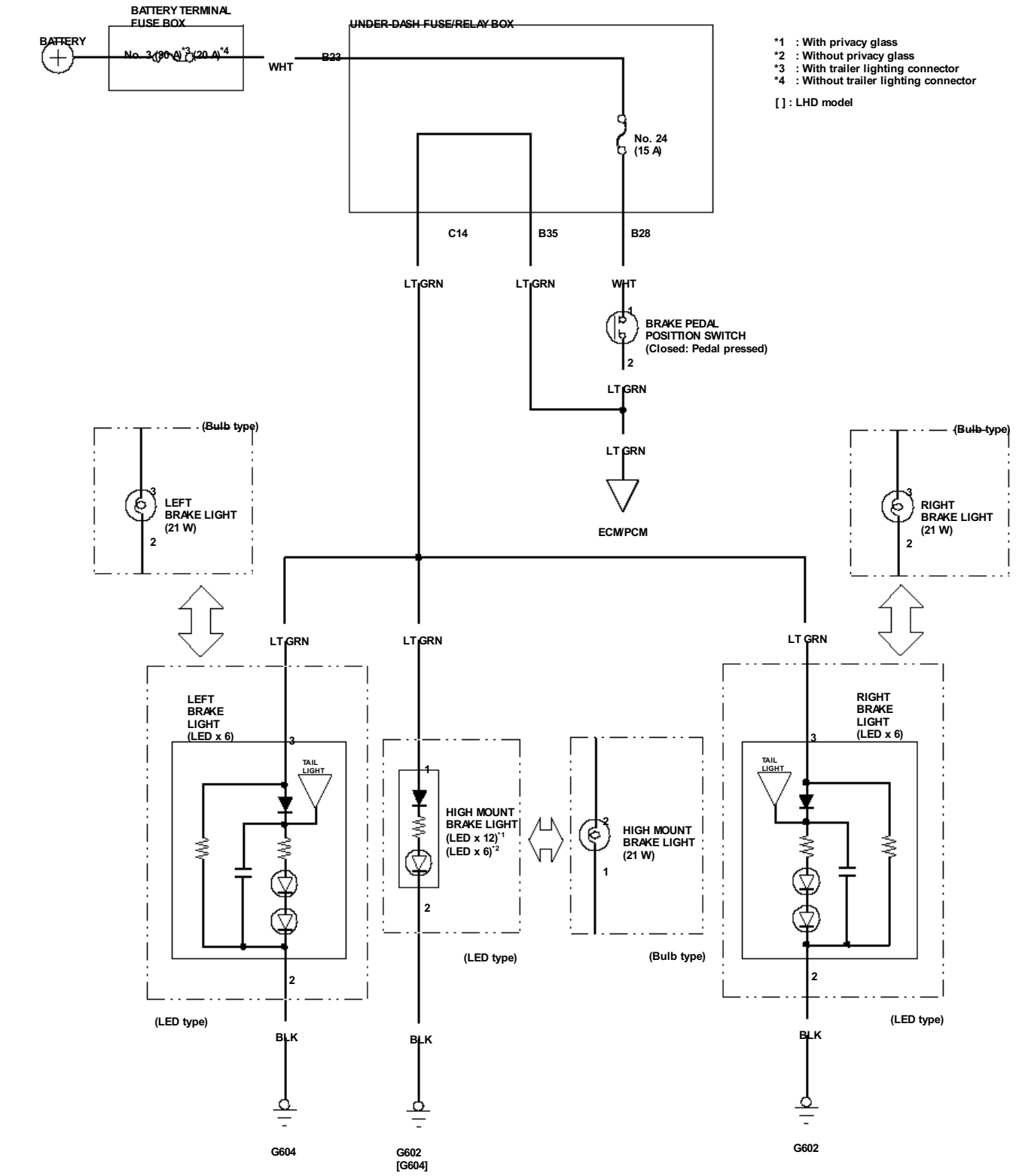


1. Remove the automatic lighting/rain sensor cover (A) and disconnect the 5P connector (B).
2. Remove the lock (C), then remove the automatic lighting/rain sensor (D).
3. Install the automatic lighting/rain sensor in the reverse order of removal.

Back-up Lights Circuit Diagram

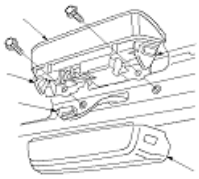


Brake Lights Circuit Diagram



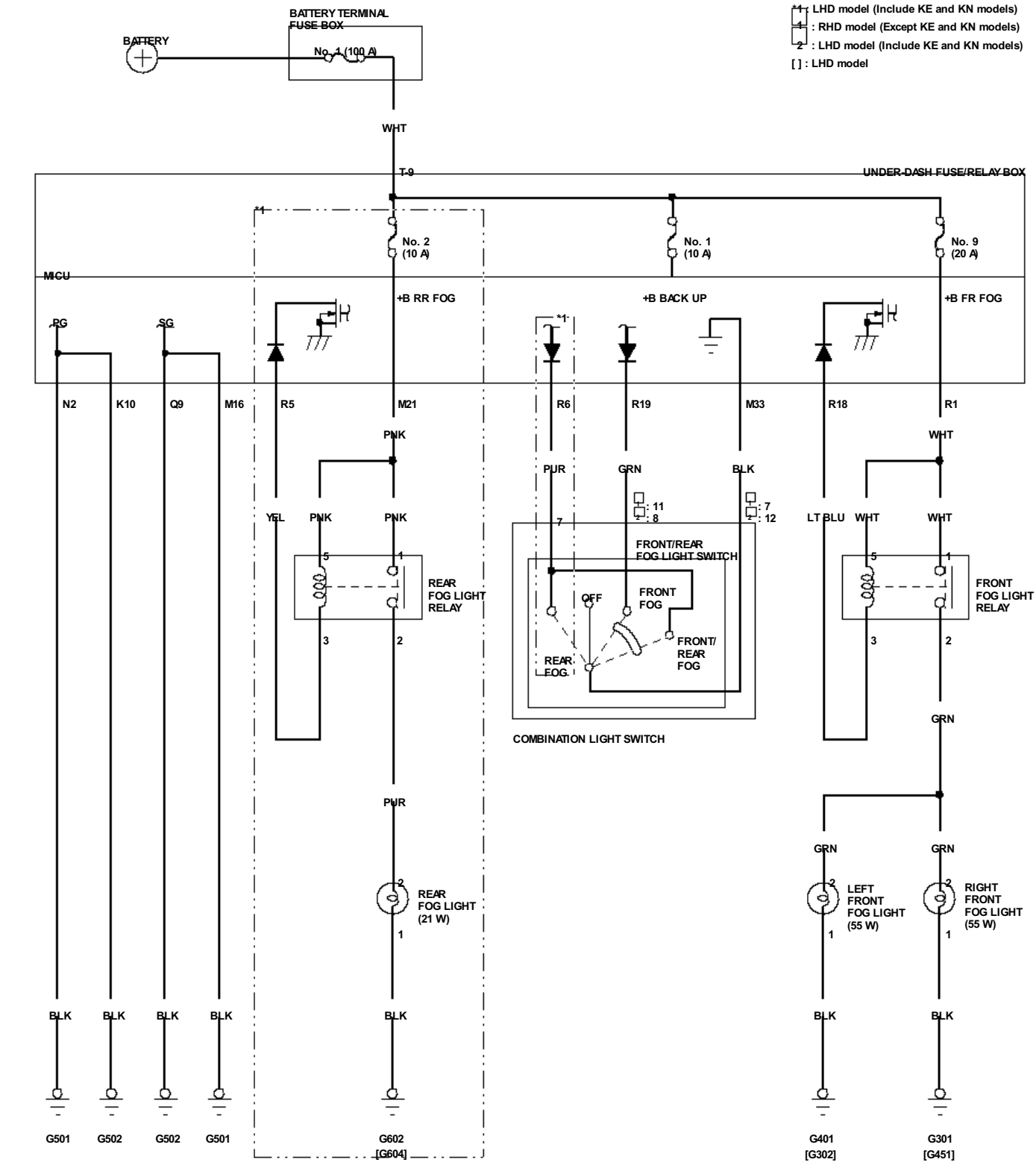
High Mount Brake Light Replacement

LED type



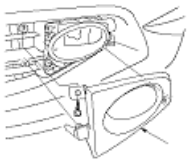
1. Open the tailgate.
2. Push in the clips (A), and remove the cover (B) from the high mount brake light (C).
   High Mount Brake Light: (LED)
3. Disconnect the 2P connector (D) from the high mount brake light.
4. Remove the two mounting bolts and the high mount brake light.
5. Install the light in the reverse order of removal.

Front Fog Light/Rear Fog Light Circuit Diagram



Front Fog Light Replacement

1. Remove the fog light trim (A).
   NOTE: The illustration shows the vehicle with front air spoiler.
2. Remove the front bumper.

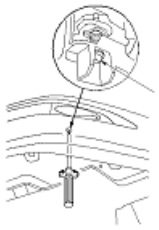


3. Disconnect the front fog light 2P connector (A).
4. With front air spoiler: Remove the three screws and the clip.
   Without front air spoiler: Remove the four screws.
5. Remove the front fog light (B).

Front Fog Light Adjustment

Before adjusting the fog lights:

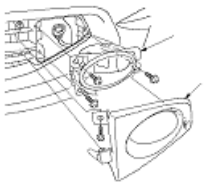
- Park the vehicle on a level surface.
- Make sure the tyre pressures are correct.
- The driver or someone who weighs the same should sit in the driver's seat.



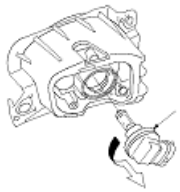
Adjust the fog lights to local requirements by turning the adjuster (A).

Front Fog Light Bulb Replacement

1. Remove the fog light trim (A).
   NOTE: The illustration shows the vehicle with front air spoiler.
2. With front air spoiler: Remove the three screws.
   Without front air spoiler: Remove the two screws.
3. Disconnect the 2P connector, then remove the front fog light (B) from the front bumper.

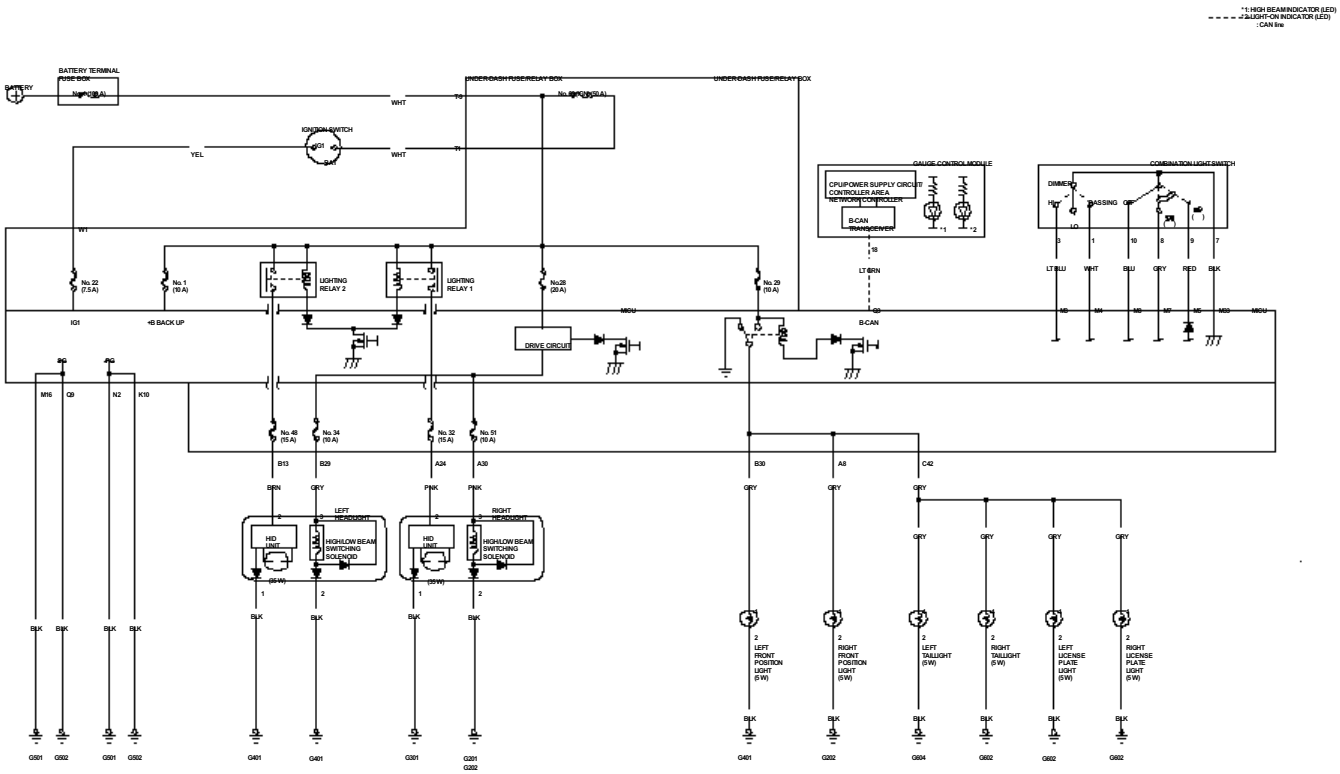


4. Turn the bulb socket (A) 60 ° counterclockwise to remove it from the housing.
   FRONT FOG LIGHT: 55 W



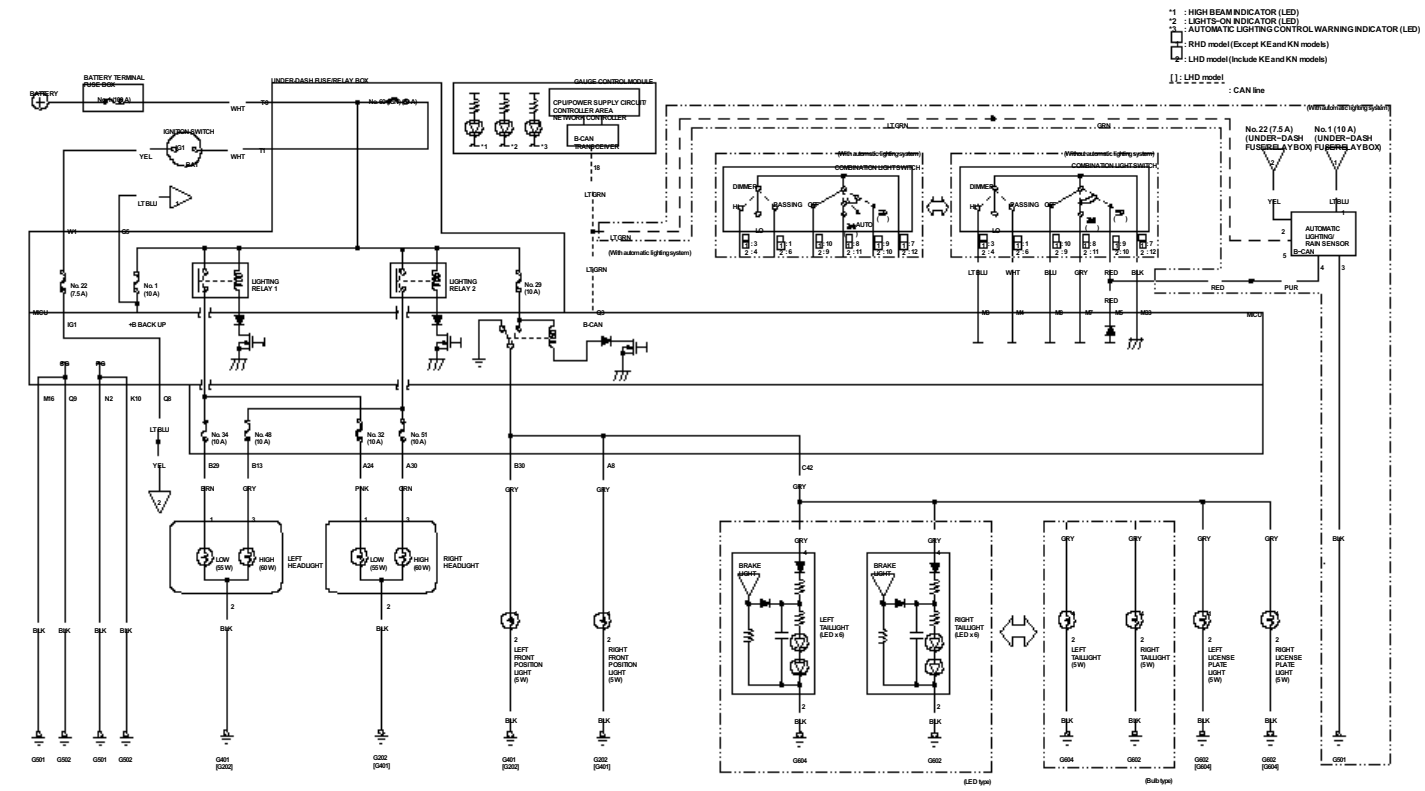
Headlights (With HID), Front Position Lights, Taillights, and License Plate Lights Circuit Diagram

With HID



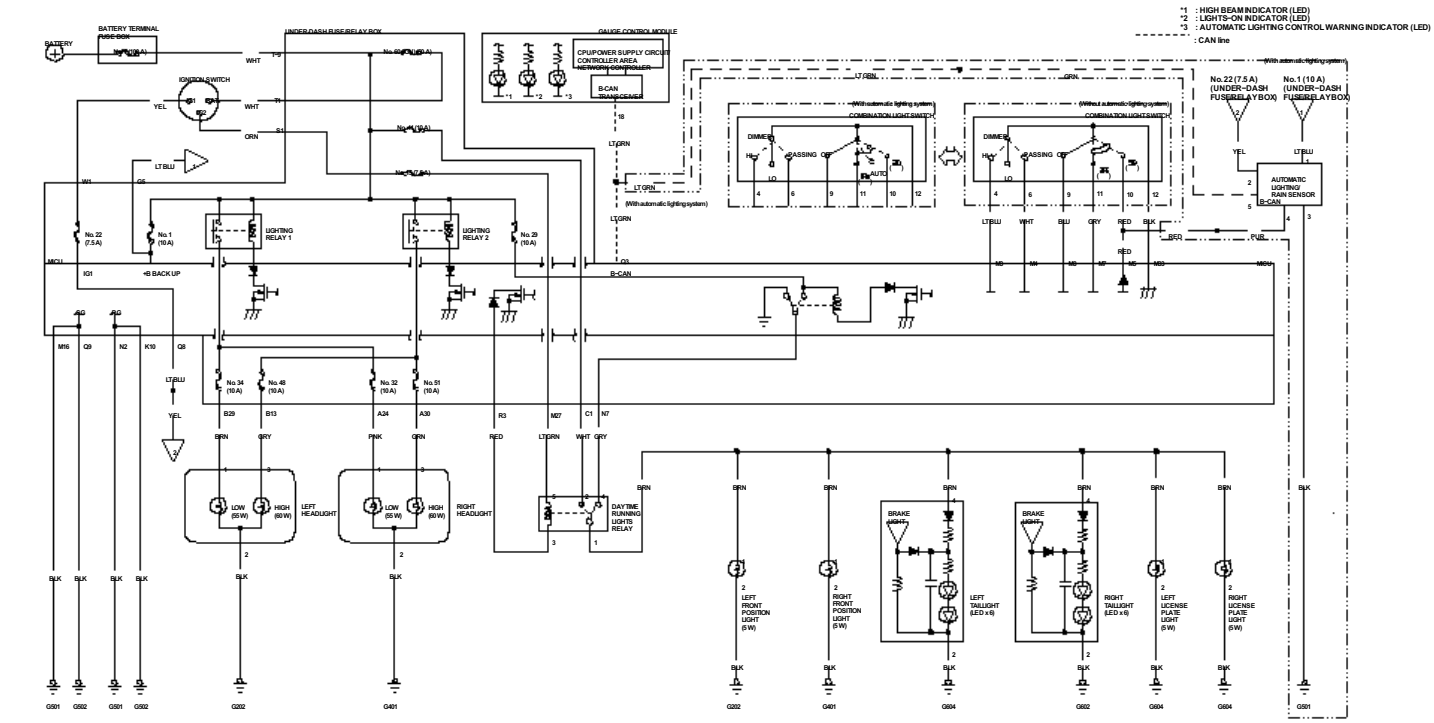
Headlights (Without HID), Front Position Lights, Taillights, License Plate Lights, and Automatic Lighting Control Circuit Diagram

Without HID



Headlights (With DRL), Front Position Lights, Taillights, License Plate Lights, and Automatic Lighting Control Circuit Diagram

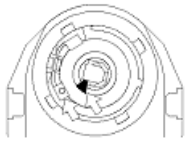
With daytime running light



HID Lamp System Troubleshooting

⚠WARNING

A transient high tension (25,000 V) occurs at the bulb sockets or the high intensity discharge (HID) lamps when the combination light switch is turned ON, it may cause serious electrical shock or electrocution if you do not observe the cautions below.



⚠CAUTION

- Never turn on the combination light switch before fitting the HID bulbs to their bulb sockets and completing the reassembly of the headlight assembly.
- Do not service the headlights assembly in wet conditions, such as rain or snow, near a sprinkler system, or when your hands are wet to prevent electrocution.
- Do not touch the surface of the HID bulbs with your bare hands and do not stain it with any oils and fats.
- Do not disassemble the inverter unit and the igniter unit.
- Do not turn on the HID bulb by using a power source other than the battery mounted on your vehicle.

NOTE:

- Before troubleshooting, check the No. 32 (15 A) fuse and No. 48 (15 A) fuse in the under-dash fuse/relay box.
- Cool down the HID bulb before checking.
- After checking, the HID system requires about 5 minutes to be normal condition.

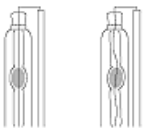
1. Connect the HDS to the data link connector, then turn the ignition switch to ON (II).
2. Select the BODY ELECTRICAL menu, then enter the HEADLIGHT COMMAND from the FUNCTIONAL TESTS, and turn the headlights on repeatedly.

   Do the headlights come on?
   YES - Go to the combination light switch test and the MICU input test. ■
   NO - Go to Step 3.
3. Turn the headlight switch OFF and the ignition switch in LOCK (0) position.
4. Do the battery terminal disconnection procedure.
5. Remove the bulb socket from the HID bulb.
6. Check for loose or poor connections between the bulb socket and the HID bulb.

   Is the connection OK?
   YES - Go to Step 7.
   NO - Install the bulb and the bulb socket correctly and recheck, then go to Step 15.
7. Check for corrosion and traces of electrical arcing at the socket mating part.

   Is the socket corroded or burnt?
   YES - Replace the bulb socket, and recheck, then go to Step 15.
   NO - Go to Step 8.

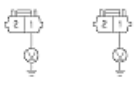
8. Remove the bulb, and check the luminescence part of the HID bulb.



   Is there black discoloration or transformation?
   YES - Replace the HID bulb(s), and recheck, then go to Step 15.
   NO - Go to Step 9.
9. Substitute the right and left HID bulbs.

   Does the symptom change to the other side?
   YES - Replace the HID bulb and recheck, then go to Step 15.
   NO - Go to Step 10.
10. Turn the combination light switch OFF.
11. Disconnect the HID unit 2P connector.
12. Turn the combination light (headlight) switch ON.

13. Measure the voltage between the No. 2 terminal of the HID unit 2P connector and body ground.



    Is there battery voltage?
    YES - Go to Step 14.
    NO - Repair open in the wire between the HID unit and the under-dash fuse/relay box. If the wire is OK, replace the under-dash fuse/relay box, then go to Step 15.

14. Check for continuity between the No. 1 terminal of the HID unit 2P connector and body ground.

Is there continuity?

YES - Replace the HID unit, then go to Step 15 .

NO - Repair open in the wire between the HID unit and body ground. If the wire is OK, check for poor ground (G301/G401), then go to Step 15 .

15. Do the battery terminal reconnection procedure.

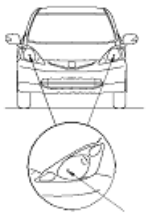
Headlight Replacement

1. Remove the front bumper.
2. Disconnect the connectors (A) from the bulb sockets.
3. Remove the headlight (B) with the corner upper beam (C).
   NOTE: Be careful not to scratch the headlight lens and the fender.
4. Remove the bolt (D), and separate the corner upper beam and the headlight.
5. Install the headlight in the reverse order of removal.
6. After replacement, adjust the headlight.

Headlight Adjustment

⚠CAUTION

Headlights become very hot during use; do not touch them or any attaching hardware immediately after they have been turned off.

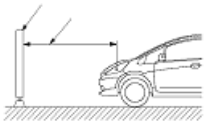


Before adjusting the headlights:

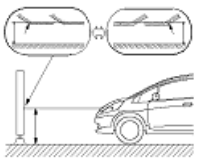
- Park the vehicle on a level surface.
- Make sure the tire pressures are correct.
- The driver or someone who weighs the same should sit in the driver's seat.
- Unload the vehicle.
- Turn the headlight leveling switch in 0 position (Without HID).

1. Clean the outer lens so that you can see the center (A) of the headlights.

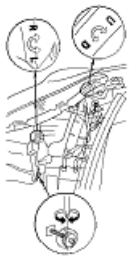
2. Park the vehicle in front of a wall or a screen (A).
3. Turn the low beams on.

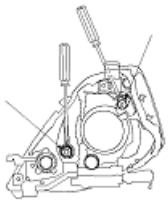


4. Determine if the headlights are aimed properly.
   Vertical adjustment:
   Measure the height of the headlights (A).
   Adjust the cut line (B) to the light's height.



5. If necessary, open the hood and adjust the headlights to local requirements by turning the adjuster.





Exterior Light Bulb Replacement

HID Bulb

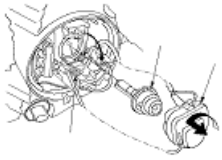
⚠WARNING

A transient high tension (25,000 V) occurs at the bulb sockets of the high intensity discharge (HID) lamps when the combination light switch is turned ON, it may cause serious electrical shock or electrocution if you do not observe the cautions below.

⚠CAUTION

- Never turn on the combination light switch before fitting the HID bulbs to their bulb sockets and completing the reassembly of the headlight assembly.
- Do not service the headlights assembly in wet conditions, such as rain or snow, near a sprinkler system, or when your hands are wet to prevent electrocution.
- Do not touch the surface of the HID bulbs with your bare hands and do not stain it with any oils and fats.
- Do not disassemble the inverter unit and the ignitor unit.
- Do not turn on the HID bulb by using a power source other than the battery mounted on your vehicle.

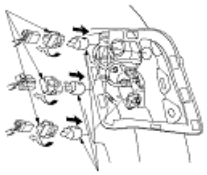
1. Turn the combination light switch OFF.
2. Turn the ignition switch to LOCK (0).
3. Do the battery terminal disconnection procedure.
4. Turn the cover (A) 45 ° counterclockwise to remove it from the headlight assembly.



5. Turn the socket (A) 45 ° counterclockwise to remove it from the bulb (B).
   Headlight: 35 W
6. Pull the retaining spring (C) away from the bulb then remove the bulb.
7. Install a new bulb in the reverse order of removal. Make sure the notches in the bulb align with the tabs in the headlight.
8. Install the parts in the reverse order of removal.
9. Do the battery terminal reconnection procedure.

Taillights (LED type)

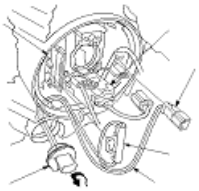
1. Open the tailgate and remove the maintenance lid (A).



2. Disconnect the connectors from the lights.
   Brake Light/Taillight: (LED)
   Rear Turn Signal Light: 21 W
   Back-up Light: 21 W
   Rear Fog Light: 21 W

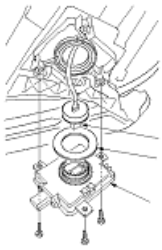
   NOTE: The brake light/taillight (LED) is a part of the taillight assembly, and it cannot be replaced itself.
3. Turn the bulb socket (A) 45 ° counterclockwise to remove the bulb (B).
4. Install new bulb(s) in the reverse order of removal.

HID Cord Complete Replacement



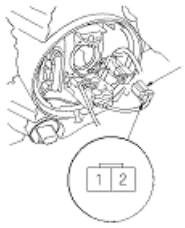
1. Remove the headlight.
2. Remove the HID bulb from the headlight.
3. Disconnect the 2P connector (A) from the high/low beam switching solenoid (B).
4. Turn the connector (C) 45 ° counterclockwise to remove it from the headlight housing (D).
5. Slide the diode (E) up and remove the cord complete (F).
6. Install in the reverse order of removal.
7. After replacement, adjust the headlight.

HID Unit Replacement



1. Turn the combination light switch OFF.
2. Make sure the ignition switch is in LOCK (0) position, then do the battery terminal disconnection procedure.
3. Remove the headlight assembly.
4. Remove the three mounting screws and the HID unit (A).
5. Disconnect the 4P connector (B) from the HID unit.
6. Inspect the gasket (C) for damage. If damaged, replace it.
7. Install the HID unit in the reverse order of removal.
8. Do the battery terminal reconnection procedure.
9. Adjust the headlight.

High/Low Beam Switching Solenoid Test



1. Remove the headlight.
2. Remove the HID bulb from the headlight.
3. Disconnect the high/low beam switching solenoid 2P connector (A).
4. Check the hood of the high/low beam switching solenoid.
   - The hood should open (high beam) when the battery power is connected to the No. 1 terminal and ground the No. 2 terminal.
   - The hood should close (low beam) when the battery power is disconnected.
5. If the solenoid does not work properly, replace it.

High/Low Beam Switching Solenoid Replacement

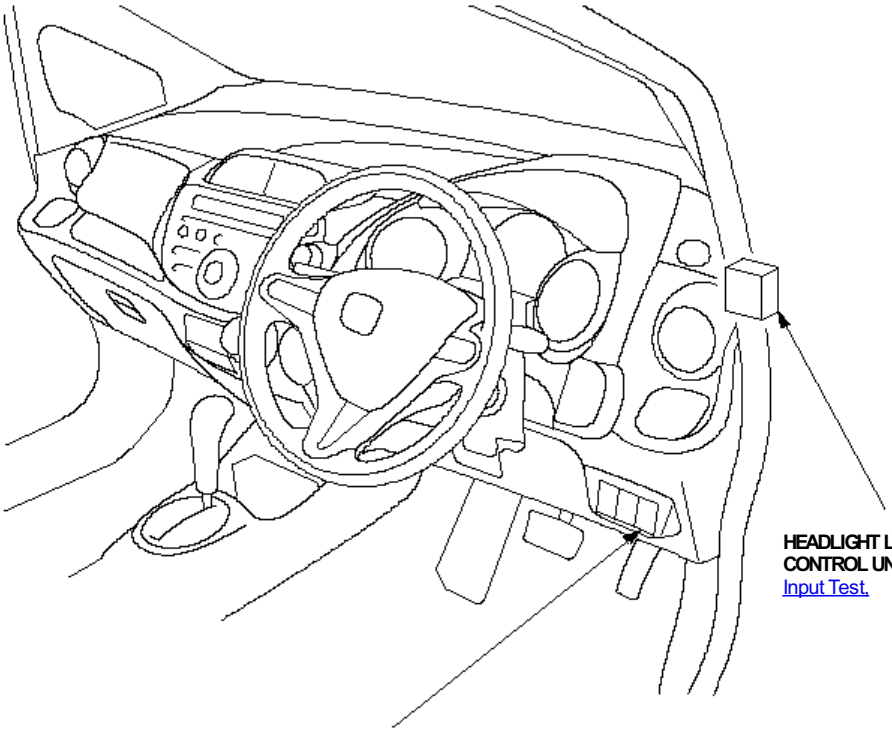
1. Remove the headlight.
2. Remove the HID bulb from the headlight.
3. Disconnect the high/low beam switching solenoid 2P connector (A).
4. Place a clean shop towel or paper (B) under the high/low beam switching solenoid.
5. Remove the headlight leveling motor.
6. Slightly push down the headlight reflector to secure the space.

7. Remove the two screws (A) from the high/low beam switching solenoid (B).
8. Disconnect the 1P terminal (C) and remove the high/low beam switching solenoid.
   NOTE: Do not touch the hood and the moving part. It is necessary to clean if touch the parts.
9. Install the switching solenoid in the reverse order of removal.
10. After replacement, check the hood operation , and adjust the headlight.

Headlight Leveling System Description

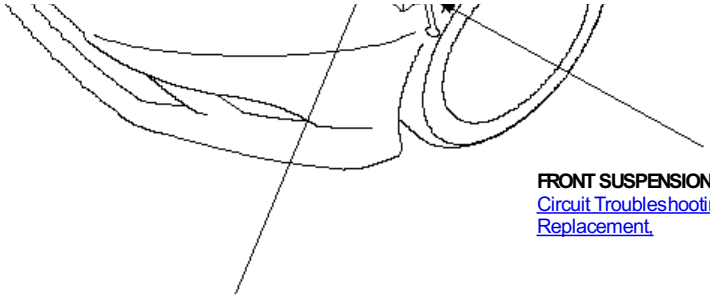
[Headlight Leveling System (With HID)](#)
[Suspension Stroke Sensors](#)
[Headlight Leveling Control Unit](#)
[Headlight Leveling Motors](#)

Headlight Leveling System Component Location Index



HEADLIGHT LEVELING CONTROL UNIT (With HID)
Input Test.

HEADLIGHT LEVELING SWITCH (Without HID)
Test/Replacement.

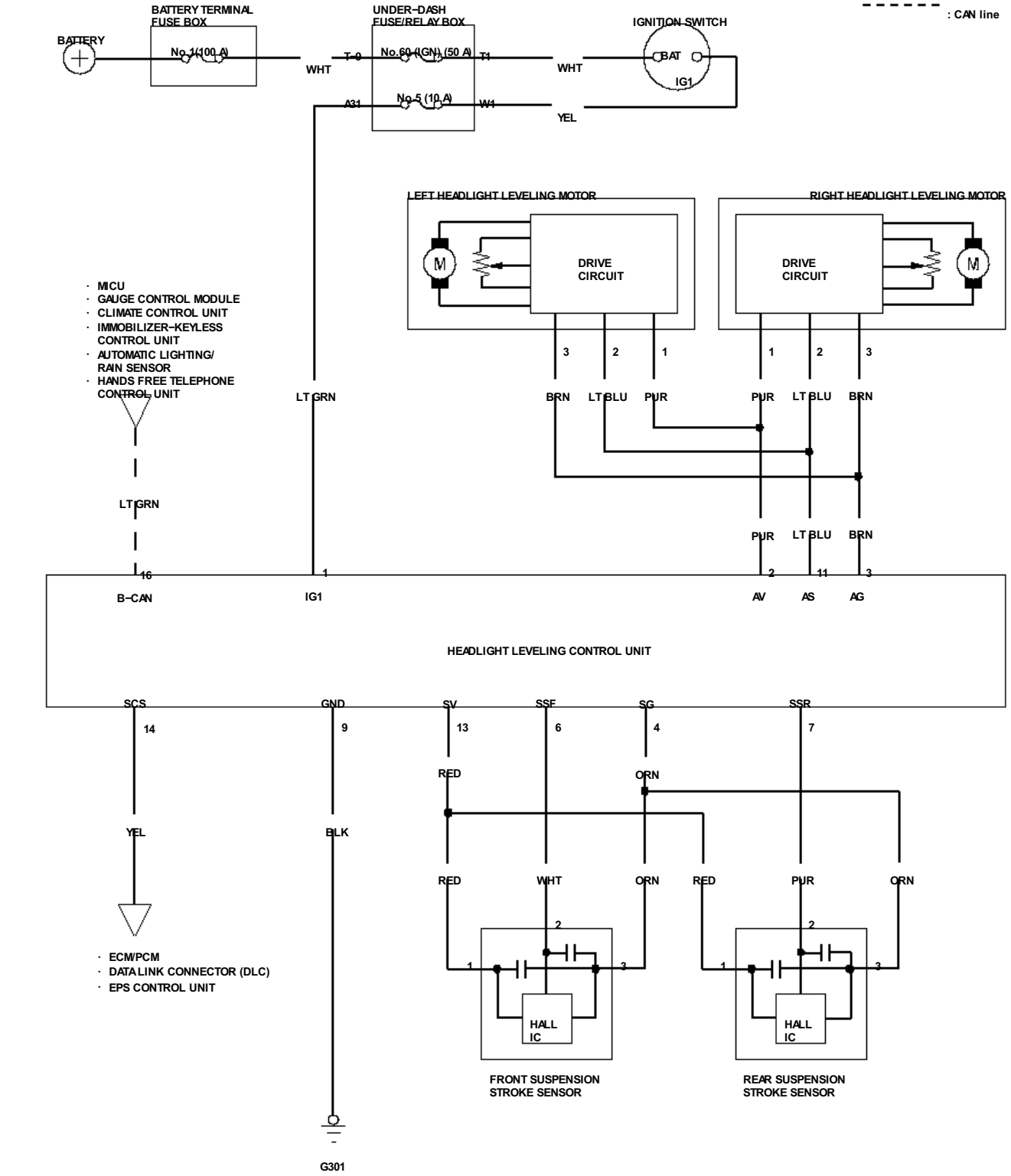


FRONT SUSPENSION STROKE SENSOR (With HID)
Circuit Troubleshooting.
Replacement.

HEADLIGHT LEVELING MOTOR
Input Test.
Replacement.

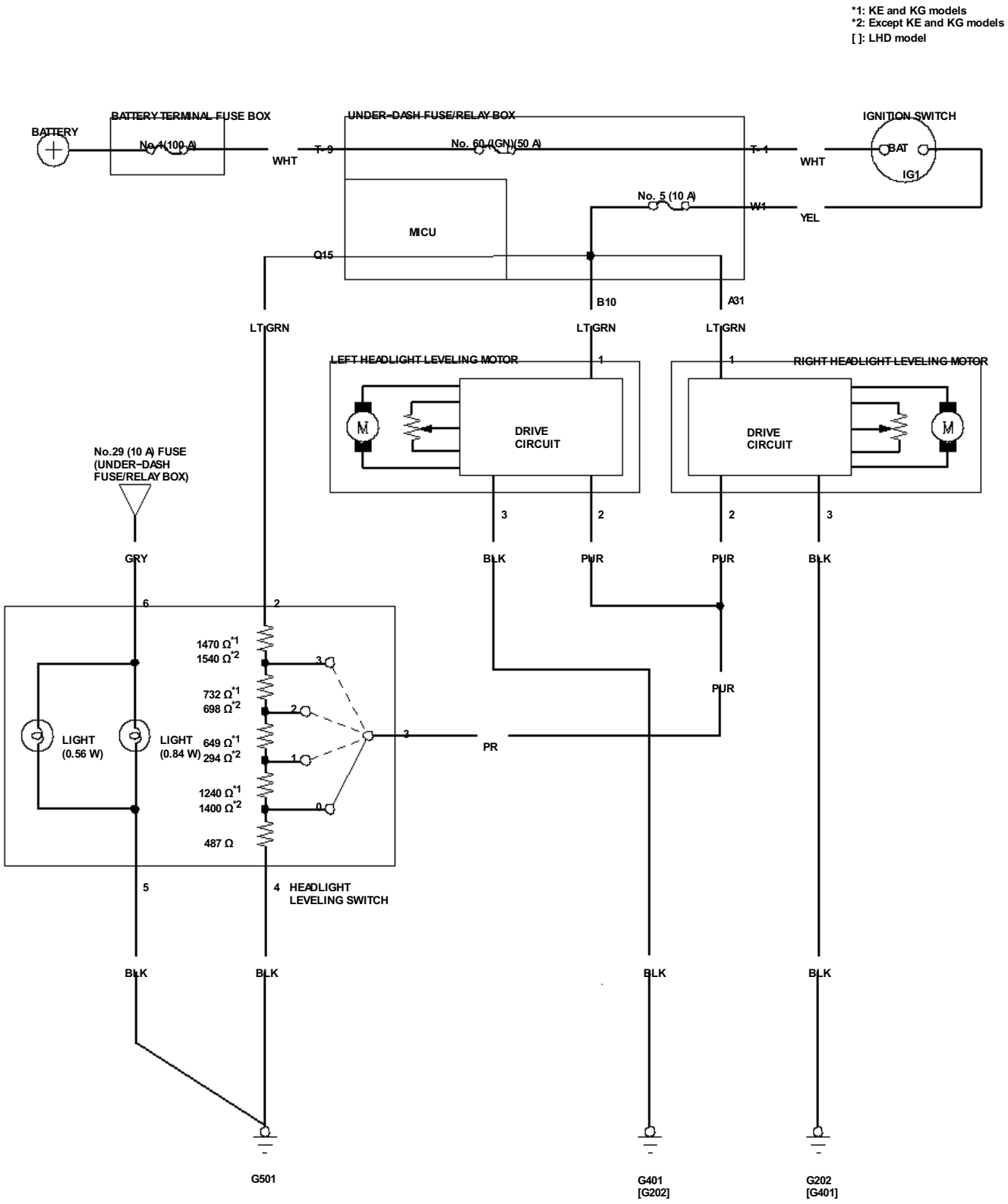
Headlight Leveling System Circuit Diagram - With HID

With HID



Headlight Leveling System Circuit Diagram - Without HID

Without HID



Headlight Initial Position Learning Procedure

Do the headlight initial position learning when any of the related parts of the headlight leveling system shown is replaced:

- Headlight leveling control unit
- Suspension stroke sensor

NOTE: The headlight initial position learning is required also when the suspension stroke sensor is reattached or the suspension stroke sensor arm is reconnected to the lower arm.

Learning Procedure

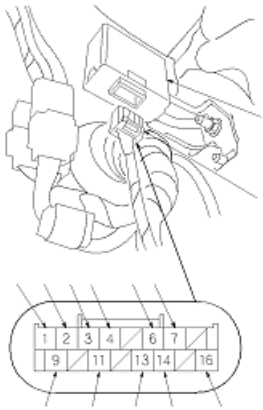
Before learning the headlights:

- Park the vehicle on a level surface, and remove all of the baggage from the vehicle.
- Make sure the tire pressures are correct.

1. Turn the ignition switch to LOCK (0).
2. Slide the front seats backward fully.
3. Have the driver (about 75 kg (165 lb)) or someone who weighs the same sit in the driver's seat.
4. Connect the HDS to the data link connector
5. Jump the SCS line with the HDS.
6. Turn the ignition switch to ON (II).
7. Within 5 seconds, turn the headlights (low beam) or passing switch ON and OFF three times repeatedly, and leave them on.
   - If the headlights aiming move down then return to the original position, the initial position learning is complete.
   - If the headlights aiming don't move, go to Step 1 and repeat the procedure.
8. Turn the ignition switch to LOCK (0).
9. Disconnect the HDS from the data link connector.
10. Adjust the headlight aiming to conform with the applicable requirements.

Headlight Leveling Control Unit Input Test

With HID



NOTE: Before testing, make sure that there is no DTC and combination light switch circuit is ok.

1. Remove the driver's dashboard undercover.
2. Turn the ignition switch to LOCK (0).
3. Disconnect the 16P connector (A) from the headlight auto leveling control unit (B).
4. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals are OK, go to Step 5 .
5. With the connector still disconnected, make these input tests at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to Step 6 .

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
9	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G301) • An open in the wire
1	LT GRN	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 5 (10 A) fuse in the driver's under-dash fuse/relay box • An open in the wire

6. Reconnect the connector, turn the ignition switch to ON (II), and make these input tests at the connector.
   - If any tests indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, replace the headlight leveling control unit.

NOTE: After replacing the control unit, do the headlight initial position learning procedure.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
3	BRN	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G301) • An open in the wire
4	ORN	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G301) • An open in the wire
2 3	PUR BRN	Ignition switch ON (II), headlight switch ON	Measure the voltage between the No. 2 and No. 3 terminals: There should be battery voltage.	• Faulty headlight leveling motor • An open in the wire
11 3	LT BLU BRN	Ignition switch ON (II), headlight switch ON	Measure the voltage between the No. 11 and No. 3 terminals: There should be about 2 to 12 V.	• Faulty headlight leveling motor • An open in the wire
4 6 13	ORN WHT RED	Ignition switch ON (II)	• Measure the voltage between the No. 4 and No. 13 terminals: There should be about 5 V. • Measure the voltage between the No. 4 and No. 6 terminals: There should be about 0.5 to 4.5 V.	• Faulty front suspension stroke sensor • An open in the wire
4 7 13	ORN PUR RED	Ignition switch ON (II)	• Measure the voltage between the No. 4 and No. 13 terminals: There should be about 5 V. • Measure the voltage between the No. 4 and No. 7 terminals: There should be about 0.5 to 4.5 V.	• Faulty rear suspension stroke sensor • An open in the wire

Headlight Leveling Motor Input Test

NOTE: Before input test, check the No. 5 (10 A) fuse in the under-dash fuse/relay box.

1. Turn the ignition switch to LOCK (0).
2. Disconnect the 3P connector (A) from the headlight leveling motor (B).
3. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals are OK, go to Step 4 .
4. With the connector still disconnected, make these input tests at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, replace the headlight leveling motor.
   - With HID: Do the headlight leveling control unit input test.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
3	BRN *1	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G301) • Faulty headlight leveling control unit • An open in the wire
	BLK *2	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G202, G401) • An open in the wire
1	PUR *1	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Faulty headlight leveling control unit • An open in the wire
	LT GRN *2	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	An open in the wire
2	LT BLU *1	Ignition switch ON (II)	Measure the voltage to ground: There should be about 3−13 V.	• Faulty headlight leveling control unit • An open in the wire
	PUR *2	Headlight leveling switch in 3 position	Measure the resistance between the No. 2 terminal and body ground: There should be about 2.9 kΩ [3.1 kΩ].	• Poor ground (G501) • Faulty headlight leveling switch • An open in the wire

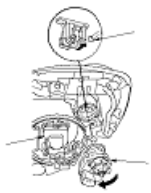
*1:With HID
*2:Without HID

[ ]: KE and KG models

Headlight Leveling Motor Replacement

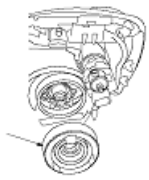
With HID

1. Remove the headlight assembly.
2. Turn the HID light cover (A) 45 ° counterclockwise to remove it from the headlight housing.

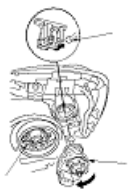


3. Pulling the headlight reflector (A) slightly, turn the leveling motor (B) 45 ° clockwise, and pull down the tip (C) of the leveling motor.
4. Install in the reverse order of removal.
5. After installation, adjust the headlight.

Without HID

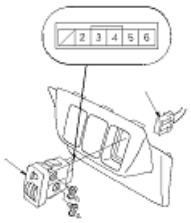


1. Remove the headlight assembly.
2. Remove the rubber cap (A).



3. Pulling the headlight reflector (A) slightly, turn the leveling motor (B) 45 ° clockwise, and pull down the tip (C) of the leveling motor.
4. Install in the reverse order of removal.
5. After installation, adjust the headlight.

Headlight Leveling Switch Test/Replacement



1. Remove the fuse lid panel.
2. Disconnect the 6P connector (A) from the headlight leveling switch (B), then push out the switch from the dashboard lower cover.
3. Measure the resistance between the No. 2 and No. 4 terminals, and No. 3 and No. 4 terminals at positions 0, 1, 2, and 3 by moving the switch knob.
   Between the No. 2 and No. 4 terminals:
   About 4.4 kΩ or 4.6 kΩ (KE and KG models)

   Between the No. 3 and No. 4 terminals:

Knob position	0	1	2	3
Resistance [About (kΩ)]	0.487	1.887 or 1.727 *	2.181 or 2.376 *	2.879 or 3.108 *

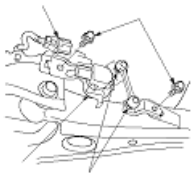
   *: KE and KG models

4. If the resistance is not as specified, replace the switch.

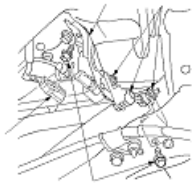
Headlight Leveling System Suspension Stroke Sensor Replacement

1. Raise the vehicle, make sure it is securely supported.
2. Disconnect the 3P connector (A) from the suspension stroke sensor (B).
3. Remove the bolts, then remove the suspension stroke sensor.
4. Install the sensor in the reverse order of removal.
5. After installing, do the headlight initial position learning.

Front



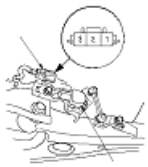
Rear



Headlight Leveling System Suspension Stroke Sensor Circuit Troubleshooting

NOTE:

- Before troubleshooting, check the No. 5 (10 A) fuse in the under-dash fuse/relay box.
- Before troubleshooting, check for DTCs and make sure the B-CAN communication lines are OK.



1. Raise the vehicle, make sure it is securely supported.
2. Disconnect the 3P connector (A) from the front suspension stroke sensor (B).

3. Disconnect the 3P connector (A) from the rear suspension stroke sensor (B).
4. Turn the ignition switch to ON (II).
5. Turn the combination light (headlight) switch ON.

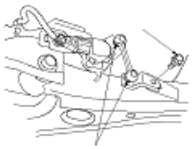
6. Check for continuity between the front and rear suspension stroke sensors 3P connector No. 3 terminal and body ground individually.

Is there continuity?
YES - Go to Step 7 .
NO - Repair open in the wire or poor ground (G301), if the wire is OK, replace the headlight leveling control unit .■

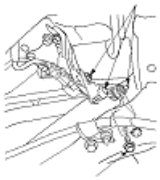
7. Measure the voltage between the front and rear suspension stroke sensors 3P connector No. 1 terminal and body ground individually.

Is there about 5 V?
YES - Go to Step 8 .
NO - Check for an open or a short in the wire between the headlight leveling control unit and the front (or rear) suspension stroke sensor. If the wire is OK, replace the front (or rear) suspension stroke sensor .■

8. Turn the ignition switch to LOCK (0).
9. Reconnect the 3P connector to each suspension stroke sensor.

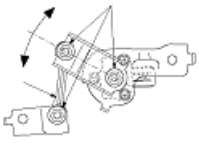
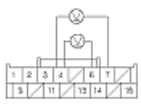


10. Remove the bolt (A) and the front suspension stroke sensor from the lower arm.



11. Remove the nut (A) and the rear suspension stroke sensor from the lower arm.
12. Turn the ignition switch to ON (II).

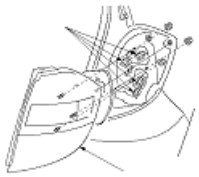
13. Measure the voltage between the headlight leveling control unit 16P connector No. 4 and No. 6 terminals, and No. 4 and No. 7 terminals while the suspension stroke sensor arm (A) is moved.

Is there about 0.5−4.5 V?
YES - Intermittent failure, the system is OK at this time. Check for loose or poor connection between the headlight leveling control unit and the front (or rear) suspension stroke sensor, if the connections are OK, replace the front (or rear) suspension stroke sensor .■
NO - Check for an open or a short in the wire between the headlight leveling control unit and the front (or rear) suspension stroke sensor, if the wires are OK, replace the front (or rear) suspension stroke sensor .■

Taillight Replacement

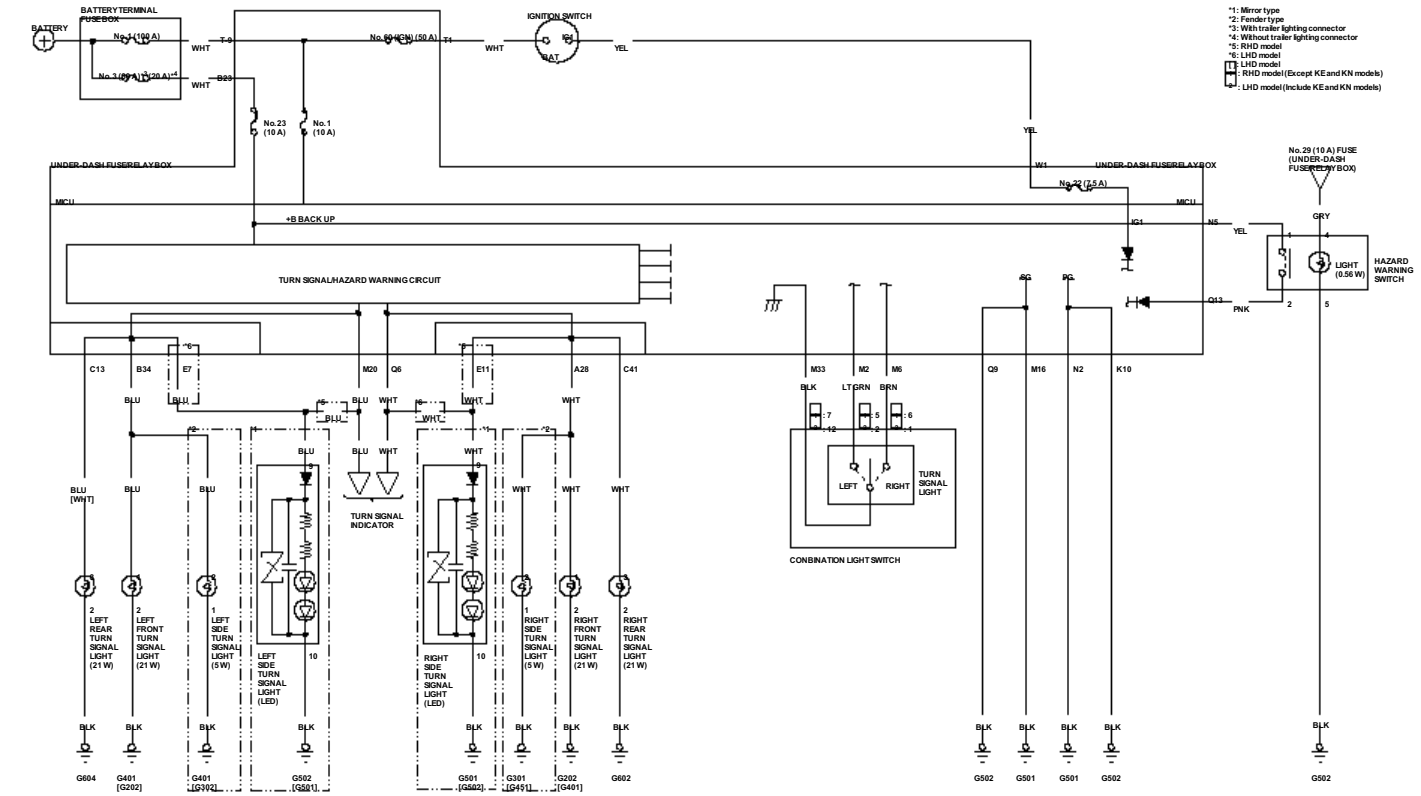
1. Open the tailgate and remove the maintenance lid.
2. Disconnect the connectors (A) from the taillights (B).
3. Remove the mounting nuts from the taillight.
4. Install the taillight in the reverse order of removal.



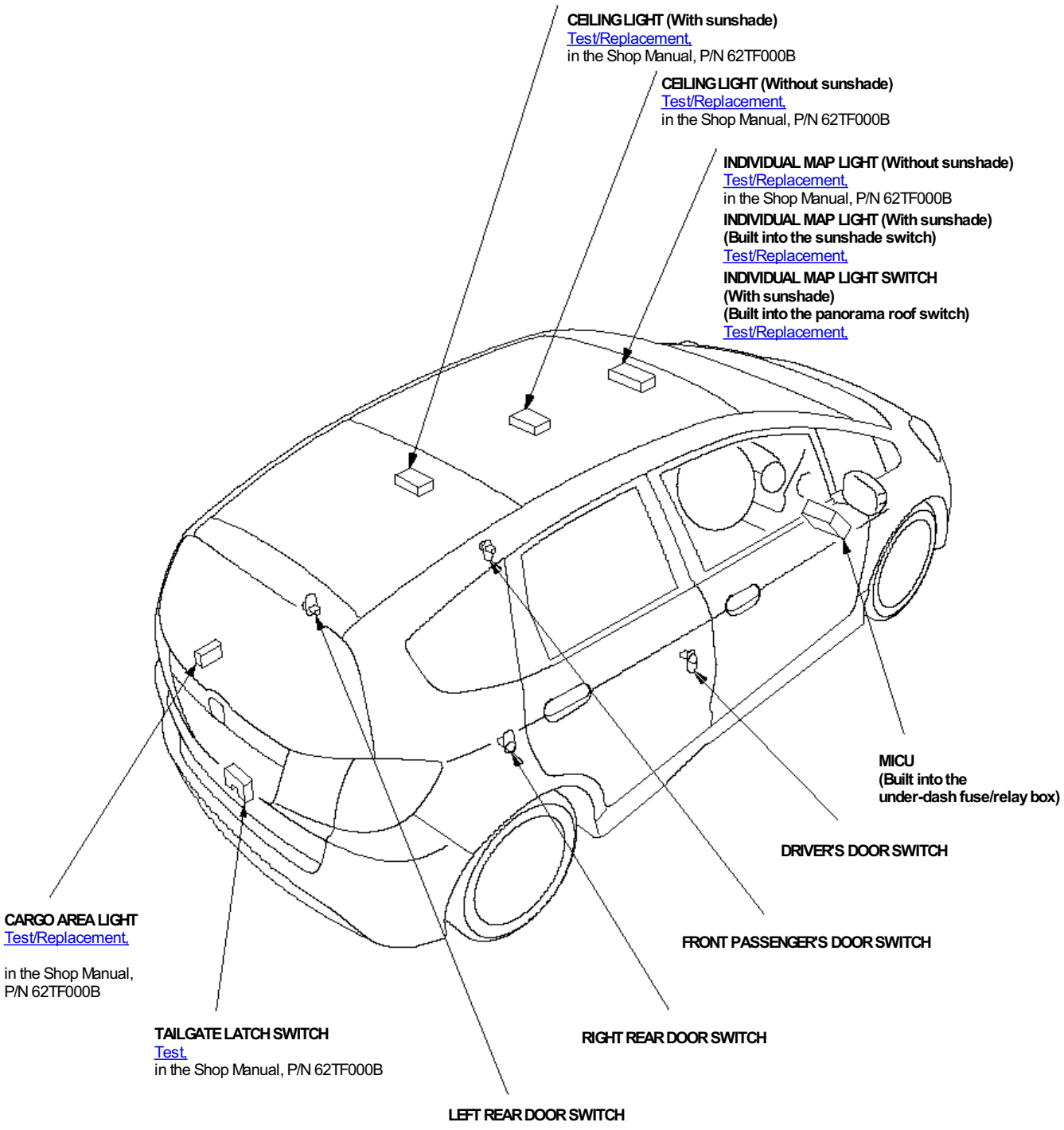
Turn Signal/Hazard Warning Lights System Description

[One-push Turn Signal]

Turn Signal/Hazard Warning Lights Circuit Diagram

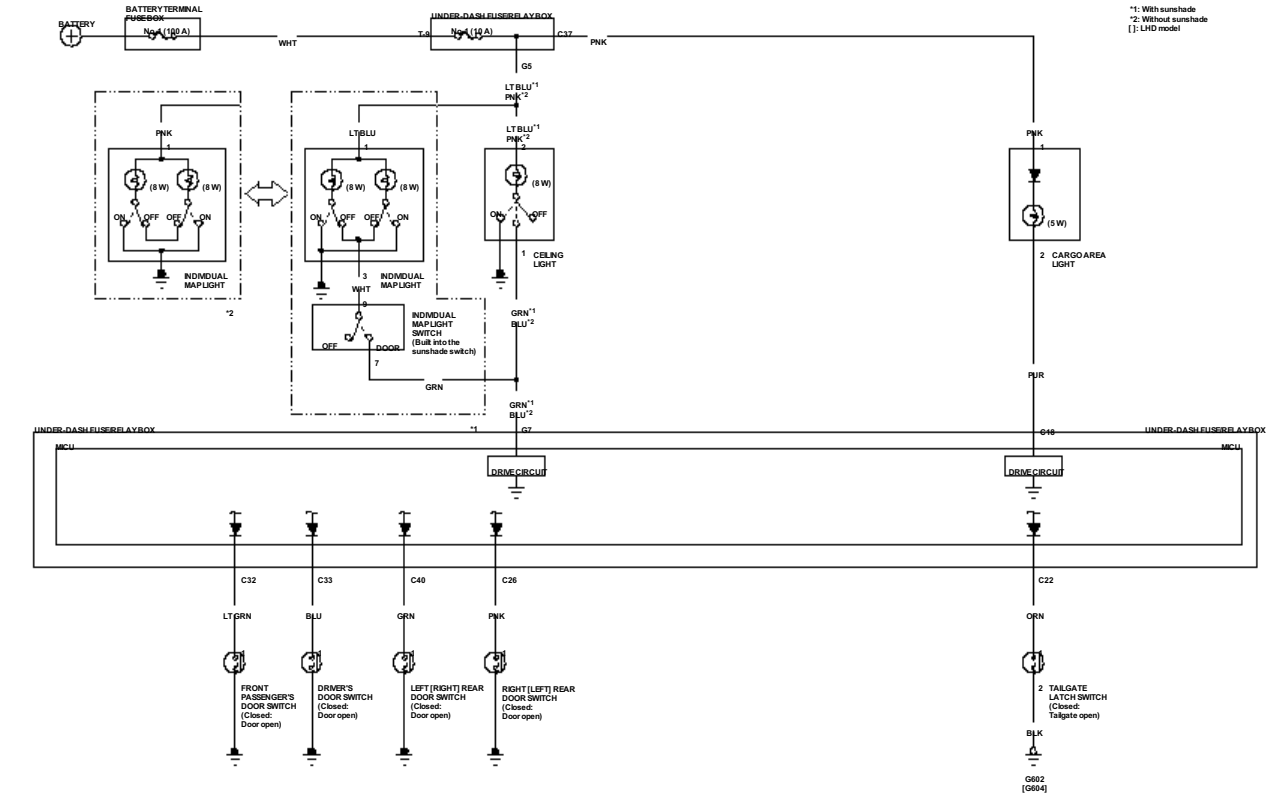


Interior Lights Component Location Index

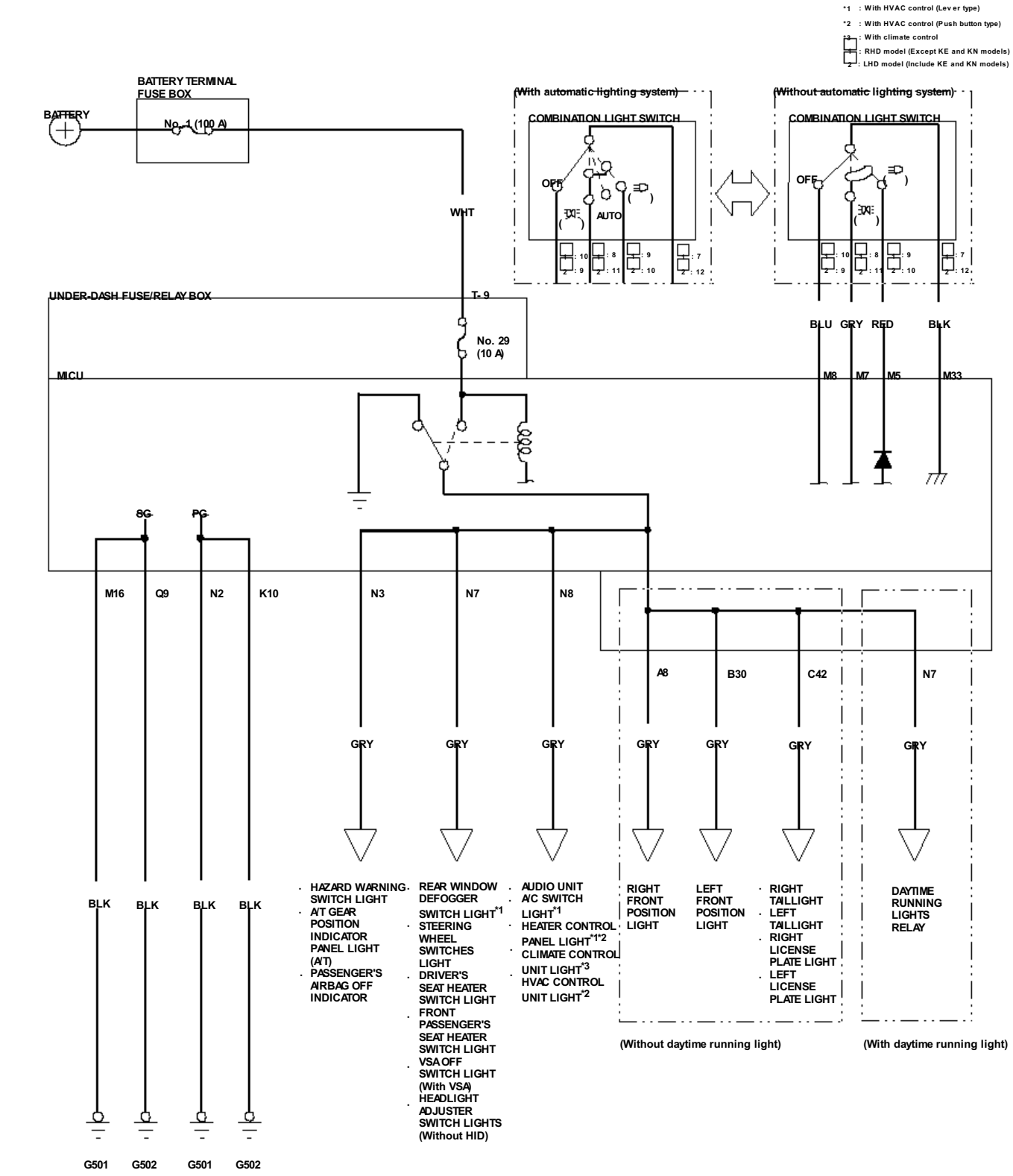


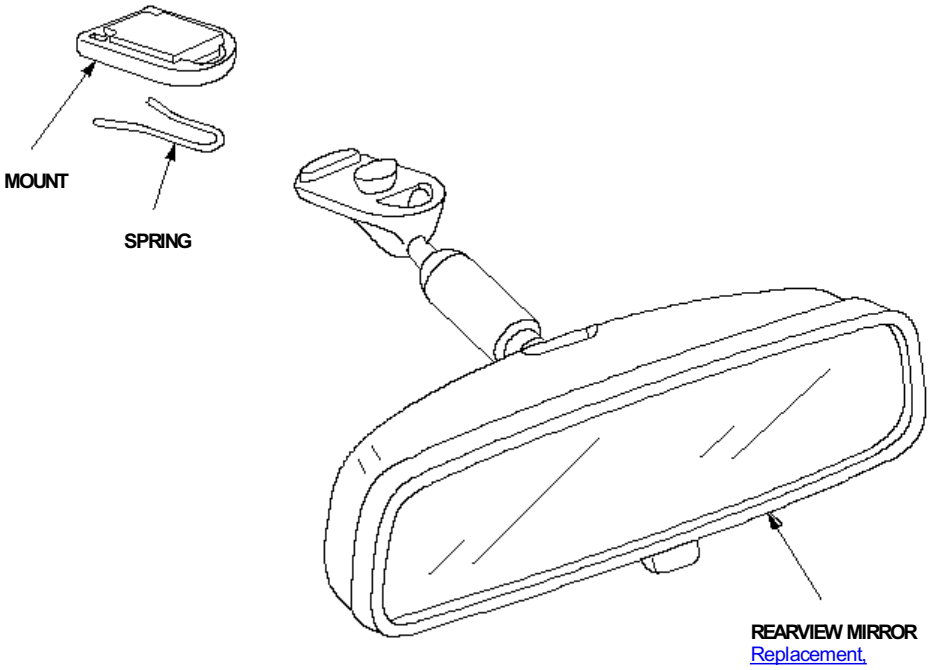
RHD model is shown, LHD model is similar.

Interior Lights Circuit Diagram



Dash Lights Circuit Diagram

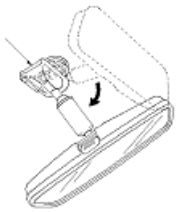



MOUNT
SPRING
REARVIEW MIRROR
Replacement,

Rearview Mirror Replacement

For Some Models

1. Turn the rearview mirror base (A) 90 °.



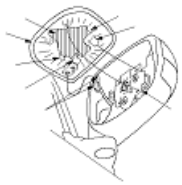
2. Slide the rearview mirror (A) down toward the bottom of the windshield to detach it from the spring (B) in the mount (C).
3. If necessary, remove the spring from the mount.
4. Install the rearview mirror in the reverse order of removal.

Mirror Holder Replacement

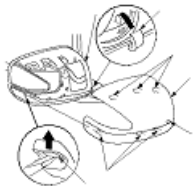
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the power mirror and related parts.
- LHD model is shown; RHD model is symmetrical.

1. Carefully push on the top edge of the mirror holder (A) by hand.
2. Put a shop towel in the opening between the lower edge of the mirror holder and the mirror housing to prevent scratches, and detach the bottom hooks (B) with a flat-tip screwdriver wrapped with protective tape.

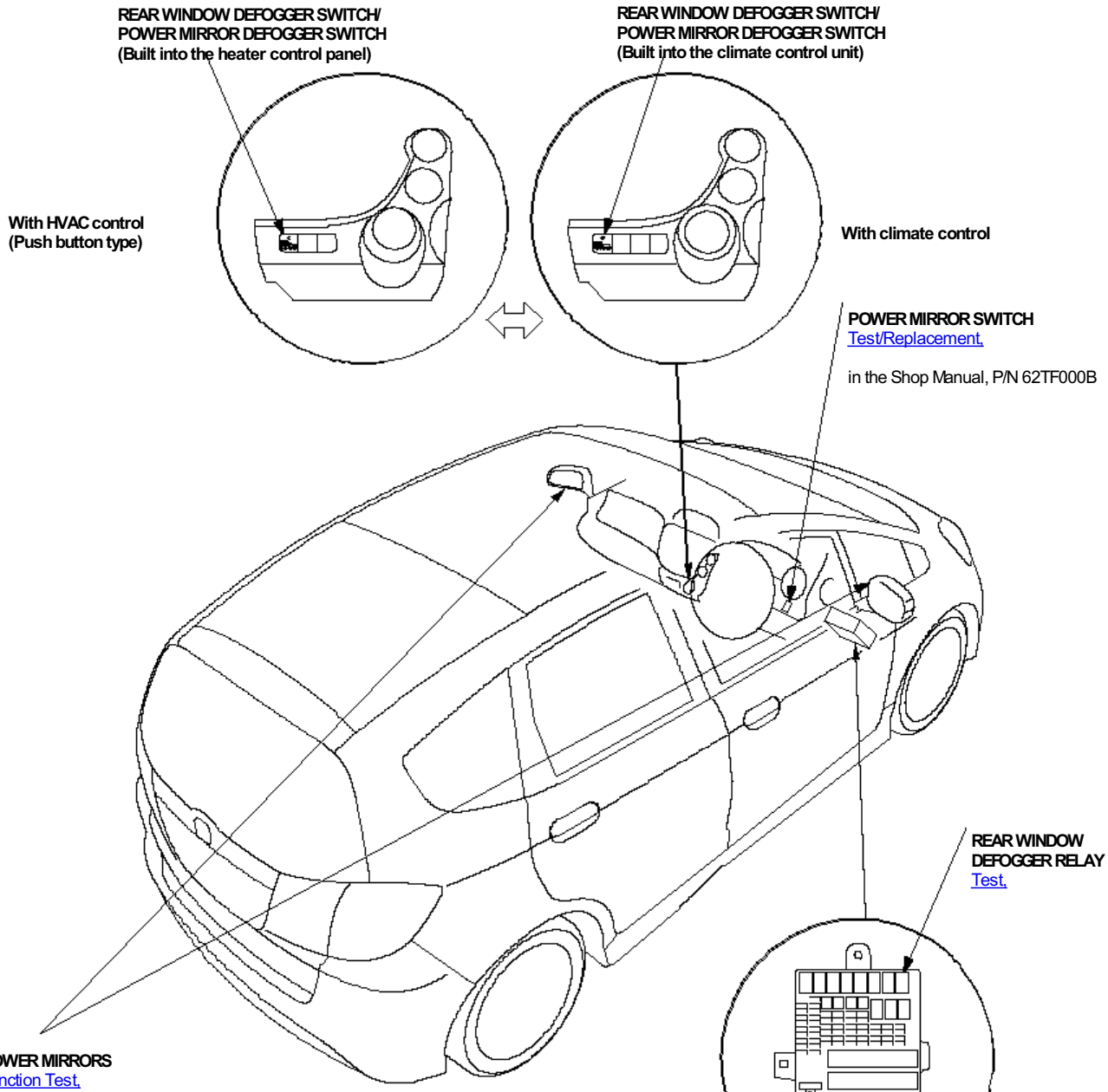


3. Carefully pull out the bottom edge of the mirror holder (A) to separate the adhesive (B), and then release the side clips (C).
4. Separate the mirror holder from the actuator (D) by releasing the hooks (E). If equipped, disconnect the mirror defogger terminals (F).



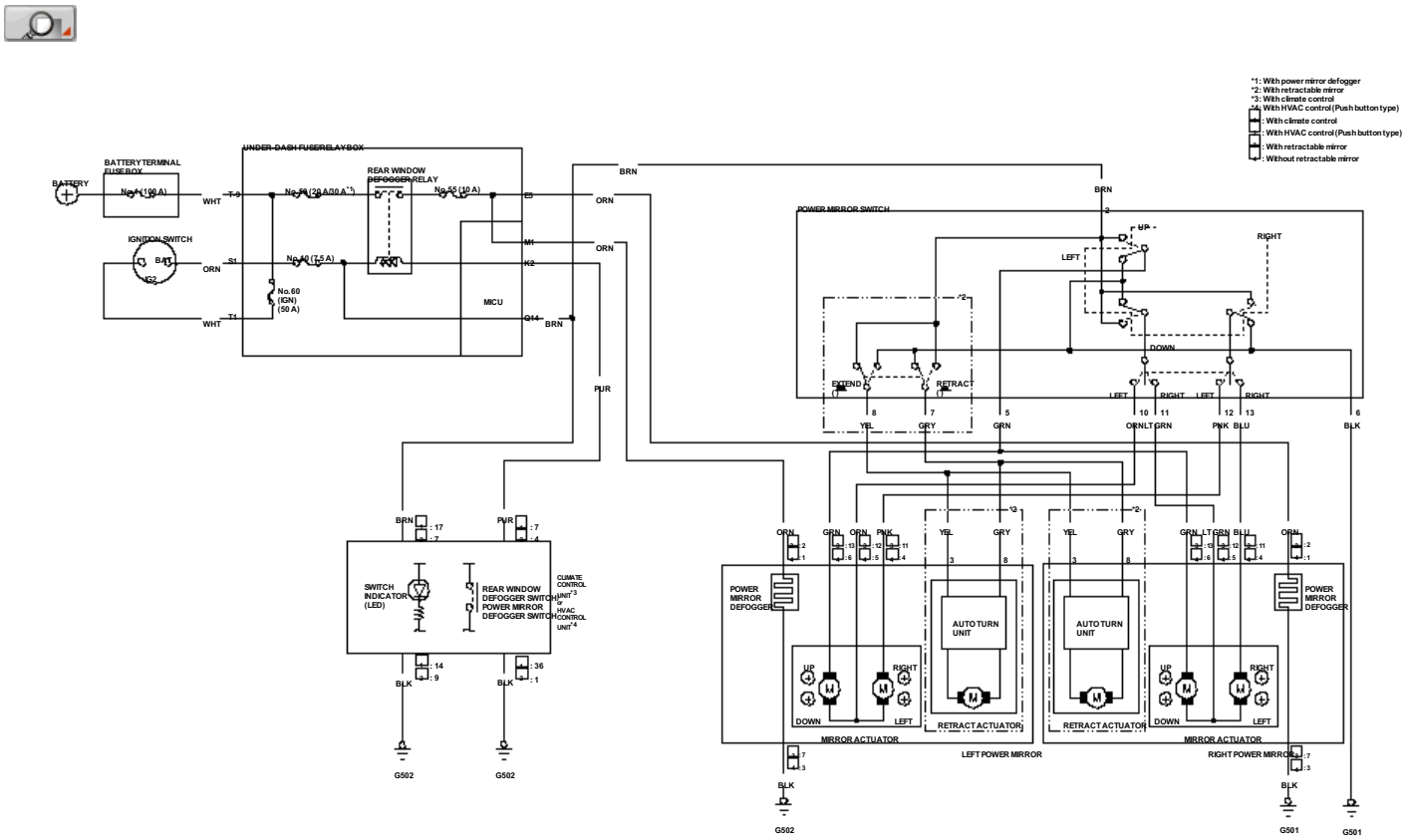
5. If necessary, remove the skull cap (A).
   -1. Remove the tabs (B) from inside the mirror housing (C).
   -2. Release the hook (D), then remove the skull cap.

Power Mirrors Component Location Index



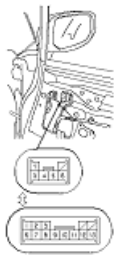
RHD model is shown, LHD model is similar.

Power Mirrors Circuit Diagram

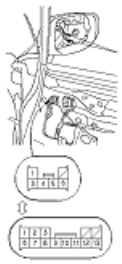


Power Mirror Defogger Test

NOTE: Before testing, check the No. 10, No. 55, No. 59 and No. 60 fuses in the under-dash fuse/relay box.
[ ]: Without retractable power mirror



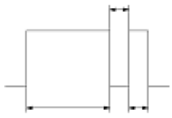
1. Remove the door panel.
2. Disconnect the power mirror 13P [6P] connector.
3. Turn the ignition switch to ON (II).
4. Measure the voltage between the power mirror 13P [6P] connector No. 2 [No. 1] terminal and body ground with the rear window defogger switch/power mirror defogger switch ON.
   There should be battery voltage.
   - If there is no voltage, check for:
     - Faulty rear window defogger switch/power mirror defogger switch
     - Faulty rear window defogger relay
     - An open in the wire.
     - Poor ground (G502)
   - If there is battery voltage, go to Step 5 .
5. Check for continuity between the power mirror 13P [6P] connector No. 7 [No. 3] terminal and body ground.
   There should be continuity.
   - If there is no continuity, check for:
     - An open in the wire.
     - Poor ground (G501, G502)
   - If there is continuity, go to Step 6 .
6. Remove the mirror holder and disconnect the mirror defogger terminals .



7. Check for an open in the wire between the power mirror 13P [6P] connector and the mirror defogger terminals (A). If the wire harness is OK, replace the mirror holder.

MICS Self-diagnostic Function

NOTE: Use only if the HDS is unavailable.



Test Mode 1

Special Tools Required

MPCS short connector
07WAZ-0010100

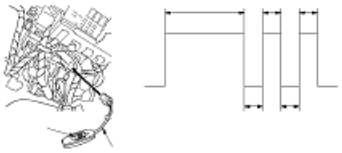
1. Turn the ignition switch to LOCK (0).
2. RHD model: Remove the fuse lid panel, and remove the driver's dashboard lower cover. LHD model: Remove the fuse lid panel.
3. Check the No. 1 (10 A) fuse in the under-dash fuse/relay box and the No. 22 (7.5 A) fuse in the under-dash fuse/relay box. If the fuse is blown, find and correct the cause, then replace the fuse.
4. Turn the ceiling light switch in "DOOR" (middle) position. Close all doors. Turn the ignition switch to ON (II).
   NOTE: If the driver's seat belt is unbuckled, the beeper will beep.
5. Connect the MPCS short connector (A) to the MICU service check connector (B), and turn the switch (C) on.
6. After 5 seconds, the ceiling light should come on for 2 seconds, go out, then blink once for 0.2 second. This means that the system is in Test Mode 1 of the self-diagnostic function.
7. About 1 second after step 6, the ceiling light will blink and indicate the DTC, and repeat it every 3 seconds. If there is more than one DTC, the system will indicate them in ascending order, beginning from the DTC with the lowest numerical value. Troubleshoot the DTCs as indicated below:

DTC	Cause and Troubleshooting
1	The MICU cannot receive signals sent from the MICU itself (for checking the sending signals), or the MICU cannot receive signals from the gauge control module. If DTC 1 only indicates, substitute a known-good gauge control module and an MICU one by one at a time, in that order, and recheck for the DTC after each substitution.
5	The MICU cannot receive signals (VSP/NE message) from the gauge control module. If DTC 5 only indicates, substitute a known-good gauge control module, and recheck for the DTC.

How to cancel the Test Mode 1

NOTE: To cancel Test Mode 1, turn off the MICU short connector switch for more than 10 seconds or turn the ignition switch to LOCK (0).

Test Mode 2



1. While in Test Mode 1, turn off the MPCS short connector switch (A) for about 5 to 10 seconds, then turn it on again.
2. The ceiling light should come on for 2 seconds, go out, then blinks twice at 0.2 second intervals. This means the system has gone from Test Mode 1 to Test Mode 2.
3. While still in Test Mode 2, operate the switches in the table shown. If the circuit is OK, the ceiling light blinks once. If the circuit is faulty, the ceiling light does not blink.
   - If the ceiling light do not blink even a switch is operated, check two or three other circuits listed in the table. If the ceiling light blinks for each circuit, the additional circuits are OK, repair the short or open circuit that failed the test in Step 3 .
   - If the ceiling light does not blink again, this multiple failed circuits mean that the control unit has failed without triggering a DTC. Test a few more circuits. If they also fail, test the MICU input test. If all the input tests prove OK, substitute a known-good MICU or gauge control module one at a time, then recheck. If the system works properly, the part that was substituted is faulty; replace it.

Driver's door lock switch (UNLOCK) Driver's door lock switch (LOCK) Driver's door lock knob switch (UNLOCK) Driver's door lock knob switch (LOCK) Driver's door key cylinder switch (UNLOCK) *1 Driver's door key cylinder switch (LOCK) *1 Front passenger's door lock knob switch (UNLOCK) *1 Left rear door lock knob switch (UNLOCK) *1 Right rear door lock knob switch (UNLOCK) *1 Tailgate lock knob switch *2 Driver's door switch Front passengers' door switch Left rear door switch Right rear door switch Tailgate latch switch Audio switch Windshield wiper HI/LO switch Windshield wiper INT/LO switch Windshield wiper MIST switch Windshield washer switch	Rainfall sensitivity adjuster *3 Windshield wiper intermittent dwell time controller Rear window wiper switch Rear window washer switch Turn signal switch (LEFT) Turn signal switch (RIGHT) Hazard warning switch Headlight switch (ON) Headlight switch (OFF) Lighting switch Dimmer switch Passing switch Front fog light switch Rear fog light switch Hood switch *4 Brake pedal position switch Transmission range switch (P) Transmission range switch (R) Back-up light switch (M/T) Ignition key switch

*1:With security or super locking
*2:With super locking
*3:With automatic wiper system
*4:With security

How to cancel the Test Mode 2

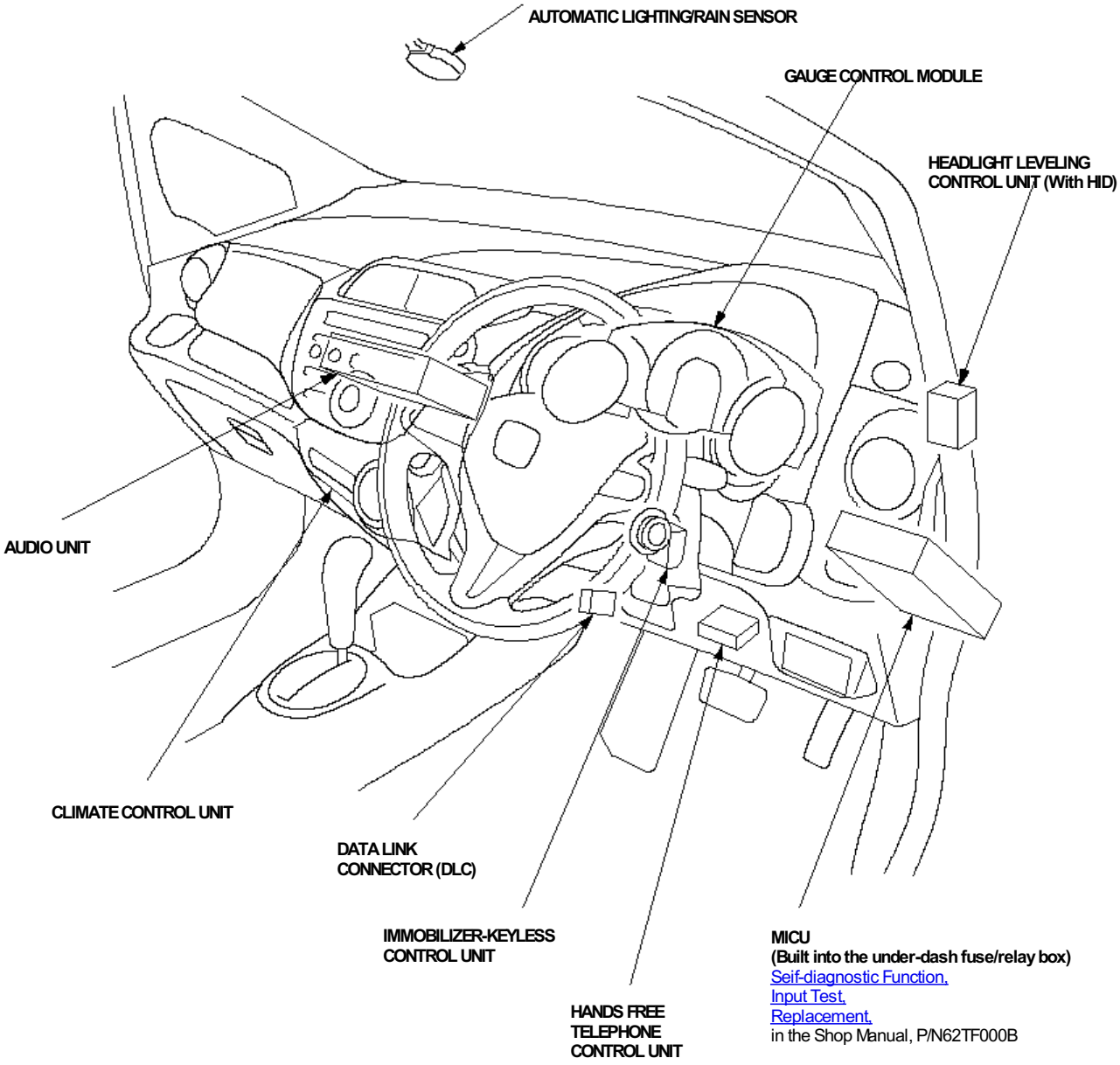
NOTE: To cancel Test Mode 2, disconnect the MPCS short connector from the multiplex control inspection connector for more than 10 seconds or turn the ignition switch to LOCK (0).

MICS System Description

The MICU that is combined with the under-dash fuse/relay box is one of the B-CAN network components. The MICU controls many systems related to the body controller area and security system, and also works as a gateway to diagnose the other B-CAN connected ECUs with the HDS.
Refer to each system circuit diagram for details.

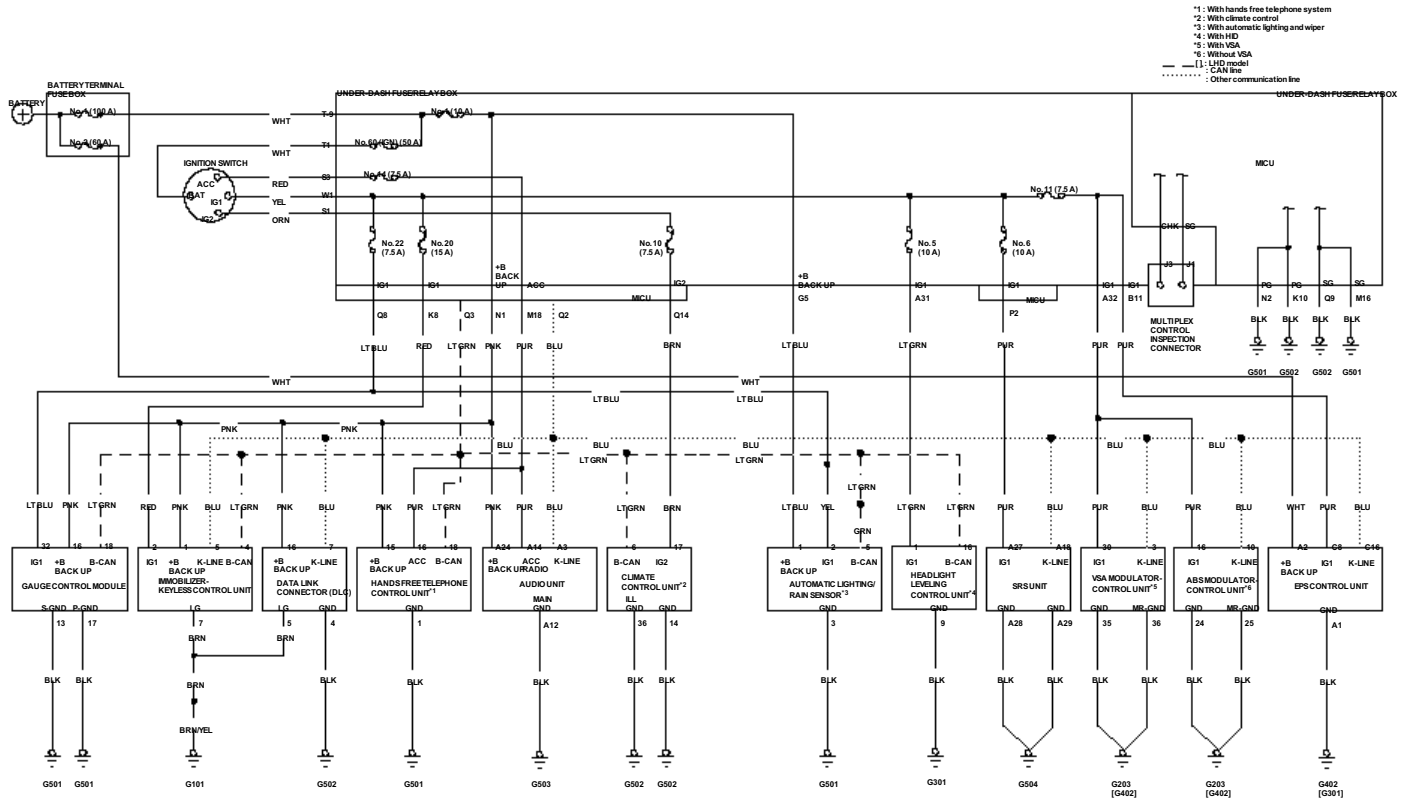
MICU Control Function Index
Hardware Fail-safe Control
Software Fail-safe Control
B-CAN
Gateway Function
Network “Loss of Communication" Error Checking Function
Self-diagnostic Function
Wake-up and Sleep Function
Fail-safe Function
Power Supply Voltage Monitoring Function
Headlights
Turn Signal
Entry Light
Cargo Area Light
Automatic Lighting System
Front Fog Light
Rear Fog Light
Daytime Running Lights (KG model)
Windshield Wiper/Washer (Normally operation)
Rear Window Wiper/Washer (Normally operation)
Windshield Wiper/Washer (Vehicle Speed Sense)
Key Interlock
Key-in Reminder
Automatic Front Wiper
Rear Window Wiper/Washer (With reverse linked rear wiper)
Windshield/Rear Window Washer
Power Window Timer (Key-off operation)
Collision Detection Signal (CDS)
Power Door Locks
Door Lock Response Operation
Keyless Entry System
Power Door Locks (LOCK operation)
Power Door Locks (UNLOCK operation)
Security Alarm System
Answer Back Response Operation
Answer Back Response Operation
Super Locking System (KE model)
A/C Pressure Switch

MICS Component Location Index

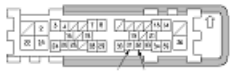


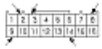
RHD model is shown, LHD model is similar.

MICS Circuit Diagram



MICS (MICU) Input Test





1. Turn the ignition switch to LOCK (0).
2. RHD model: Remove the fuse lid panel , and remove the driver's dashboard lower cover.
   LHD model: Remove the fuse lid panel.
3. Disconnect under-dash fuse/relay box connectors A, B, G, K, M, N, P, and Q.
   NOTE: All connector views are shown from wire side of female terminals.
4. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to Step 5 .
5. With the connectors still disconnected, make these input tests at the connectors.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to Step 6 .

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
N2	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
K10	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • An open in the wire
Q9	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • An open in the wire
M16	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
Q2	BLU	Under all conditions	Check for continuity between the Q2 terminal and the data link connector (16P) connector No. 7 terminal: There should be continuity.	An open in the wire
Q2	BLU	Immobilizer-keyless control unit 7P connector disconnected	Check for continuity between the Q2 terminal and the immobilizer-keyless control unit 7P connector No. 5 terminal: There should be continuity.	An open in the wire
Q2	BLU	Audio unit connector A (24P) disconnected	Check for continuity between the Q2 terminal and audio unit connector A (24P) No. 3 terminal: There should be continuity.	An open in the wire
Q2	BLU	SRS unit connector A (39P) disconnected	Check for continuity between the Q2 terminal and SRS unit connector A (39P) No. 18 terminal: There should be continuity.	An open in the wire
Q2	BLU	ABS modulator-control unit 25P connector disconnected	Check for continuity between the Q2 terminal and the ABS modulator-control unit 25P connector No. 10 terminal: There should be continuity.	An open in the wire
Q2	BLU	VSA modulator-control unit 36P connector disconnected	Check for continuity between the Q2 terminal and the VSA modulator-control unit 36P connector No. 3 terminal: There should be continuity.	An open in the wire
Q2	BLU	EPS control unit connector C (16P) disconnected	Check for continuity between the Q2 terminal and EPS control unit connector C (16P) No. 16 terminal: There should be continuity.	An open in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
Q3	LT GRN	Immobilizer-keyless control unit 7P connector disconnected	Check for continuity between the Q3 terminal and the immobilizer-keyless control unit 7P connector No. 4 terminal: There should be continuity.	An open in the wire
Q3	LT GRN	Gauge control module 32P connector disconnected	Check for continuity between the Q3 terminal and the gauge control module 32P connector No. 18 terminal: There should be continuity.	An open in the wire
Q3	LT GRN	Climate control unit 36P connector disconnected	Check for continuity between the Q3 terminal and the climate control unit 36P connector No. 6 terminal: There should be continuity.	An open in the wire
Q3	LT GRN	Hands free telephone control unit 28P connector disconnected	Check for continuity between the Q3 terminal and the hands free telephone control unit 28P connector No. 18 terminal: There should be continuity.	An open in the wire
Q3	LT GRN	Headlight leveling control unit 16P connector disconnected	Check for continuity between the Q3 terminal and the headlight leveling control unit 16P connector No. 16 terminal: There should be continuity.	An open in the wire
Q3	LT GRN	Automatic lighting/rain sensor 5P connector disconnected	Check for continuity between the Q3 terminal and the automatic lighting/rain sensor 5P connector No. 5 terminal: There should be continuity.	An open in the wire
Q2	BLU	Disconnect these connectors: • Immobilizer-keyless control unit 7P connector • Audio unit connector A (24P) • SRS unit connector A (39P) • ABS modulator control unit 25P connector (Without VSA) • VSA modulator control unit 36P connector (With VSA) • EPS control unit connector C (16P)	Check for continuity to ground: There should be no continuity.	A short to ground in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
Q3	LT GRN	Disconnect these connectors: • Immobilizer-keyless control unit 7P connector • Gauge control module 32P connector • Climate control unit 36P connector (With climate control) • Hands free telephone control unit 28P connector (With hands free telephone system) • Headlight leveling control unit 16P connector (With HID) • Automatic lighting/rain sensor 5P connector (With automatic lighting/automatic wiper system)	Check for continuity to ground: There should be no continuity.	A short to ground in the wire

6. Reconnect the connectors to the under-dash fuse/relay box, and make these input tests at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to Step 7 .

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
N1	PNK	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 1 (10 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
M18	PUR	Ignition switch ACC (I)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 14 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
K8	RED	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 20 (15 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
Q8	LT BLU	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 22 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
P2	PUR	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 6 (10 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
A32	PUR	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 11 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
B11	PUR	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 11 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
Q14	BRN	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 10 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire

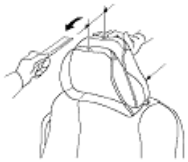
Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
A31	LT GRN	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 5 (10 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
G5	LT BLU	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 1 (10 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire

7. If multiple failures are found on more than one control unit, replace the under-dash fuse/relay box (includes the MICU). If input failures are related to a particular control unit, replace the control unit.

Front Seat Active Head Restraint Inspection

NOTE: If the vehicle has been in a collision, always inspect the active head restraint, even if they appear reusable, by doing the following procedure.

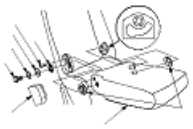
1. Fold the seat-back forward, then recline the seat-back to the first lock position, and adjust the head restraint to the highest position.
2. Apply masking tape on the top of the head restraint.
3. Make marks (A) on both sides at 250 mm (9.84 in.) upward from the roots of the head restraint frame (B) along the back of the head restraint (C) surface. Make a center of these points as a datum point (D).



4. Push the head restraint (A) forward, and check: With a scale, measure the level amount of the head restraint movement. The head restraint should move more than 50 mm (2.0 in.) without resistance. If it is less than 50 mm (2.0 in.), or the head restraint doesn't move smoothly, replace the seat-back frame:
   - Driver's seat
   - Passenger's seat

Rear Seat Armrest Replacement

NOTE: Take care not to tear the seams or damage the seatcovers.

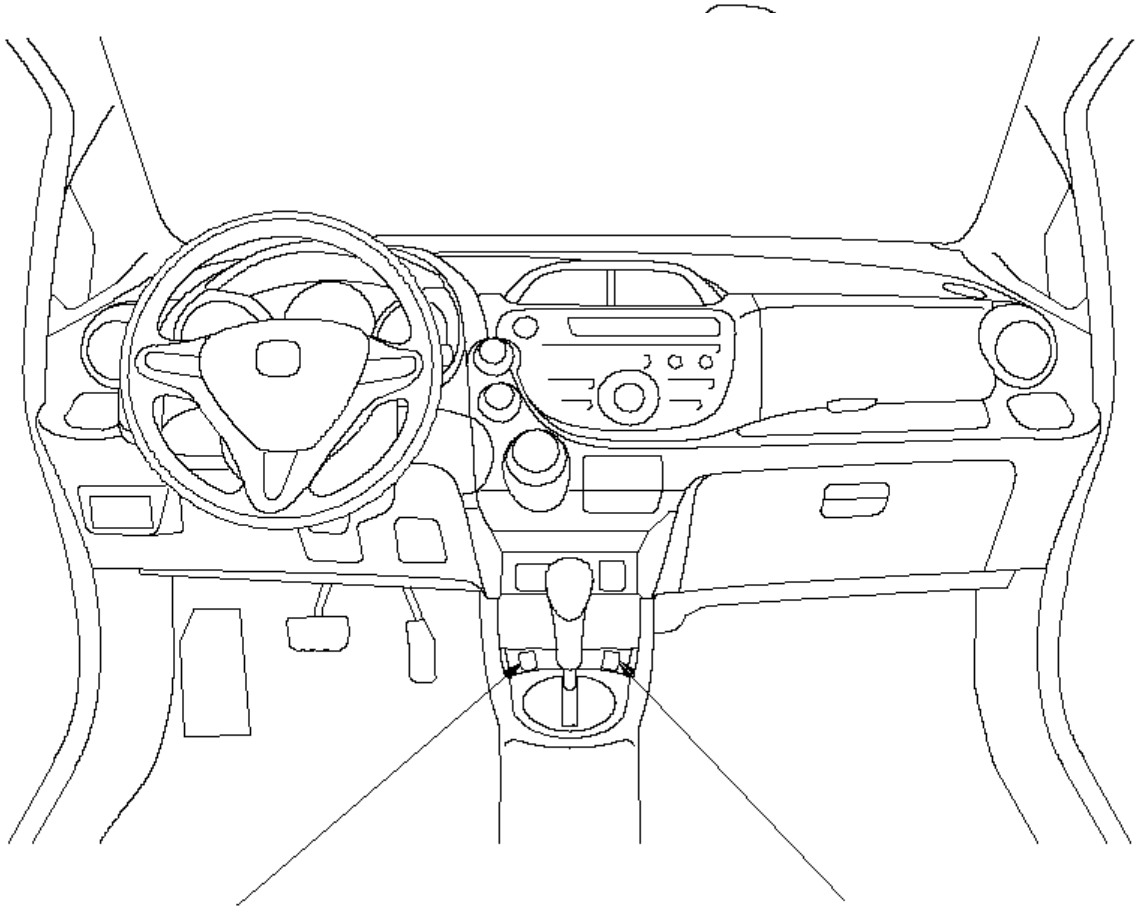


1. Remove the rear seat armrest (A).
   -1. Remove the rear center armrest garnish (B).
   -2. Remove the bolt (C) and pivot bolt (D) and wave washer (E) and plain washer (F) nylon washer (G), then remove the rear seat armrest.
   -3. If necessary, remove the collar (I).

2. Install the armrest in the reverse order of removal, and note these items:
   If the collar and nylon washer are damaged or stress-whitened, replace them with new ones.

Seat Heaters Component Location Index

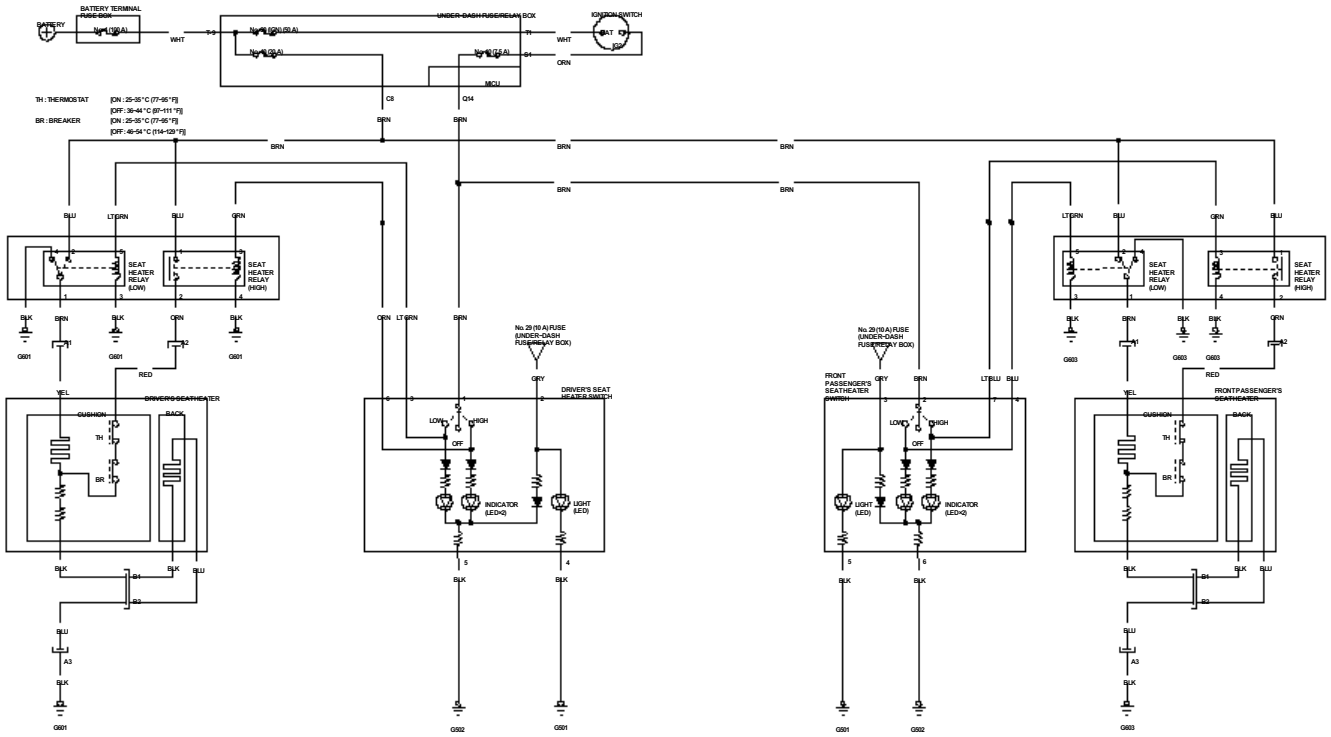
Driver's Seat



DRIVER'S SEAT HEATER SWITCH
Test/Replacement.

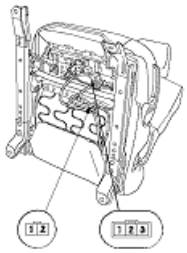
FRONT PASSENGER'S SEAT HEATER SWITCH
Test/Replacement.

Seat Heaters Circuit Diagram



Seat Heater Test

Driver's Seat



1. Remove the driver's seat.
2. Disconnect the connector A (3P) and connector B (2P) from the seat heaters.
3. Check for continuity between the seat heater connector B (2P) No. 1 and No. 2 terminals. There should be continuity. If the continuity is not as specified, replace the seat-back heater.
4. Reconnect seat heater connector B (2P) to the seat-back heater.
5. Check for continuity between the seat heater connector A (3P) No. 1 and No. 2, No. 2 and No. 3 terminals, and No. 1 and No. 3 terminals. There should be continuity. If the continuity is not as specified, replace the seat cushion heater.

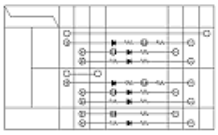
Front Passenger's Seat

1. Remove the passenger's seat.
2. Disconnect the connector A (3P) and connector B (2P) from the seat heaters.
3. Check for continuity between the seat heater connector B (2P) No. 1 and No. 2 terminals. There should be continuity. If the continuity is not as specified, replace the seat-back heater.
4. Reconnect seat heater connector B (2P) to the seat-back heater.
5. Check for continuity between the seat heater connector A (3P) No. 1 and No. 2, No. 2 and No. 3 terminals, and No. 1 and No. 3 terminals. There should be continuity. If the continuity is not as specified, replace the seat cushion heater.

Seat Heater Switch Test/Replacement

1. Remove the center console panel.
2. Disconnect the 6P (or 7P *) connector from the seat heater switch, then remove the switch.
   *: Front passenger's seat heater switch

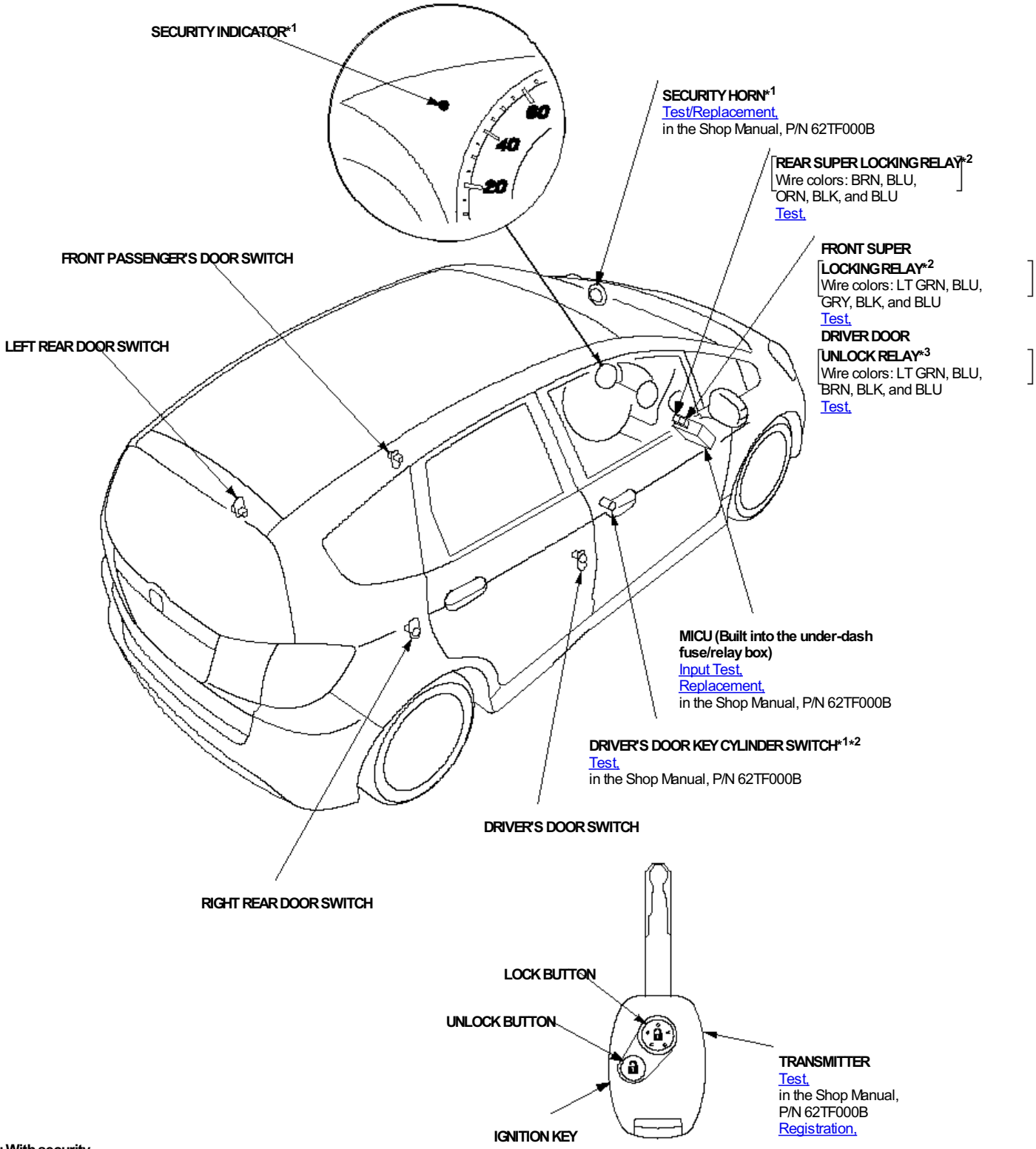
3. Check for continuity between the terminals in each switch position according to the table.
   NOTE: Make sure the correct test lead (+ or −) is placed on the terminal.
4. If the continuity is not as specified, replace the switch.



Keyless/Power Door Locks/Security System Description - Supplement

Super locking system

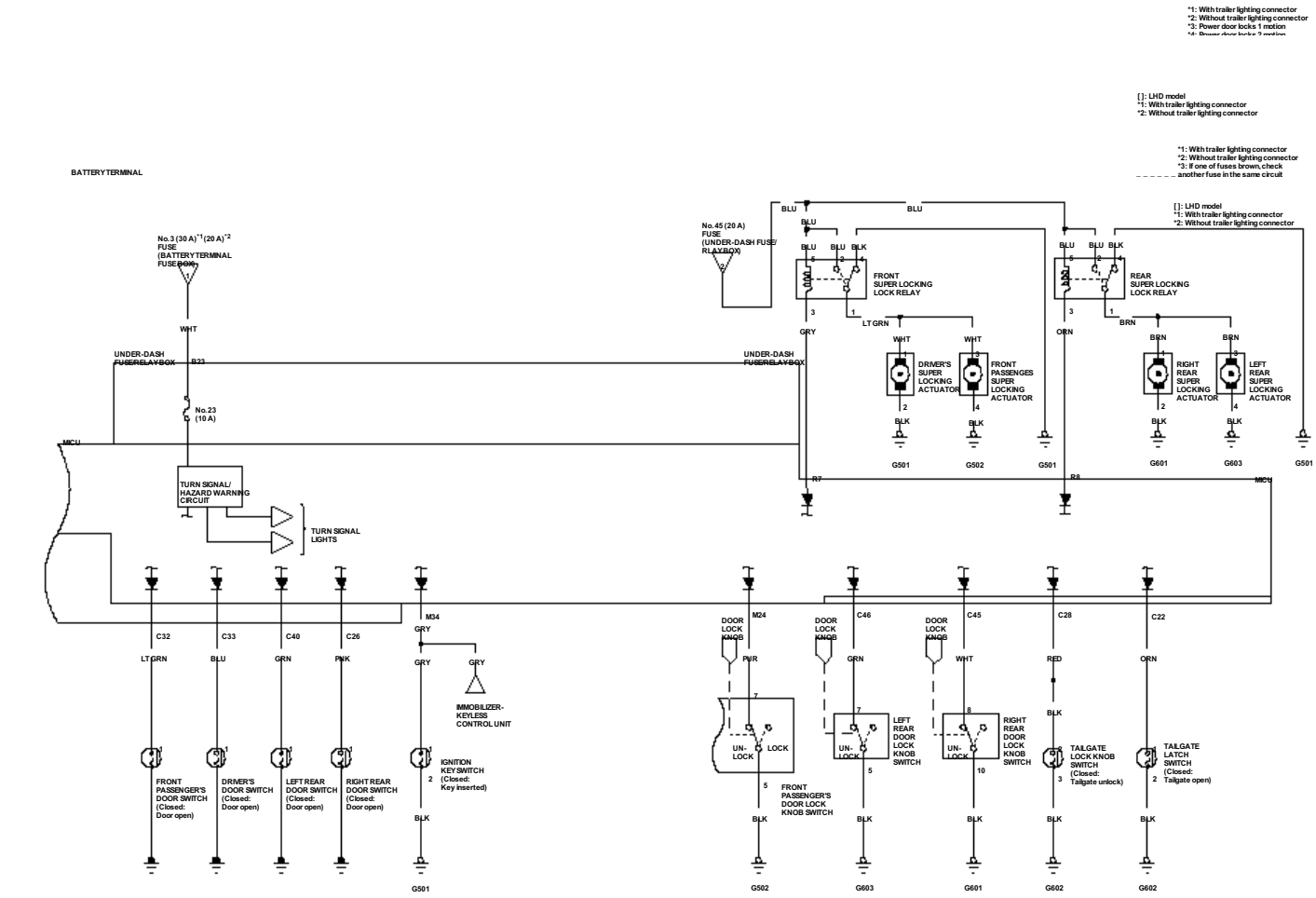
Keyless/Power Door Locks/Security System Component Location Index



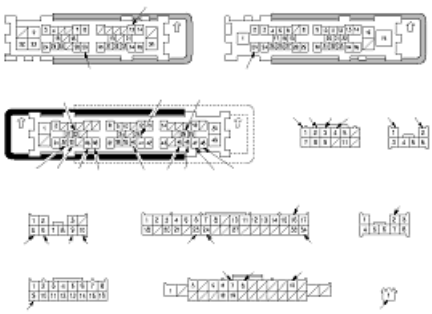
***1: With security**
***2: With super locking**
***3: Power door locks 2motion**
RHD model is shown, LHD model is similar.

Keyless/Power Door Locks/Security System Circuit Diagram

Without super locking



Keyless/Power Door Locks/Security System (MICU) Input Test



NOTE:

- Before testing, make sure the turn signal/hazard warning lights work properly.
- Before testing, check the No. 1 (10 A), No. 20 (15 A), No. 22 (7.5 A), No. 27 (30 A), No. 35 (10 A), No. 36 (15 A), No. 45 (15 A or 20 A), No. 49 (15 A), No. 50 (15 A), and No. 60 (50 A) fuses in the under-dash fuse/relay box.
- There are two pairs of fuses in the same circuit (No. 35 and No. 49 fuses, No. 36 and No. 50 fuses). If one fuse is brown, make sure to check another fuse in the same circuit. If necessary, replace the damaged fuse(s).

1. Turn the ignition switch to LOCK (0).

2. RHD model: Remove the fuse lid panel , and remove the driver's dashboard lower cover.
   LHD model: Remove the fuse lid panel.

3. Disconnect under-dash fuse/relay box connectors A, B, C, E, F, K, M, N, Q, R, and W.
   NOTE:
   - All connector views are shown from wire side of female terminals.
   - The illustration shows the RHD model and the black portion shows the lock lever. The lock lever for LHD model is shown as the dashed lines.

4. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose, or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to Step 5 .

5. With the connectors still disconnected, make these input tests at the connectors.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to Step 6 .

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
K10	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • An open in the wire
Q9	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • An open in the wire
M16	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
N2	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
F1 *2	YEL	Connect the battery positive terminal to F1 (F2) terminal, and F2 (F1) terminal to body ground	Check actuator operation: The driver's door lock actuator should unlock (or lock).	• Faulty driver's door lock actuator • An open in the wire
F2 *2	PNK			
F2 *3	PNK	• Reconnect connector K to the under-dash fuse/relay box • Connect F2 terminal to body ground • Connect R13 terminal to body ground momentarily	Check actuator operation: The driver's door lock actuator should unlock.	• Faulty driver's door lock actuator • Faulty driver's door unlock relay • Poor ground (G501) • An open in the wire
R13 *3	BRN			
K5	LT BLU	Connect the battery positive terminal to K5 (K6) terminal, and K6 (K5) terminal to body ground	Check actuator operation: The front passenger's door lock actuator should lock (or unlock).	• Faulty front passenger's door lock actuator • An open in the wire
K6	YEL			
C35	PNK	Connect the battery positive terminal to C35 (C36) terminal, and C36 (C35) terminal to body ground	Check actuator operation: The right [left] rear door lock actuator and the fuel lid lock actuator should lock (or unlock).	• Faulty right [left] rear door lock actuator • Faulty fuel lid lock actuator • An open in the wire
C36	YEL			

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
C35 *3	PNK	• Reconnect connector K to the under-dash fuse/relay box • Connect C35 terminal to body ground • Connect R13 terminal to body ground momentarily	Check actuator operation: The fuel lid lock actuator should unlock.	• Faulty fuel lid lock actuator • Faulty driver's door unlock relay • Poor ground (G501) • An open in the wire
R13 *3	BRN			
C47	LT BLU	Connect the battery positive terminal to C47 (C48) terminal, and C48 (C47) terminal to body ground	Check actuator operation: The left [right] rear door lock actuator and the tailgate lock actuator should lock (or unlock).	• Faulty left [right] rear door lock actuator • Faulty tailgate lock actuator • An open in the wire
C48	YEL			
A13 *1	GRN	Under all conditions	Connect A13 terminal and B23 terminal with a jumper wire: The horn should sound	• Faulty security horn • An open in the wire
M23 *1	GRN	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502, G503) • Faulty audio unit • An open in the wire
B23	WHT	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 3 (30 A *4 /20 A *5) fuse in the battery terminal fuse box • An open in the wire
W1	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 1 (100 A) fuse in the battery terminal fuse box • Faulty ignition switch • An open in the wire
Q3	LT GRN	Under all conditions	Check for continuity between the Q3 terminal and the gauge control module No. 18 terminal: There should be continuity.	An open in the wire
			Check for continuity to ground: There should be no continuity.	A short to ground in the wire

[ ]: LHD model

*1:With security
*2:Power door locks 1 motion
*3:Power door locks 2 motion
*4:With trailer lighting connector
*5:Without trailer lighting connector

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
C33	BLU	Driver's door open	Check for continuity to ground: There should be continuity.	• Faulty driver's door switch • An open in the wire
		Driver's door closed	Check for continuity to ground: There should be no continuity.	• Faulty driver's door switch • A short to ground in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
C32	LT GRN	Front passenger's door open	Check for continuity to ground: There should be continuity.	• Faulty front passenger's door switch • An open in the wire
		Front passenger's door closed	Check for continuity to ground: There should be no continuity.	• Faulty front passenger's door switch • A short to ground in the wire
C26	PNK	Right [Left] rear door open	Check for continuity to ground: There should be continuity.	• Faulty right [left] rear door switch • An open in the wire
		Right [Left] rear door closed	Check for continuity to ground: There should be no continuity.	• Faulty right [left] rear door switch • A short to ground in the wire
C40	GRN	Left [Right] rear door open	Check for continuity to ground: There should be continuity.	• Faulty left [right] rear door switch • An open in the wire
		Left [Right] rear door closed	Check for continuity to ground: There should be no continuity.	• Faulty left [right] rear door switch • A short to ground in the wire
C22	ORN	Tailgate open	Check for continuity to ground: There should be continuity.	• Faulty tailgate latch switch • Poor ground (G602) [G604] • An open in the wire
		Tailgate closed	Check for continuity to ground: There should be no continuity.	• Faulty tailgate latch switch • A short to ground in the wire
C28 *2	RED	Tailgate unlocked	Check for continuity to ground: There should be continuity.	• Poor ground (G602) • Faulty tailgate lock knob switch • An open in the wire
		Tailgate locked	Check for continuity to ground: There should be no continuity.	• Faulty tailgate lock knob switch • A short to ground in the wire
A29 *1	PUR	Hood open	Check for continuity to ground: There should be continuity.	• Faulty hood switch • Poor ground (G301) • An open in the wire
		Hood closed	Check for continuity to ground: There should be no continuity.	• Faulty hood switch • A short to ground in the wire

*1:With security
*2:With super locking

[ ]: LHD model

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
E9	RED	Driver's door lock knob switch in LOCK	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • Faulty driver's door lock knob switch • An open in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
		Driver's door lock knob switch in UNLOCK	Check for continuity to ground: There should be no continuity.	• Faulty driver's door switch lock knob switch • A short to ground in the wire
E2	BRN	Driver's door lock knob switch in UNLOCK	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • Faulty driver's door lock knob switch • An open in the wire
		Driver's door lock knob switch in LOCK	Check for continuity to ground: There should be no continuity.	• Faulty driver's door lock knob switch • A short to ground in the wire
M24 *	PUR	Front passenger's door lock knob switch in UNLOCK	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • Faulty front passenger's door lock knob switch • An open in the wire
		Front passenger's door lock knob switch in LOCK	Check for continuity to ground: There should be no continuity.	• Faulty front passenger's door lock knob switch • A short to ground in the wire
C45 *	WHT	Right rear door lock knob switch in UNLOCK	Check for continuity to ground: There should be continuity.	• Poor ground (G601) • Faulty right rear door lock knob switch • An open in the wire
		Right rear door lock knob switch in LOCK	Check for continuity to ground: There should be no continuity.	• Faulty right rear door lock knob switch • A short to ground in the wire
C46 *	GRN	Left rear door lock knob switch in UNLOCK	Check for continuity to ground: There should be continuity.	• Poor ground (G603) • Faulty left rear door lock knob switch • An open in the wire
		Left rear door lock knob switch in LOCK	Check for continuity to ground: There should be no continuity.	• Faulty left rear door lock knob switch • A short to ground in the wire

[ ]: LHD model

*: With security or super locking

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
M34	GRY	Ignition key inserted into the ignition switch	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • Faulty ignition key switch • An open in the wire
		Ignition switch LOCK (0), and the ignition key removed from the ignition switch	Check for continuity to ground: There should be no continuity.	• Faulty ignition key switch • A short to ground in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
E3 *1	PUR	Driver's door key cylinder switch in LOCK	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • Faulty driver's door key cylinder switch • An open in the wire
		Driver's door key cylinder switch in neutral or UNLOCK	Check for continuity to ground: There should be no continuity.	• Faulty driver's door key cylinder switch • A short to ground in the wire
E4 *1	GRN	Driver's door key cylinder switch in UNLOCK	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • Faulty driver's door key cylinder switch • An open in the wire
		Driver's door key cylinder switch in neutral or LOCK	Check for continuity to ground: There should be no continuity.	• Faulty driver's door key cylinder switch • A short to ground in the wire
E8 *2	LT BLU	Driver's door lock switch in LOCK	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • Faulty door lock switch • An open in the wire
		Driver's door lock switch in neutral or UNLOCK	Check for continuity to ground: There should be no continuity.	• Faulty door lock switch • A short to ground in the wire
E1 *2	GRY	Driver's door lock switch in UNLOCK	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • Faulty door lock switch • An open in the wire
		Driver's door lock switch in neutral or LOCK	Check for continuity to ground: There should be no continuity.	• Faulty door lock switch • A short to ground in the wire

*1:With security or super locking
*2:With driver's door lock switch

6. Reconnect the connectors to the under-dash fuse/relay box, and make these input tests at the connectors.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the MICU must be faulty; replace the under-dash fuse/relay box.

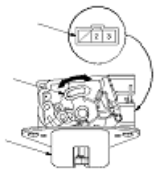
Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
R7 *2	GRY	Connect R7 terminal to ground momentarily	Check actuator operation: Driver's and front passenger's super locking actuators should lock.	• Faulty driver's super locking actuator • Faulty passenger's super locking actuator • Faulty front supper locking relay • Poor ground (G501, G502) • An open in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
R8 *2	ORN	Connect R8 terminal to ground momentarily	Check actuator operation: Left rear and right rear super locking actuators should lock.	• Faulty rear super locking relay • Faulty left rear super locking actuator • Faulty right rear super locking actuator • Poor ground (G601, G603) • An open in the wire

*1:Power door locks 2 motion
*2:With super locking

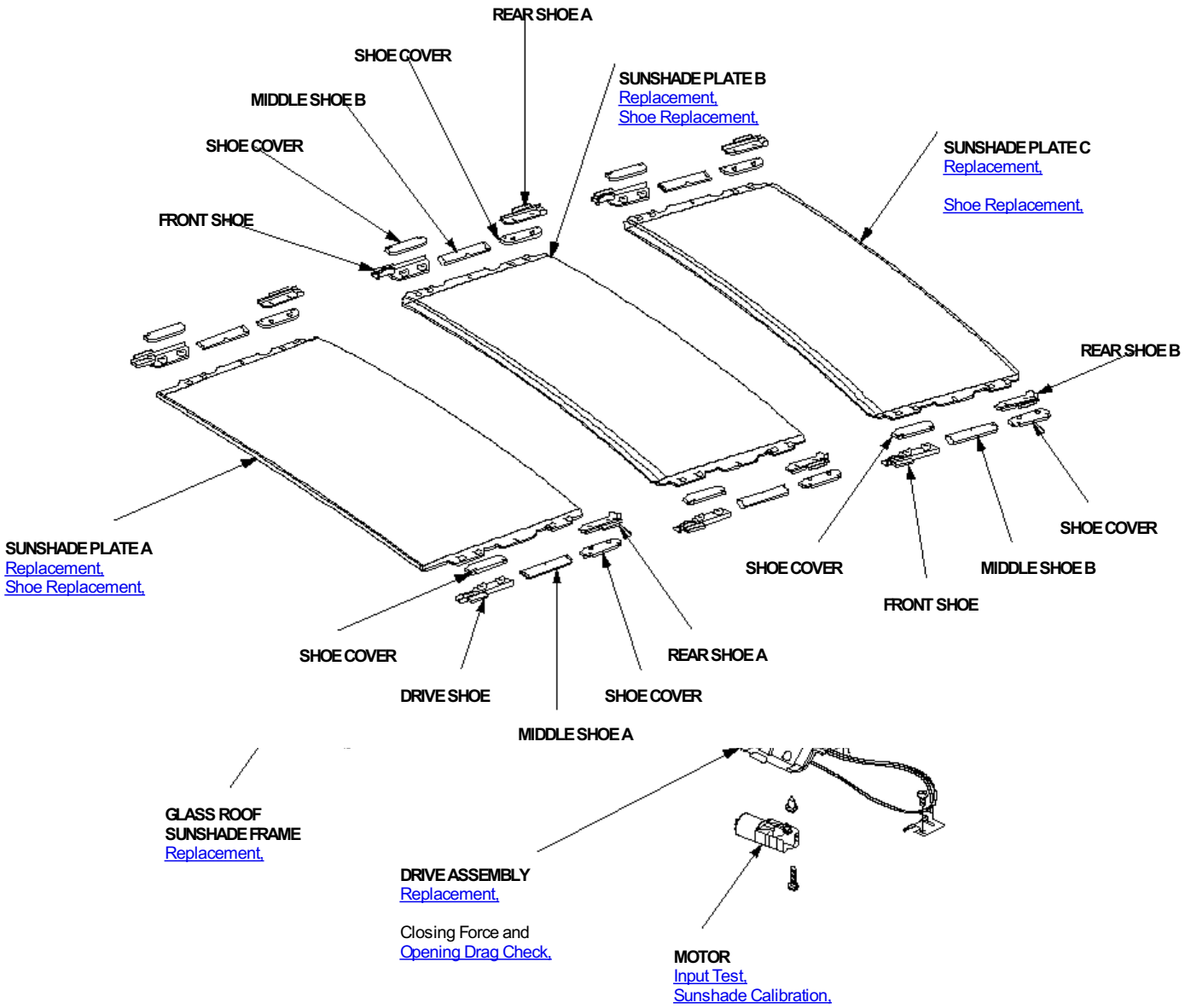
Tailgate Lock Knob Switch Test

With Super Locking

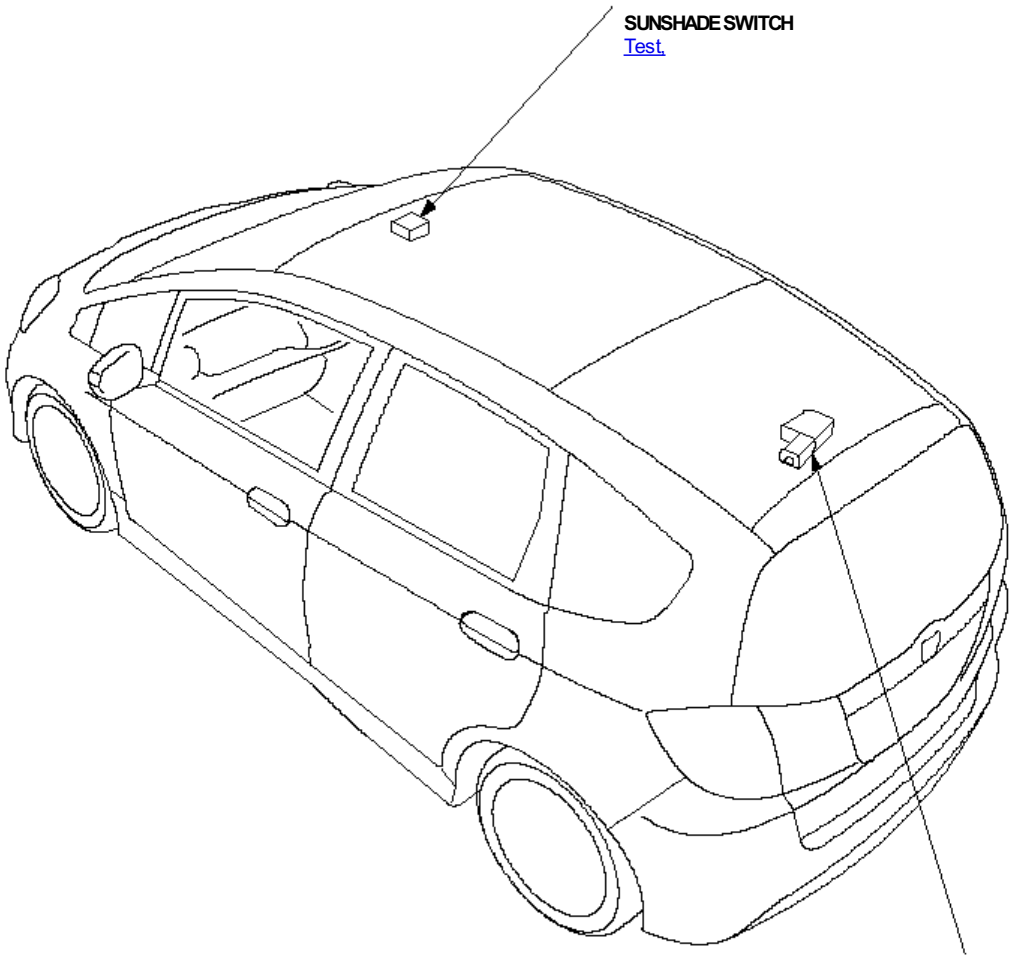


1. Remove the tailgate latch (A).
2. Check for continuity between the tailgate lock knob switch 3P connector (B) terminals.
   - There should be continuity between the No. 2 and No. 3 terminals when the lock knob (C) is turned counterclockwise (UNLOCK position).
   - There should be no continuity between the No. 2 and No. 3 terminals when the lock knob (C) is turned clockwise (LOCK position)
3. If the continuity is not as specified, replace the tailgate latch.

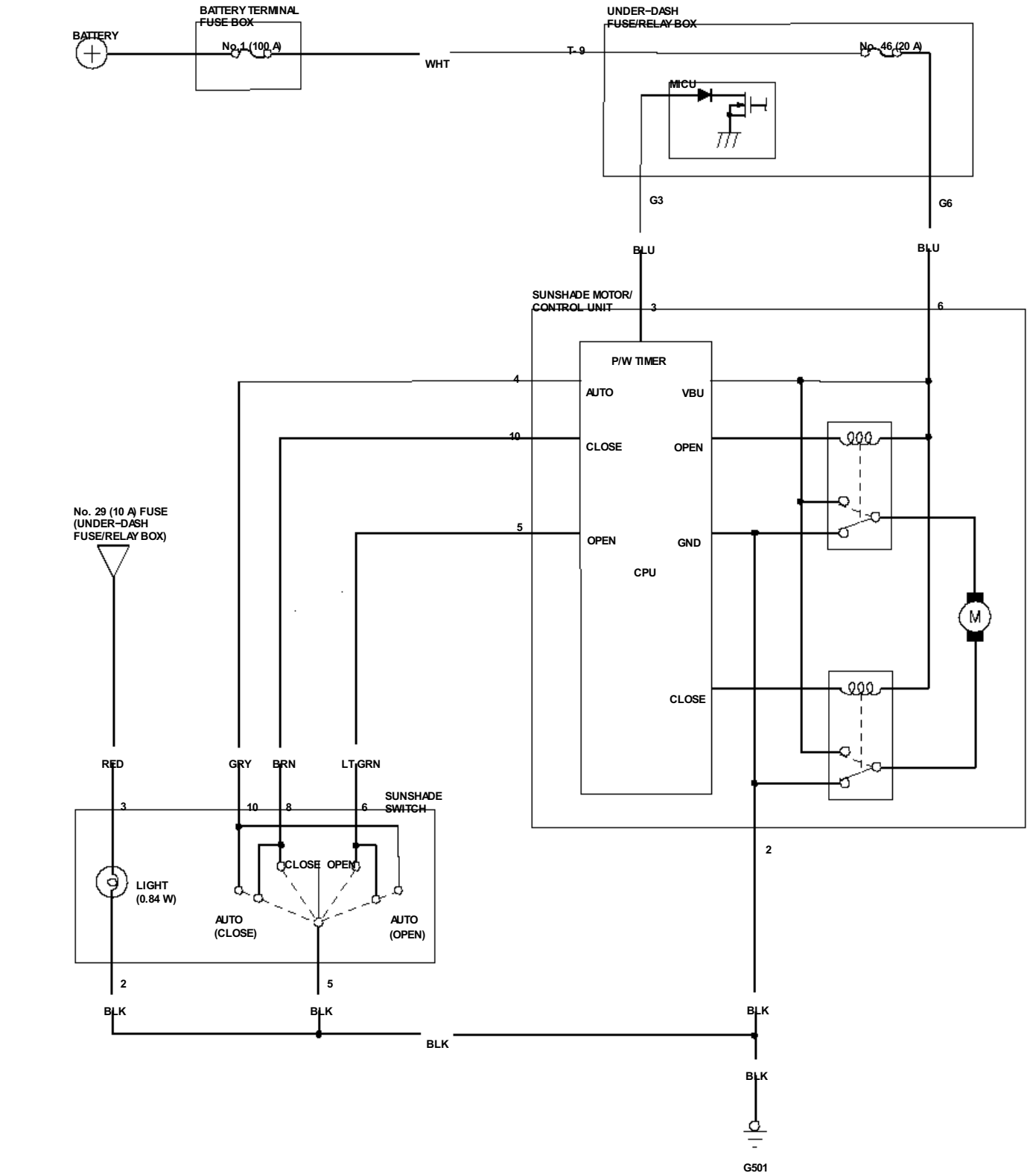
Glass Roof Sunshade Mechanical Component Location Index



Glass Roof Sunshade Electrical Component Location Index



Glass Roof Sunshade Circuit Diagram



Glass Roof Sunshade Opening Drag Check

1. Remove the sunshade motor.
2. Operate the sunshade switch to open the sunshade until a spring scale (B) can be set to the sunshade plate A (about 100 mm (0.39 in.)).
3. With a shop towel (C) on the leading edge of the sunshade plate A, attach a spring scale as shown.
4. Pull the spring scale rearward and read the load when the sunshade starts to move.
   Moving load:
   Standard value 53.9 N·m (5.5 kgf·m) or less
5. When the moving load is more than the standard value, check the sunshade plate A, B, and C for poor connection or for drag with the headliner or the roof seal. If no fault, check the motor. If necessary, remove the sunshade frame and check the sliding part for damage.
6. Install the sunshade motor.
7. Reset the sunshade control unit after reinstalling the sunshade motor.

Glass Roof Sunshade Calibration

NOTE: The sunshade calibration must be performed when any of the following events have occurred.

- The sunshade motor is replaced with a new one.
- Any component related to the sunshade replaced.
  - Sunshade bracket
  - Sunshade cables, etc.

The sunshade will reverse while it is closing

1. Turn the ignition switch to ON (II).
2. Press and release the sunshade AUTO CLOSE switch.
   NOTE: The sunshade will reverse and stop while closing.
3. Press and hold the sunshade CLOSE switch for more than 13 seconds.
   NOTE: The sunshade moves to close position by the jog operation *, then stop in fully closed position.
   *: moves 40 mm, stops 0.4 seconds, then repeats
4. Release the CLOSE switch. Within 5 seconds, press and hold the CLOSE switch again.
   NOTE: The sunshade moves to fully open position, then it moves to fully closed position.
5. Calibration is complete.

The sunshade will stop while it is operated

1. Turn the ignition switch to ON (II).
2. Press and release the sunshade AUTO CLOSE switch.
   NOTE: The sunshade will stop while it is operated.
3. Press and hold the sunshade CLOSE switch for more than 13 seconds.
   NOTE: The sunshade moves to close position by the jog operation *, then stop in fully closed position.
   *: moves 40 mm, stops 0.4 seconds, then repeats
4. Release the CLOSE switch. Within 5 seconds, press and hold the CLOSE switch again.
   NOTE: The sunshade moves to fully open position, then it moves to fully closed position.
5. Calibration is complete.

Motor noise from sunshade

Diagnostic procedure

1. Check for a loose motor.
2. Check for a worn gear or bearing.
3. Check for a deformed cable assembly.
4. Check for dirt or debris.

Sunshade does not move, but motor turns

Diagnostic procedure

1. Check for foreign matter stuck between the guide rail and the slider.
2. Make sure the cable assembly is attached properly.
3. Check for a loose inner cable.
4. Check for a defective gear or inner cable.
5. Check for a connect shoe.

Sunshade does not move and motor does not turn (sunshade can be moved with 4 mm hexagonal wrench)

Diagnostic procedure

1. Check for a run down battery.
2. Check for a blown fuse.
3. Check for a faulty sunshade switch.
4. Check for a defective motor control unit.

Sunshade does not stop at proper flush closed position

Diagnostic procedure

1. Reset the sunshade control unit.

Sunshade moves in a jerking motion (moves 40 mm (1.57 in.), stops for 0.4 seconds, and repeats)

Diagnostic procedure

1. Reset the sunshade control unit.

During auto close operation, sunshade reverses when no object is trapped

Diagnostic procedure

1. Check for sunshade circuit.
2. Reset the sunshade control unit.

Sunshade moves, but there is no AUTO function

Diagnostic procedure

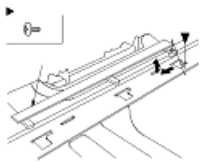
1. Reset the sunshade control unit.

Glass Roof Sunshade Symptom Troubleshooting Index

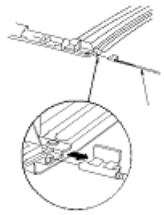
Symptom	Diagnostic procedure
Motor noise from sunshade	1Check for a loose motor. 2Check for a worn gear or bearing. 3Check for a deformed cable assembly. 4Check for dirt or debris.
Sunshade does not move, but motor turns	1Check for foreign matter stuck between the guide rail and the slider. 2Make sure the cable assembly is attached properly. 3Check for a loose inner cable. 4Check for a defective gear or inner cable. 5Check for a connect shoe.
Sunshade does not move and motor does not turn (sunshade can be moved with 4 mm hexagonal wrench)	1Check for a run down battery. 2Check for a blown fuse. 3Check for a faulty sunshade switch. 4Check for a defective motor control unit.
Sunshade does not stop at proper flush closed position	Reset the sunshade control unit.
Sunshade moves in a jerking motion (moves 40 mm (1.57 in.), stops for 0.4 seconds, and repeats)	Reset the sunshade control unit.
During auto close operation, sunshade reverses when no object is trapped	1Check for sunshade circuit. 2Reset the sunshade control unit.
Sunshade moves, but there is no AUTO function	Reset the sunshade control unit.

Glass Roof Sunshade Cable Replacement

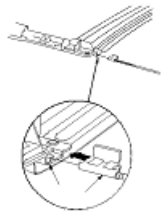
1. Remove the drive assembly.
2. Remove the screw, then remove the slide plate (A) from the rail on both sides.



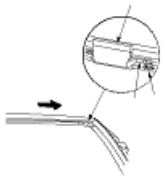
3. Pull out the cable assembly (A) on both side.
4. Install the slide plate in the rail.



5. Insert the slider (A) on the end of the cable in the rail (B) of the frame.

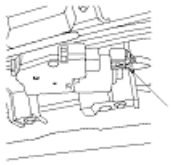


6. Pull the cable forward, and fit the end (A) of the slider (B) to the stopper (screw) (C) in the front side of the rail.
7. Install the drive assembly.
8. Reset the sunshade control unit.



Glass Roof Sunshade Frame Replacement

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.

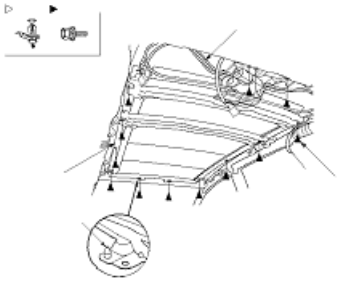


NOTE:

- Put on the gloves to protect your hands.
- Take care not to scratch the seat, dashboard, body and other related parts.

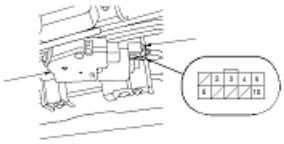
1. Close the sunshade fully.
2. Remove the headliner.
3. Disconnect the motor connector (A).

4. With an assistant holding the frame, remove the clip and the bolts, starting at the rear, and remove the glass roof sunshade frame (A). Do not hold the tube (B) of the drive assembly during removal.



5. Install the frame in the reverse order of removal, and note these items:
   - When installing the frame, first put the positioning pin (C) in the hole of the body, then attach the clip.
   - Make sure the connectors are plugged in properly.
   - After all pares are installed, including the headliner, reset the sunshade control unit.

Glass Roof Sunshade Control Unit (Motor) Input Test



If the sunshade does not work in AUTO, or reverse frequently (pinch detection), do the sunshade calibration before proceeding with the input test.

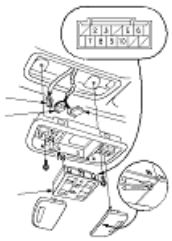
1. Turn the ignition switch to LOCK (0).
2. Remove the headliner.
3. Disconnect the 10P connector (A) from the sunshade control unit (B).
4. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to Step 5 .
5. With the connector still disconnected, make these input tests at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the control unit must be faulty; replace the control unit.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
6	BLU	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 46 (20 A) fuse in the under-dash fuse/relay box • An open in the wire
2	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
3	BLU	Disconnect under-dash fuse/relay box connector G (8P)	Check for continuity between the sunshade control unit 10P connector No. 3 terminal and under-dash fuse/relay box connector G (8P) No. 3 terminal:There should be continuity.	An open in the wire
4	GRY	Sunshade switch in AUTO OPEN or AUTO CLOSE position	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • Faulty sunshade switch • An open in the wire
5	LT GRN	Sunshade switch in OPEN position	Check for continuity to ground: There should be continuity.	
10	BRN	Sunshade switch in CLOSE position	Check for continuity to ground: There should be continuity.	

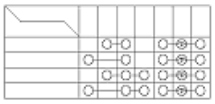
[ ]: RHD type

Glass Roof Sunshade Switch Test/Replacement

1. Remove the front individual map lights.
2. Disconnect the sunshade switch 10P connector (A), map light switch 3P connector (B), and HFT microphone 3P connector (C) (if equipped).
3. Remove the sunshade switch (D).



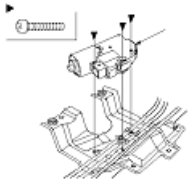
4. Check for continuity between the terminals in each switch position according to the table.
5. If the continuity is not as specified, replace the illumination bulb or the switch.
6. Install the switch and light in the reverse order of removal.



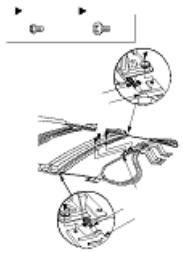
Glass Roof Sunshade Drive Assembly Replacement

NOTE: Take care not to scratch the sunshade plate.

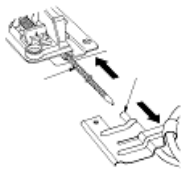
1. Remove the sunshade.
2. Remove the screws, then remove the motor (A).



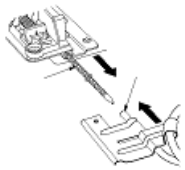
3. Remove the screws (A) of the tube clips (B) and the screws (C) of the motor bracket (D).
4. Pull gradually each side of the tube clip alternately, remove the tube clips from the frame, and pull out the cable (E).



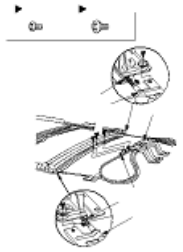
5. Tightly pushing the cable (A) in the frame side, pull the drive assembly side rearward and remove the cable from the tube (B). Do not hold and pull the tube of the drive assembly during removal.



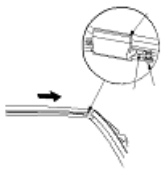
6. Insert the tube (A) of the drive assembly in the end of the cable (B) on each side.



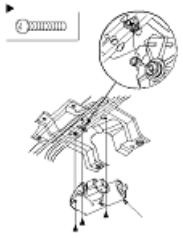
7. Putting the cable in the tube, move the drive assembly (A) to the frame side and insert the tube clip (B) in the rail (C) of the frame.
8. Install the motor bracket (D) of the drive assembly to the frame with the screws (E).
9. Apply the medium strength liquid thread lock to the screws (F), taking care not to protrude it, then install each side of the tube clip to the frame.



10. Pull the cable forward, and fit the end (A) of the slider (B) to the stopper (screw) (C) in the front side of the rail.



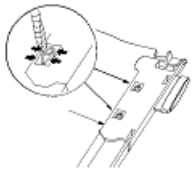
11. Install the motor (A) with the screws.
12. Install the sunshade.
    - Make sure the connector is plugged in properly.
    - Reset the sunshade control unit.



Glass Roof Sunshade Drive Shoe Replacement

NOTE:

- Take care not to scratch the sunshade plate.
- Even if old sunshade is to be reused, the shoes should be replaced with new ones.

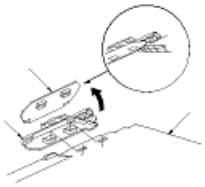


1. Remove the sunshade.

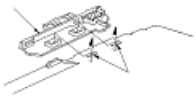
Drive shoe/front shoe/rear shoe

2. Fold the four claws (A) on the shoe cover from the drive shoe (front shoe) (B) side with a flat-tip screwdriver wrapped with protective tape, then push them in. Take care not to deform the square holes in the sunshade plate during this work.

3. Turn over the sunshade plate, and remove the shoe cover (A) and the drive shoe (front shoe) (B) from the sunshade plate (C) using the flat-tip screwdriver wrapped with protective tape. Remove the rear shoe and the shoe cover in the same way.

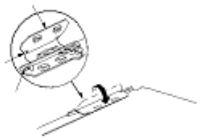


4. Taking care of installation direction, align the new drive shoe (front shoe) or the new rear shoe (A) with the square holes (B) not to deform them, then install.



	Interior side (Interior color surface)		Outside (Black color surface)
Sunshade plate A	Front	Drive shoe	Shoe cover
	Rear	Shoe cover	Rear shoe
Sunshade plate B	Front	Front shoe	Shoe cover
	Rear	Shoe cover	Rear shoe
Sunshade plate C	Front	Front shoe	Shoe cover
	Rear	Shoe cover	Rear shoe B

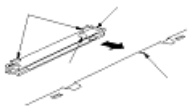
5. Hitch the hook (A) of the new shoe cover (B) to the sunshade plate (C), push the square holes on the shoe and install securely.



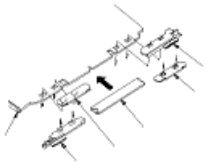
Middle shoe

6. Remove the middle shoe (A), from sunshade plate (B).

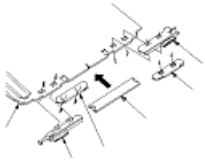
7. Align the inside rid (A) of the new middle shoe (B) with the cutout (C) of the sunshade plate, and install the middle shoe with projections (D) in the interior side (interior color surface).



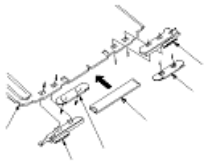
8. Replace the drive shoe (B), middle shoe (C), rear shoe (D), and shoe covers (E) on the sunshade plate A following step 2 through step 7.



9. Replace the front shoe (A), middle shoe (C), rear shoe (D), and shoe covers (E) on the sunshade plate B following step 2 through step 7.



10. Replace the front shoe (A), middle shoe (B), rear shoe (D), and shoe covers (E) on the sunshade plate C following step 2 through step 7.



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11. After installing the drive shoe (front shoe), middle shoe, rear shoe, make sure that the matching face (A) of each shoe is the same level.

12. Install the sunshade.

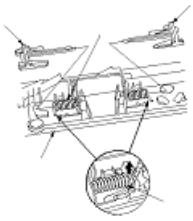
Glass Roof Sunshade Plate Replacement

NOTE:

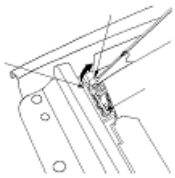
- Put on the gloves to protect your hands.
- Take care not to scratch the seat, dashboard, body and other related parts.

1. Close the sunshade fully.
2. Remove the glass roof sunshade frame.
3. Push the lock (A) and move the spring base (B) in the direction of an arrow.

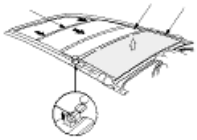
4. Raising the end (A) of the torsion spring (B), move the spring base (C) and remove the spring base and the torsion spring from the stage (D).



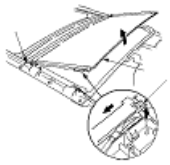
5. Turn to open the clamp (A) on the drive shoe (B) and detach the slider (C) from the drive shoe. Detach from both sides.



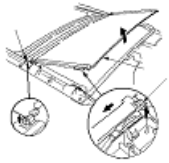
6. Make sure that the sliders are detached from the drive shoes, then slowly push the sunshade plate A rearward.
7. Push the sunshade plate A rearward furthermore until both the sunshade plate B and the sunshade plate C are raised.



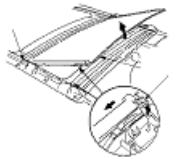
8. Pull the rear portion of the sunshade plate C rearward until the rear shoe B comes off from the stage, then raise and remove the sunshade plate C. Remove the front portion of the sunshade plate along with the rail (A) on the stage.



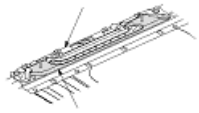
9. Pull the rear portion of the sunshade plate B rearward until the rear shoe A comes off from the stage, then raise and remove the sunshade plate B. Remove the front portion of the sunshade plate along with the rail (A) on the stage.



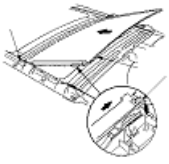
10. Pull the rear portion of the sunshade plate A rearward until the rear shoe B comes off from the stage, then raise and remove the sunshade plate A. Remove the front portion of the sunshade plate along with the rail (C) on the stage.



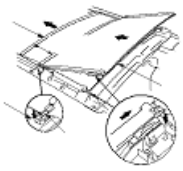
11. Apply multipurpose grease to the sliding surface (shaded area) (B) of the shoe on the stage (A) on both sides.



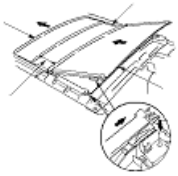
12. Insert the drive shoe of the sunshade plate A along with the rail (C) on the stage, then insert the rear shoe B in the rail.
13. Slowly pull the center of the front portion of the sunshade plate A, taking care not to deform it, and slide it forward by 100 to 300 mm (3.9 to 11.8 in.).



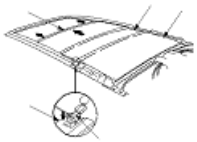
14. Install the sunshade plate B in the same way as Step 12 .
15. Slowly pull the center of the front portion of the sunshade plate A, taking care not to deform it, and make sure that the rear shoe (C) of the sunshade plate A and the front shoe (D) of the sunshade plate B are connected.



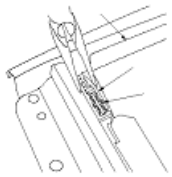
16. Also, slowly pull the center of the front portion of the sunshade plate A, taking care not to deform it, and slide the sunshade plate B forward by 100 to 300 mm (3.9 to 11.8 in.).
17. Install the sunshade plate C in the same way as Step 12 .



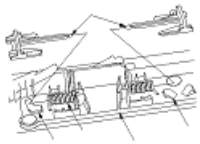
18. Slowly pull the sunshade plate A in the same way as Step 15 , and make sure that the rear shoe (D) of the sunshade plate B and the front shoe (E) of the sunshade plate C are connected. Pull the sunshade plate A to slide sunshade plate assembly until it is closed.



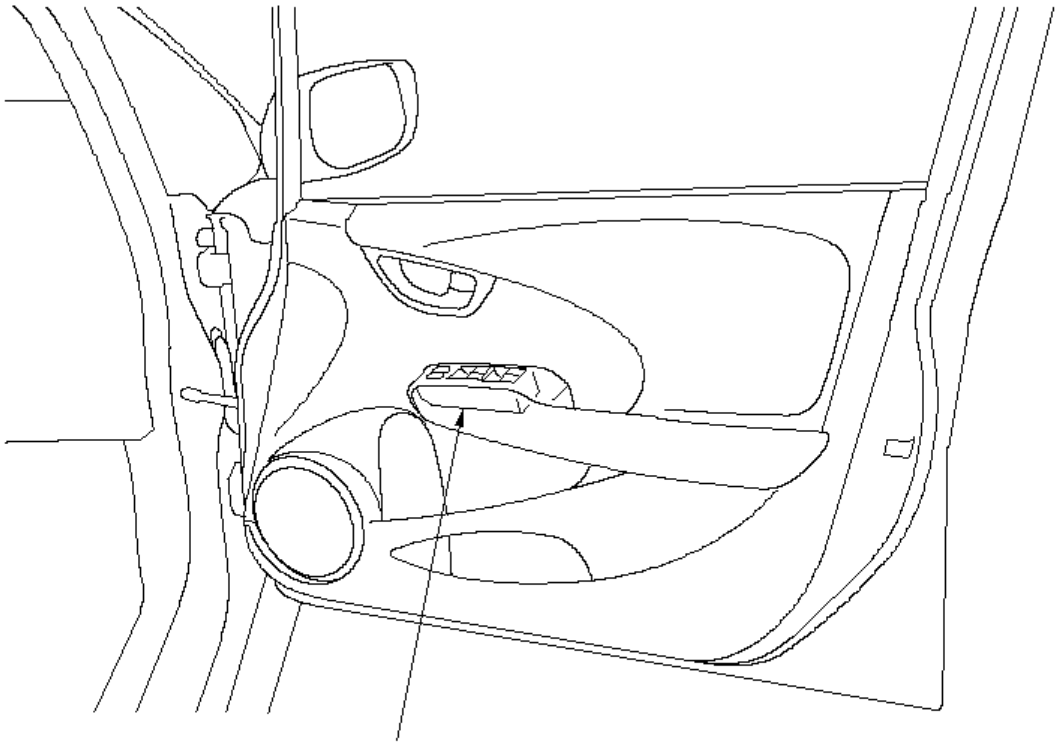
19. Fully pull the sunshade plate A to fit the slider (B) to the clamp (C) on the drive shoe.
20. Securely lock the clamps on the drive shoe on both sides, and connect the drive shoe to the cable.



21. Install the torsion spring (A) on the stage (B).
22. Insert the spring base (C) in the torsion spring on the stage, and securely fix it with the lock (D) on the stage.
23. Install the glass roof sunshade frame.



Relay and Control Unit Locations - Door

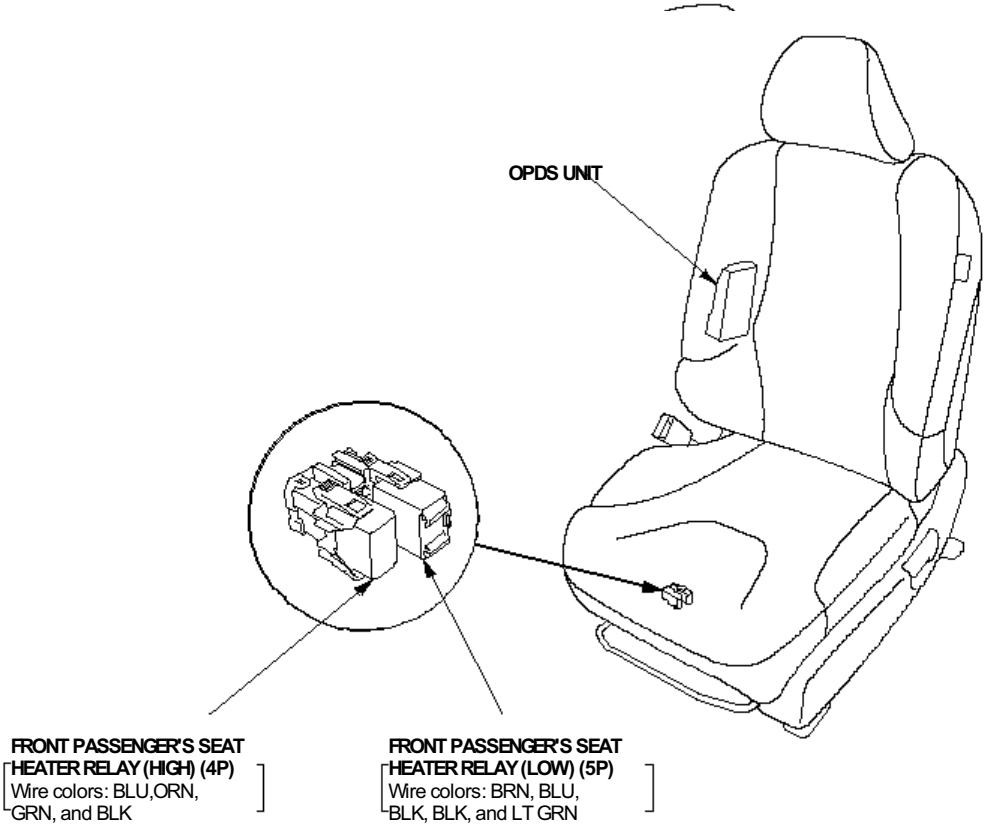


POWER WINDOW MASTER SWITCH
(Has built-in control unit)

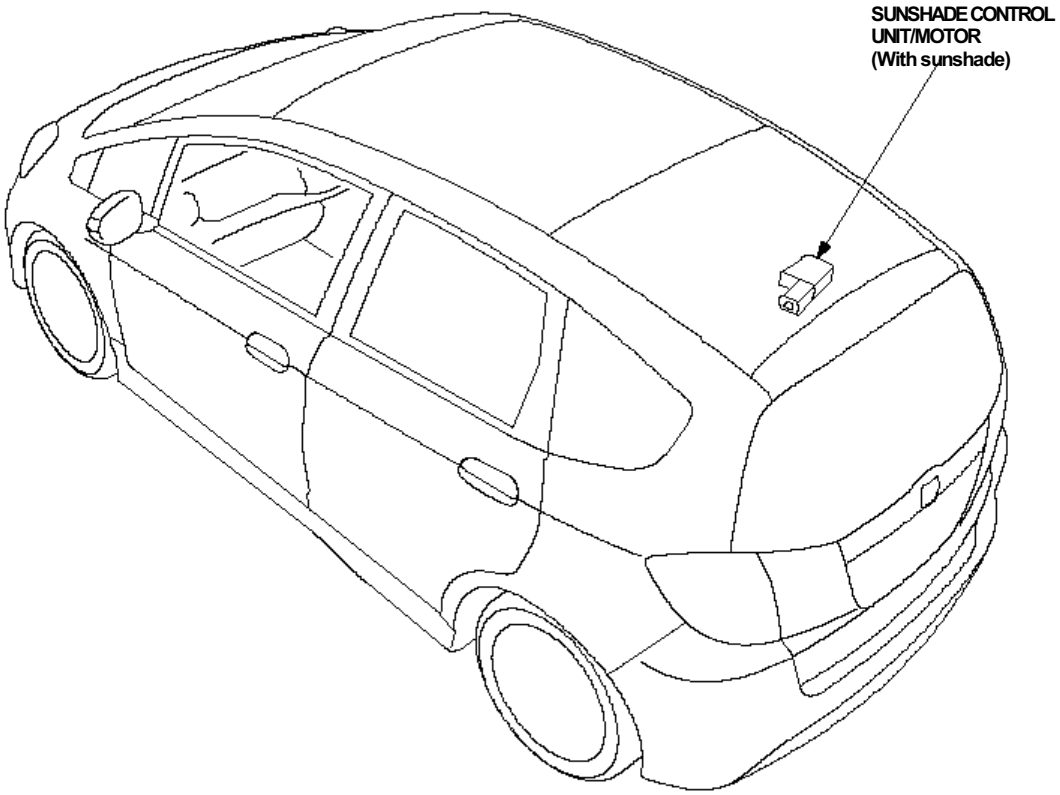
RHD model is shown, LHD model is symmetrical.

Relay and Control Unit Locations - Seat

Driver's seat



Relay and Control Unit Locations - Roof



RHD model is shown, LHD model is similar.

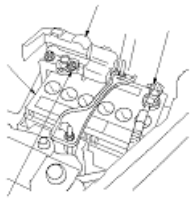
Battery Terminal Disconnection/Reconnection

Disconnection

NOTE: Some systems store data in memory that is lost when the battery is disconnected. Do the following steps before disconnecting the battery. When one month or more passes after disconnecting battery terminal, adjust the data and time on Service Reminder System using HDS.

1. Make sure you have the anti-theft code(s) for the audio and/or the navigation system (if equipped), then write down the audio presets.
   NOTE: For some models, it maybe necessary to write down the audio presets (AM and FM), because the audio unit does not retain the presets after the battery is disconnected.
2. Make sure the ignition switch is in LOCK (0).
3. Disconnect and isolate the negative cable from the battery.
   NOTE: Always disconnect the negative cable from the battery first.
4. Disconnect the positive cable from the battery.

Reconnection



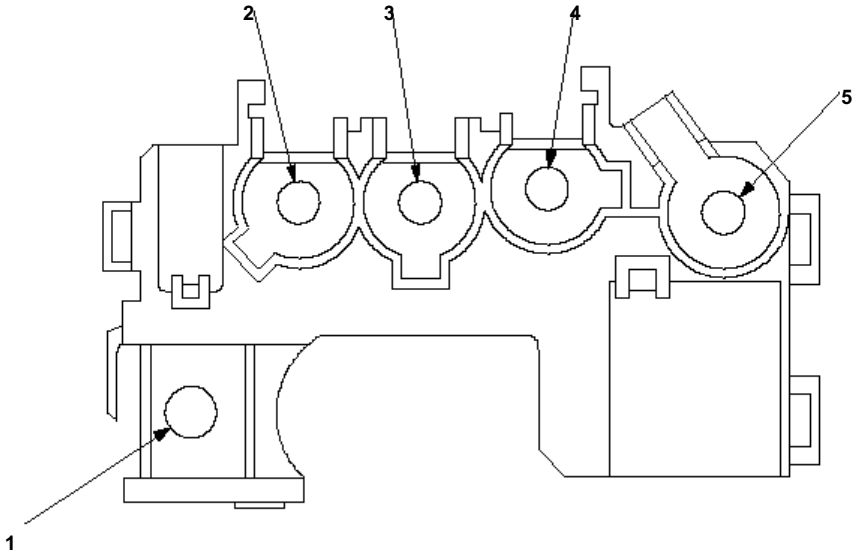
NOTE: Some system store data in memory is lost when the battery is disconnected. Do the following procedures to restore the system back to normal operation.

1. Clean the battery terminals.
2. Test the battery.
3. Reconnect the positive cable (A) to the battery (B) first, then reconnect the negative cable (C) to the battery.
   NOTE: Always connect the positive cable to the battery first.
4. Apply multipurpose grease to the terminals to prevent corrosion.
5. Install the terminal cover (D).
6. Enter the anti-theft code(s) for the audio system and/or the navigation system (if equipped).
7. Enter the audio presets (if applicable).
8. Set the clock (for vehicles without navigation).

Battery Terminal Fuse Box Connector Locations

Battery Terminal Fuse Box

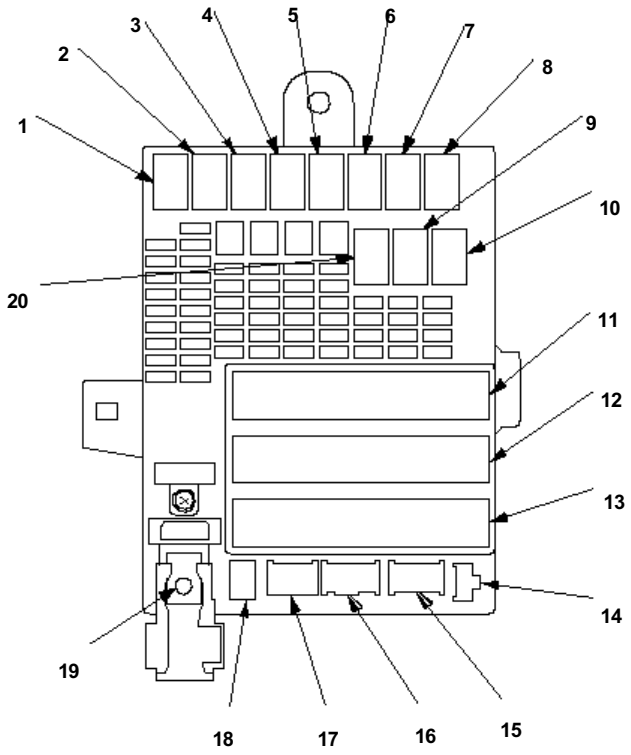
Socket	Ref	Terminal	Connects to
T-1	1	———	Battery terminal, Starter
T-2	2	———	Engine wire harness
T-3	3	———	Left engine compartment wire harness
T-4	4	———	Left engine compartment wire harness
T-5	5	———	Left engine compartment wire harness



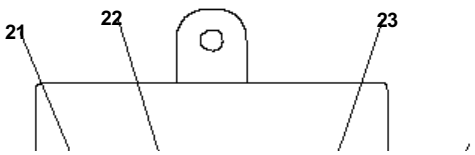
Under-dash Fuse/Relay Box Connector Locations

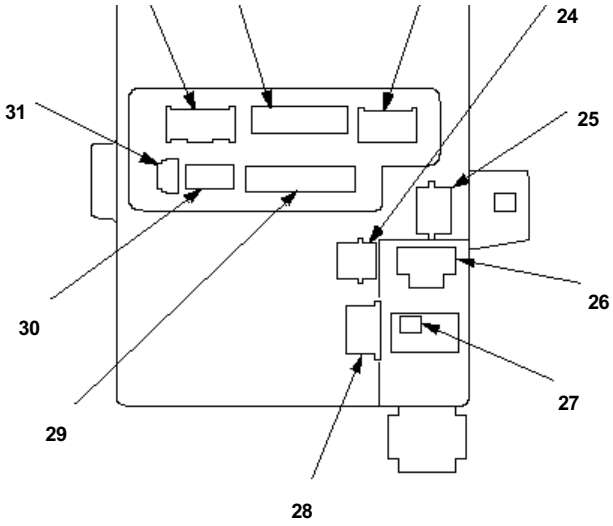
Under-dash Fuse/Relay Box

Socket	Ref	Terminal	Connects to
A	11	36	Right engine compartment wire harness
A/F sensor relay	3	4	
B	12	36	Left engine compartment wire harness
Blower motor relay	2	4	
C	13	49	Floor wire harness
E	18	12	Driver's door wire harness
Electronic throttle control system (ETCS) control relay	7	4	
F	17	6	Driver's door wire harness
G	16	8	Roof wire harness
H (optional connector)	15	8	Not used
Ignition coil relay	5	4	
J (MICU service check connector)	14	3	
K	21	10	Dashboard wire harness
Lighting relay 1	4	4	
Lighting relay 2	20	4	
M	22	34	Dashboard wire harness
N	23	8	Dashboard wire harness
P (SRS)	31	4	Dashboard wire harness
PGM-FI main relay 1 (FI MAIN)	6	4	
PGM-FI main relay 2 (FUEL PUMP)	10	4	
Power window relay (P/W)	1	4	
Q	30	16	Dashboard wire harness
R	29	28	Dashboard wire harness
Rear window defogger relay	8	4	
S	25	3	Dashboard wire harness
Starter cut relay (ST CUT)	9	4	
T	26	2	Dashboard wire harness
W	24	1	Dashboard wire harness
X	28	3	Dashboard wire harness
Y (Electrical load detector)	27	3	Dashboard wire harness
T-9	19	———	Left engine compartment wire harness



(view of front side)



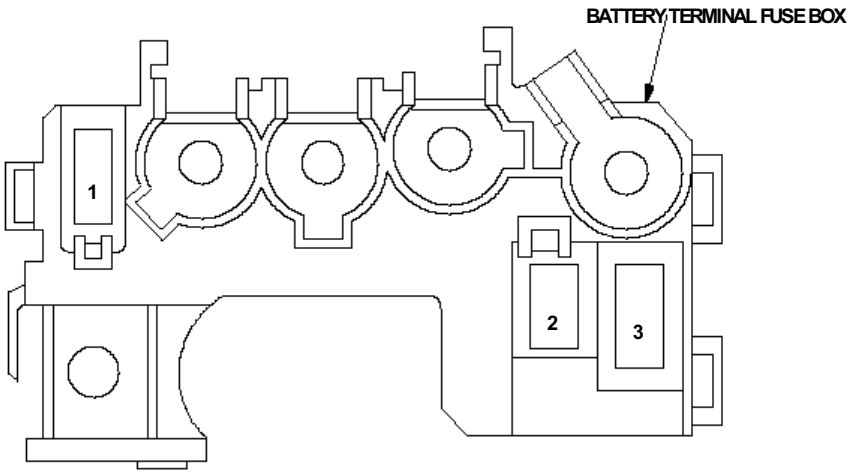


(view of back side)

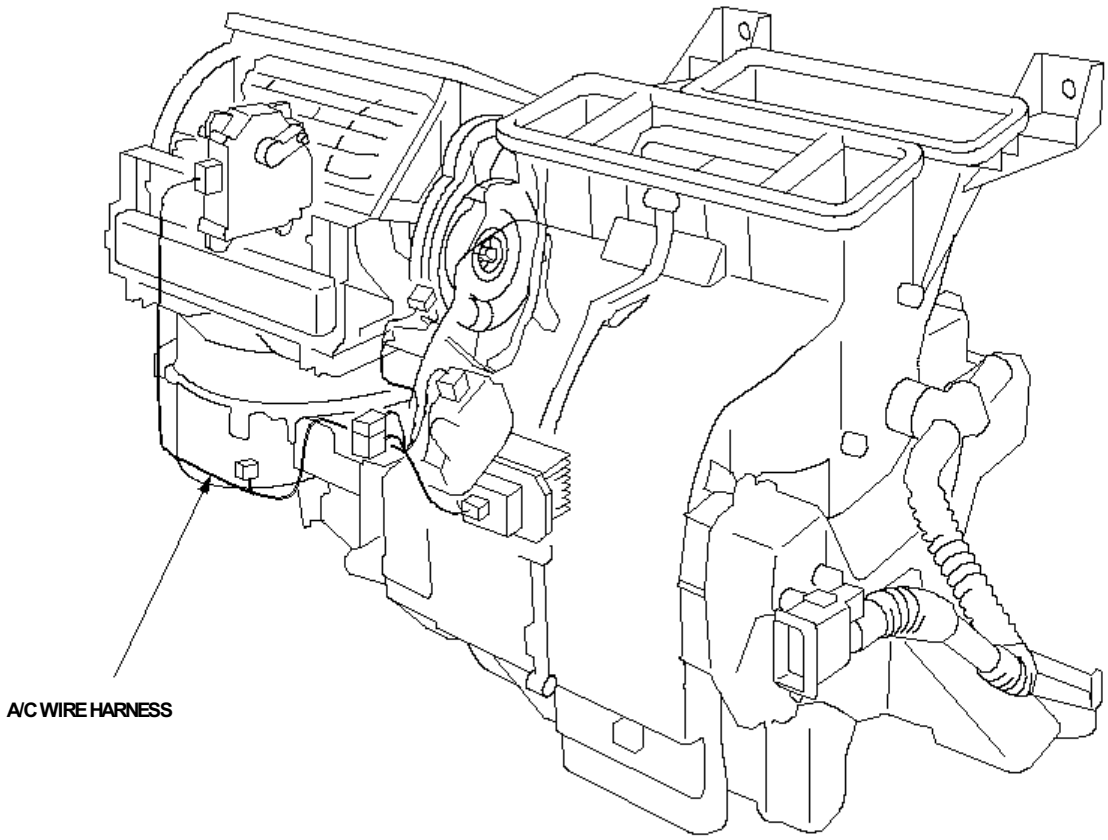
Battery Terminal Fuse Box

Fuse Number	Amps	Component(s) or Circuit(s) Protected
1	100 A	Alternator, Under-dash fuse/relay box fuses (No. 1, No. 2, No. 3, No. 9, No. 17 (via power window relay), No. 18 (via power window relay), No. 19 (via power window relay), No. 26, No. 27, No. 28, No. 29, No. 30, No. 32 (via lighting relay 1), No. 33, No. 34 (via lighting relay 1) *1 , No. 37, No. 39, No. 40, No. 41, No. 43, No. 45, No. 46, No. 47, No. 48 (via lighting relay 2), No. 51 (via lighting relay 2) *1 , No. 52, No. 53, No. 57, No. 58, No. 59, and No. 60), Lighting relay 1, Lighting relay 2, Power window relay
2	60 A	EPS control unit
3	30 A *2 20 A *3	No. 23, and No. 24 fuses in the under-dash fuse/relay box

*1: Without HID
*2: With trailer lighting connector
*3: Without trailer lighting connector

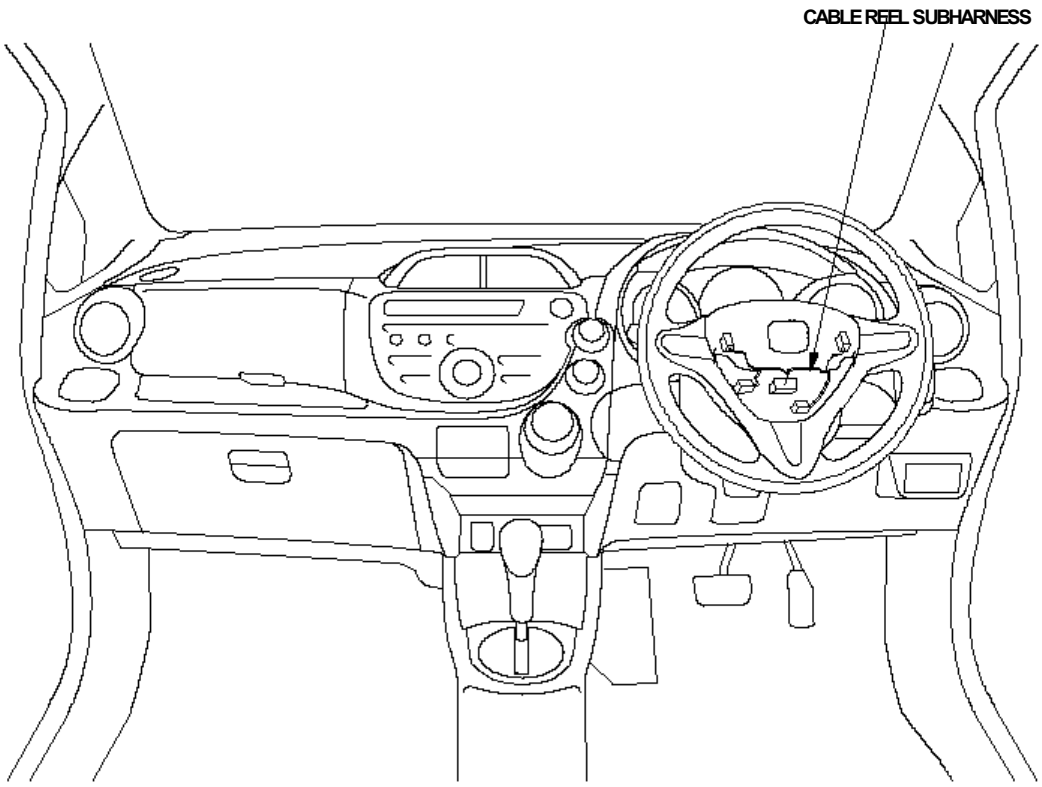


A/C Wire Harness Locations



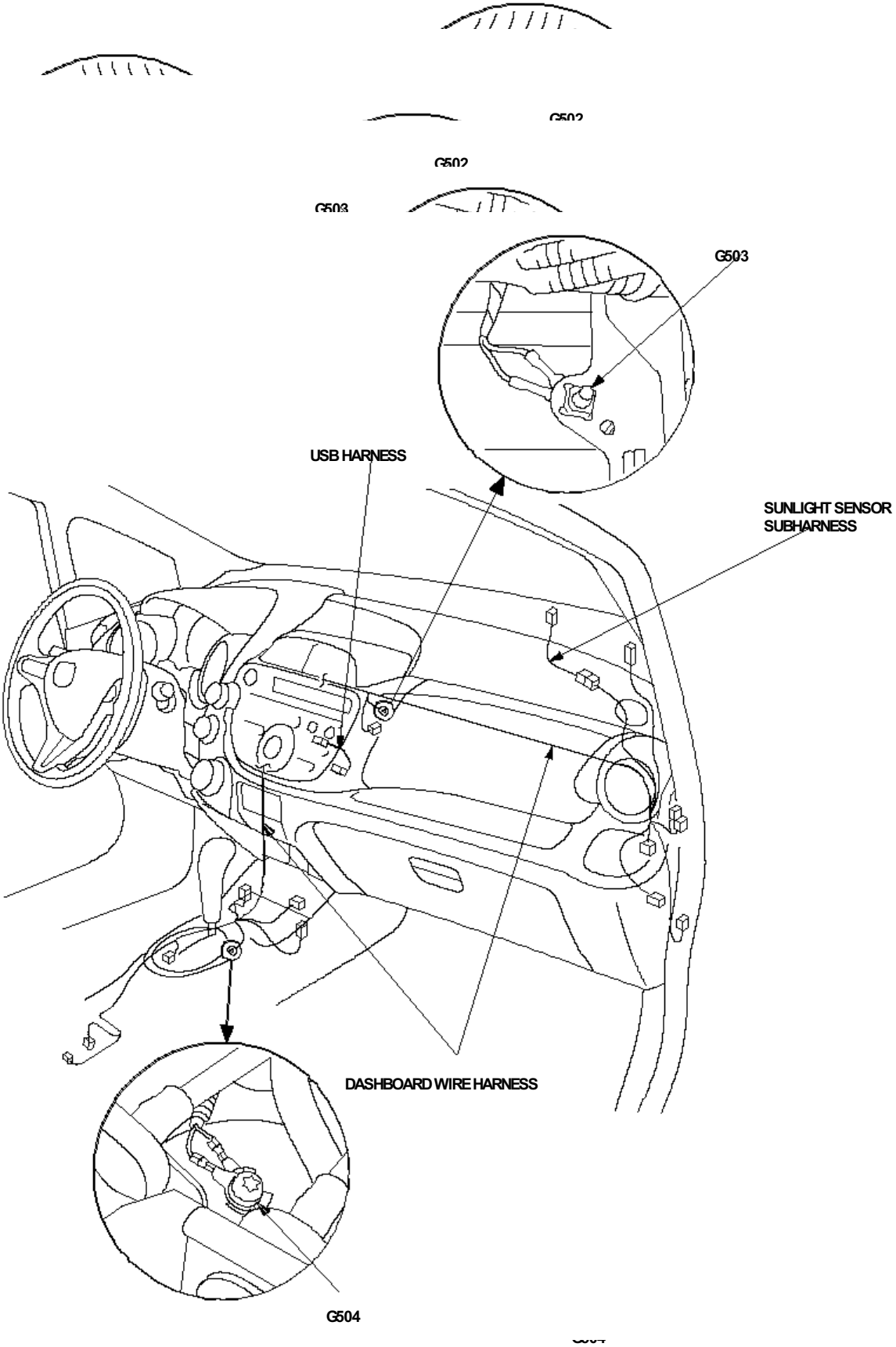
RHD model is shown, LHD model is similar.

Cable Reel Subharness Locations



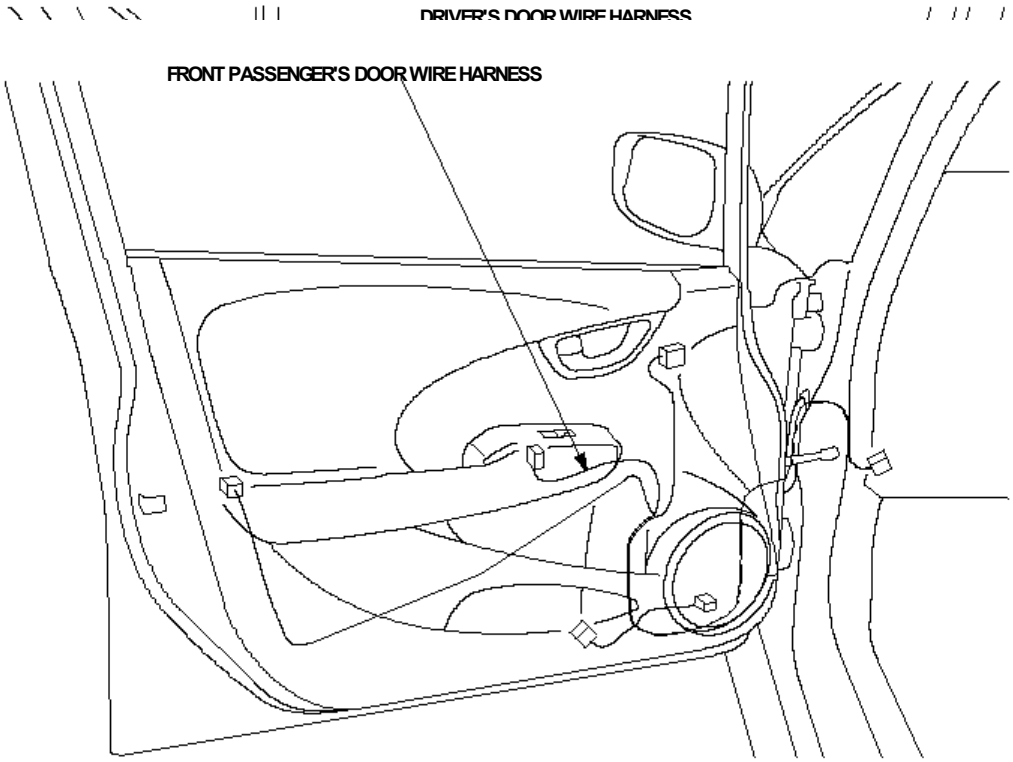
RHD model is shown, LHD model is similar.

Dashboard Wire Harness, Blower Resistor Subharness, USB Harness, and Sunlight Sensor Subharness Locations



Driver's and Front Passenger's Door Wire Harnesses Locations

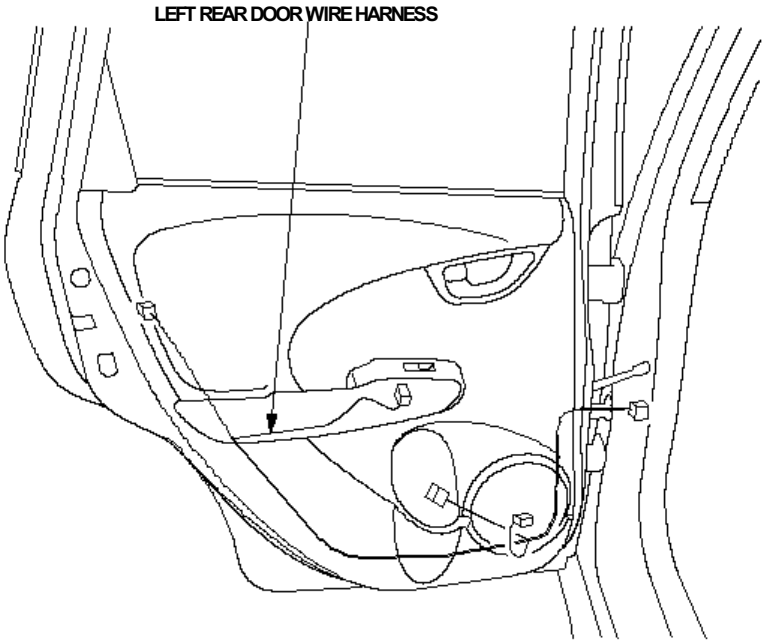
Driver's Door



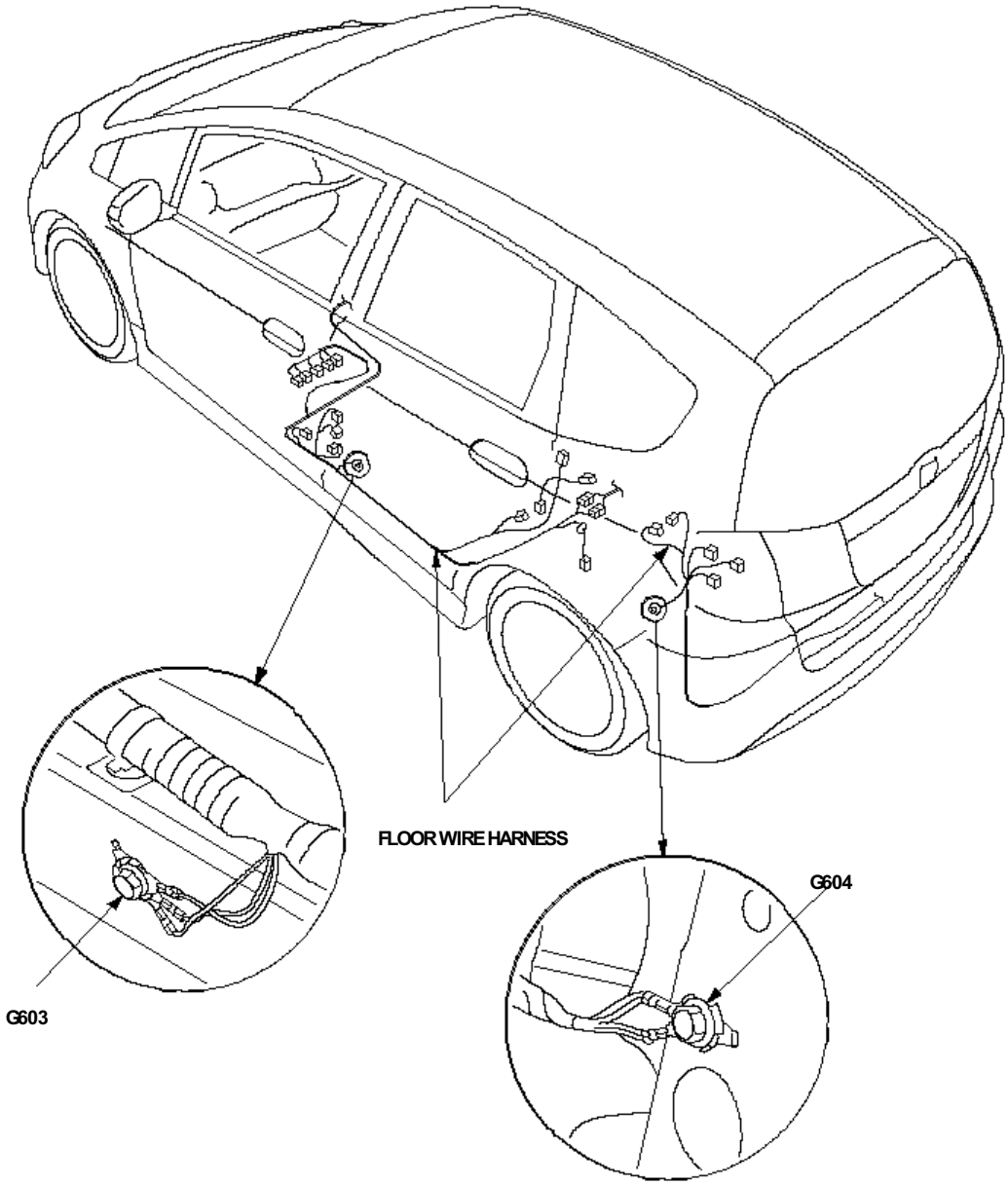
RHD model is shown, LHD model is symmetrical.

Left and Right Rear Door Wire Harnesses Locations

Rear



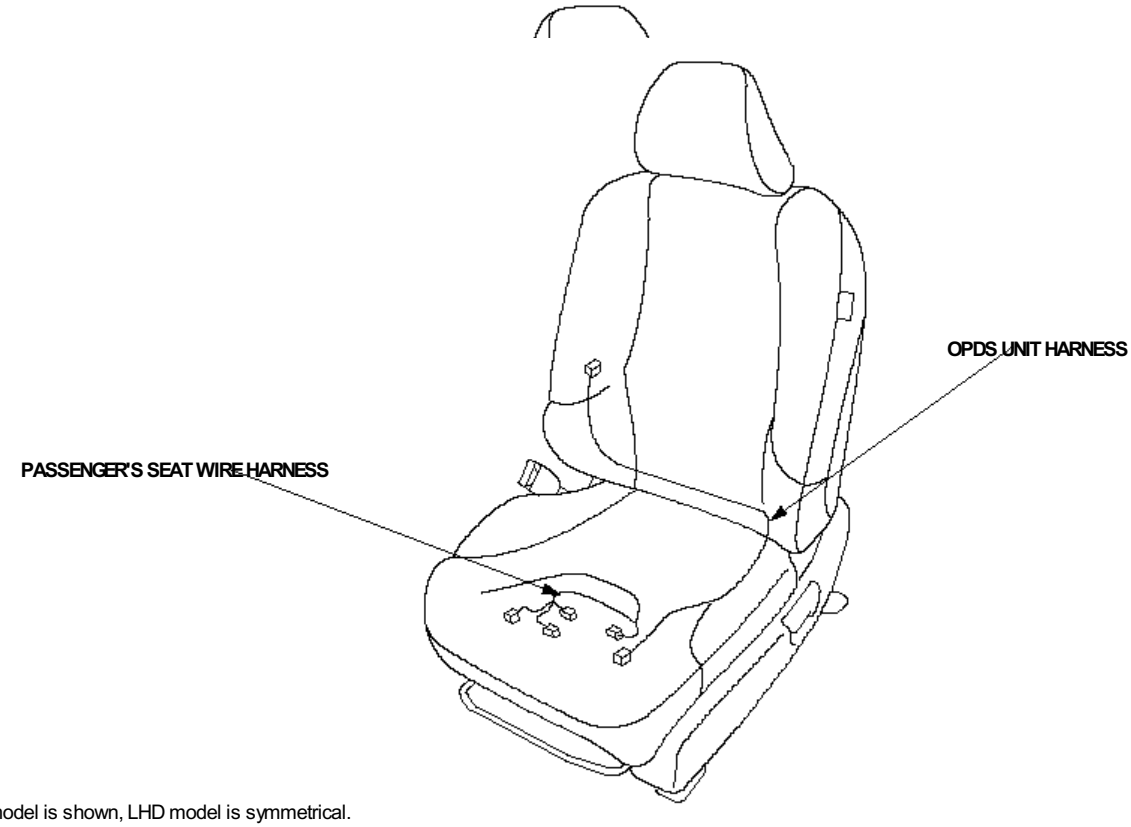
Floor Wire Harness Locations



RHD model is shown. Ground locations for LHD model are similar.
Harness routing for LHD model is symmetrical.

OPDS Unit Harness, Driver's and Passenger's Seat Wire Harness Locations

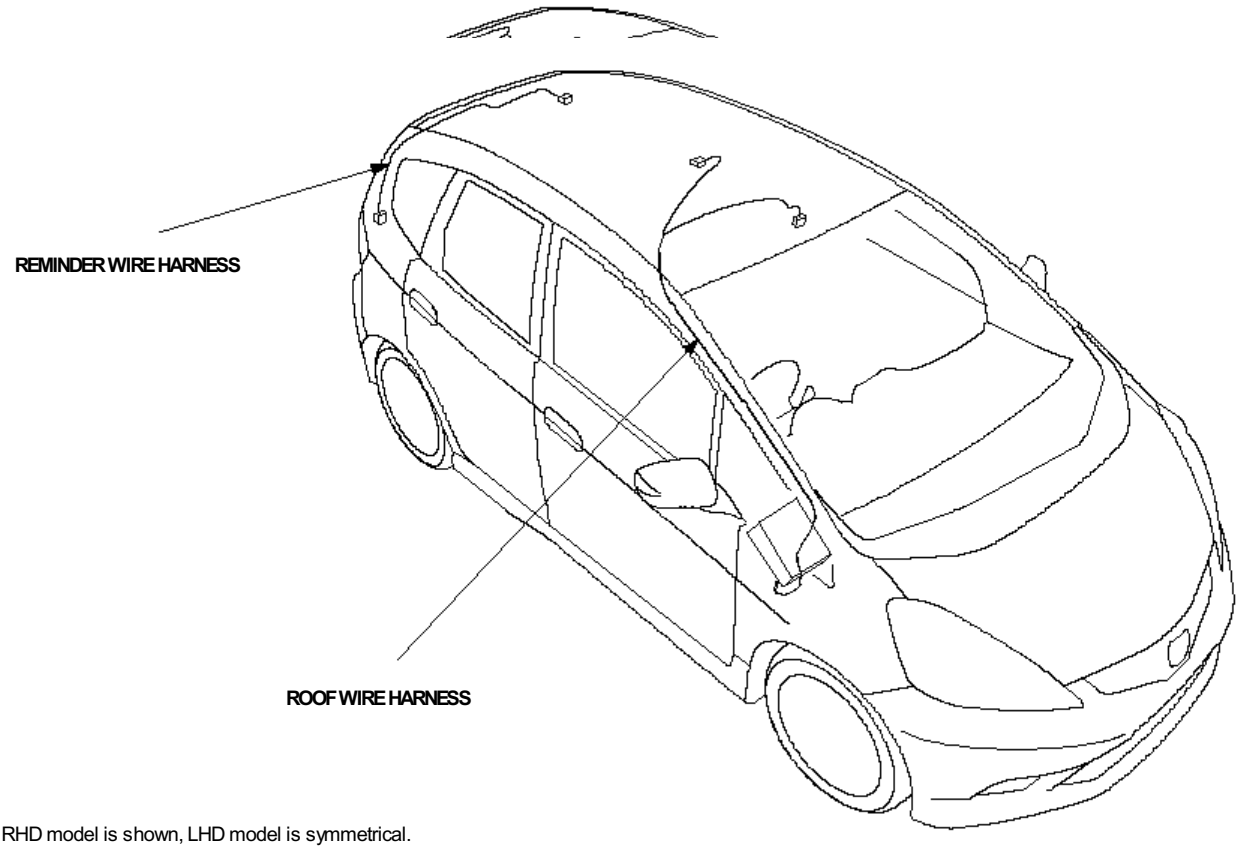
Driver's seat



RHD model is shown, LHD model is symmetrical.

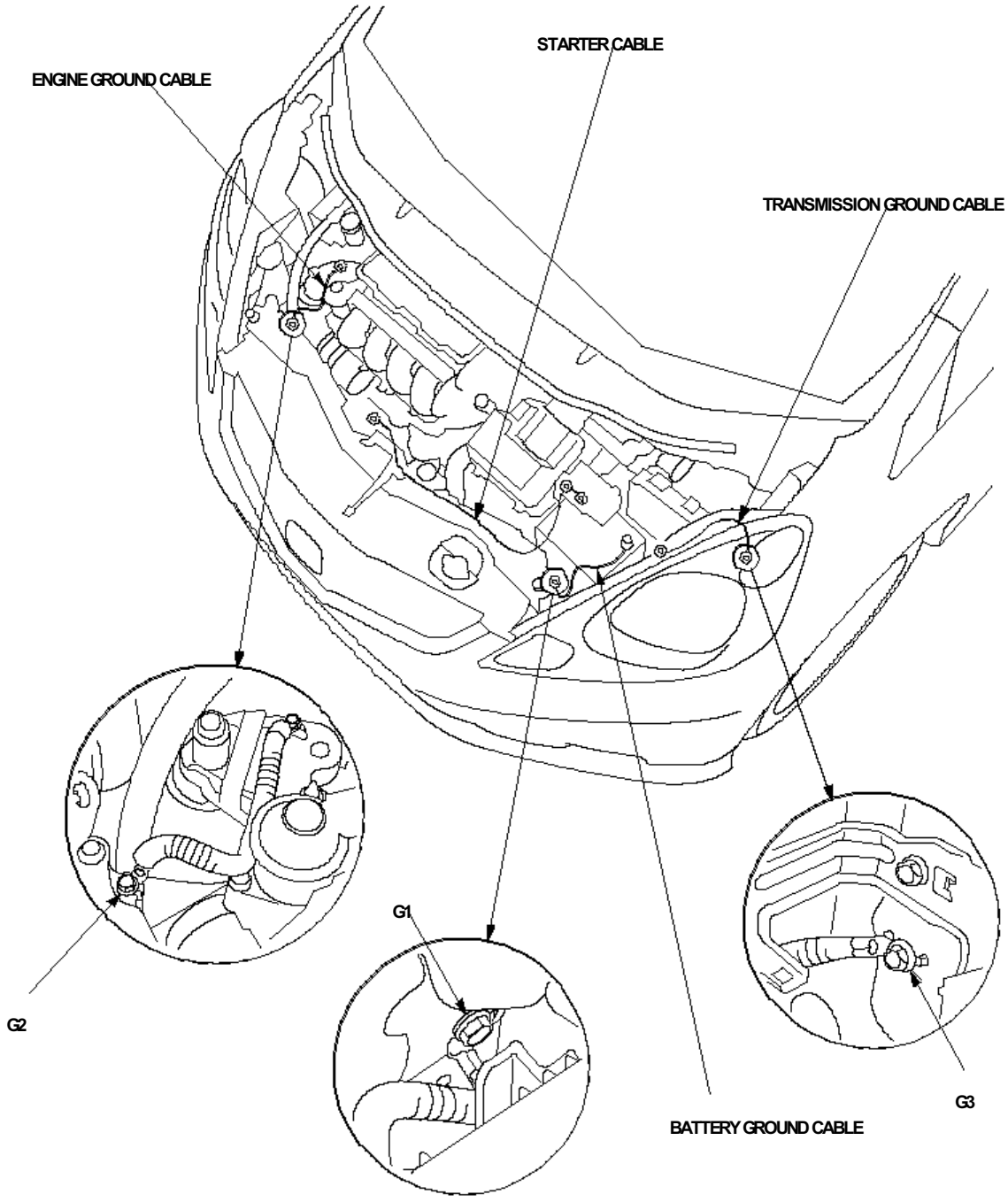
Roof Wire Harness, Sunshade and Reminder Wire Harness, and Reminder Wire Harness Locations

With sunshade



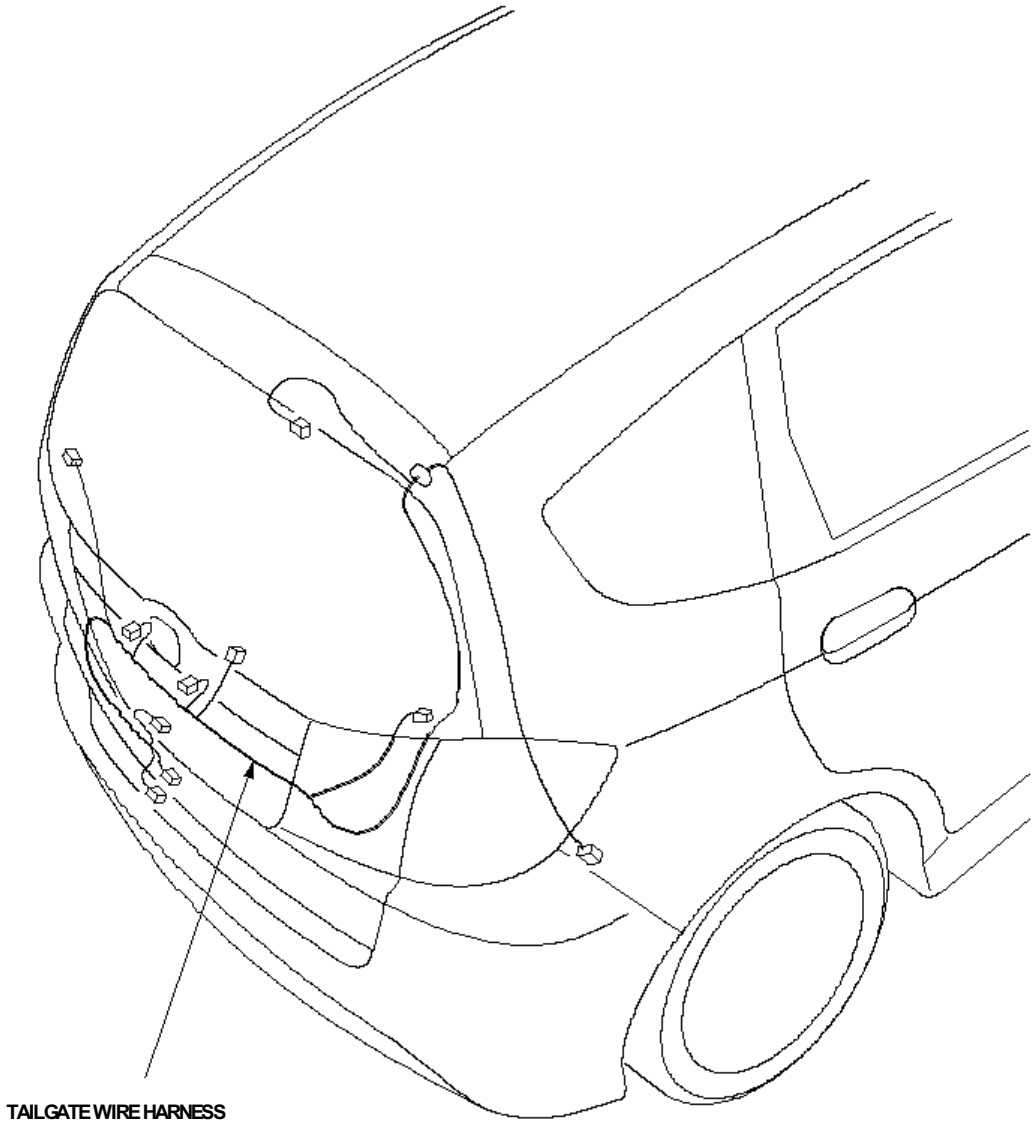
RHD model is shown, LHD model is symmetrical.

Starter Cable, Battery Ground Cable, Engine Ground Cable, and Transmission Ground Cable Locations



RHD model is shown, LHD model is similar.

Tailgate Wire Harness Locations

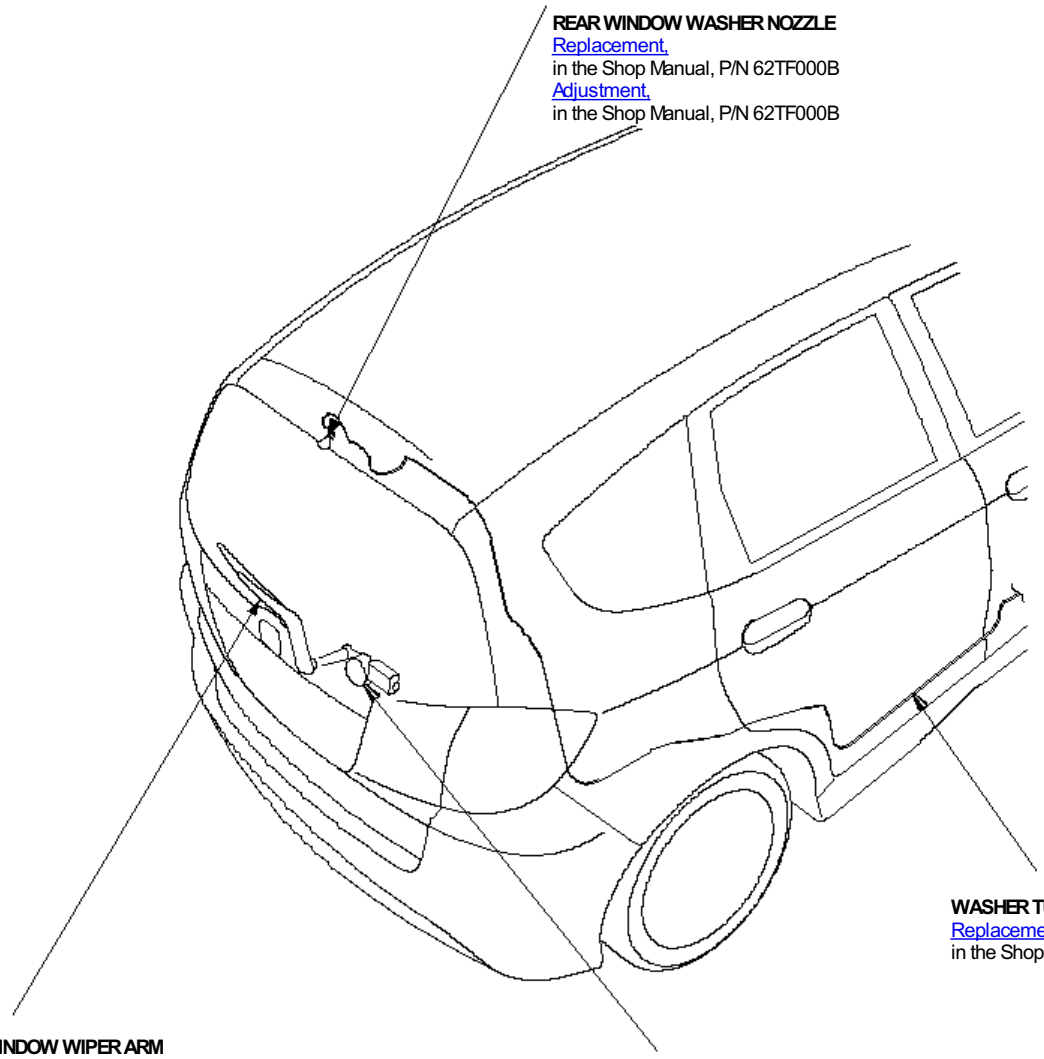


RHD model is shown, LHD model is symmetrical.

Wipers/Washers System Description

[Automatic Wiper System]
[Reverse Linked Rear Wiper]

Wipers/Washers Component Location Index



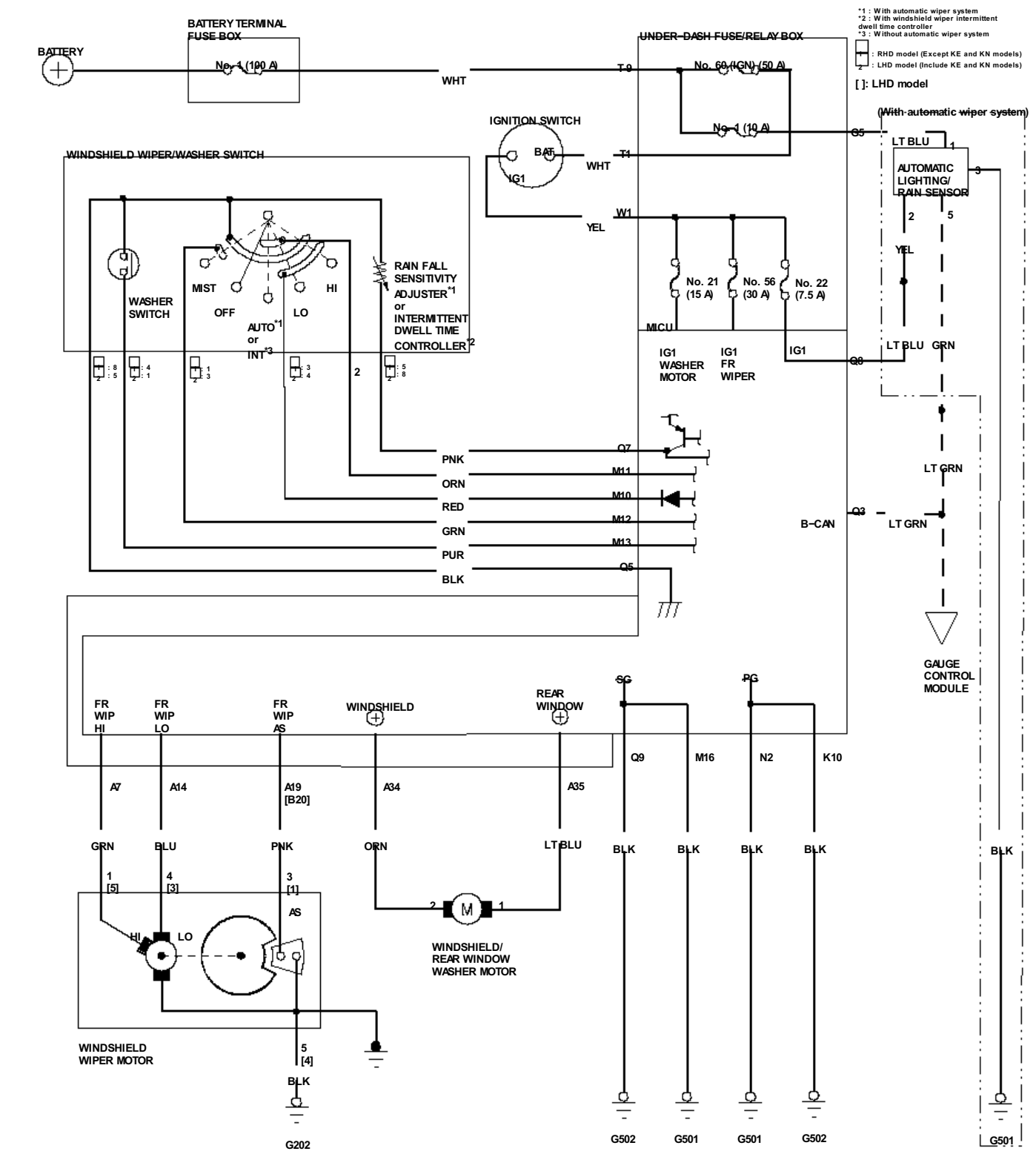
REAR WINDOW WASHER NOZZLE
Replacement,
in the Shop Manual, P/N 62TF000B
Adjustment,
in the Shop Manual, P/N 62TF000B

WASHER TUBES
Replacement,
in the Shop Manual, P/N 62TF000B

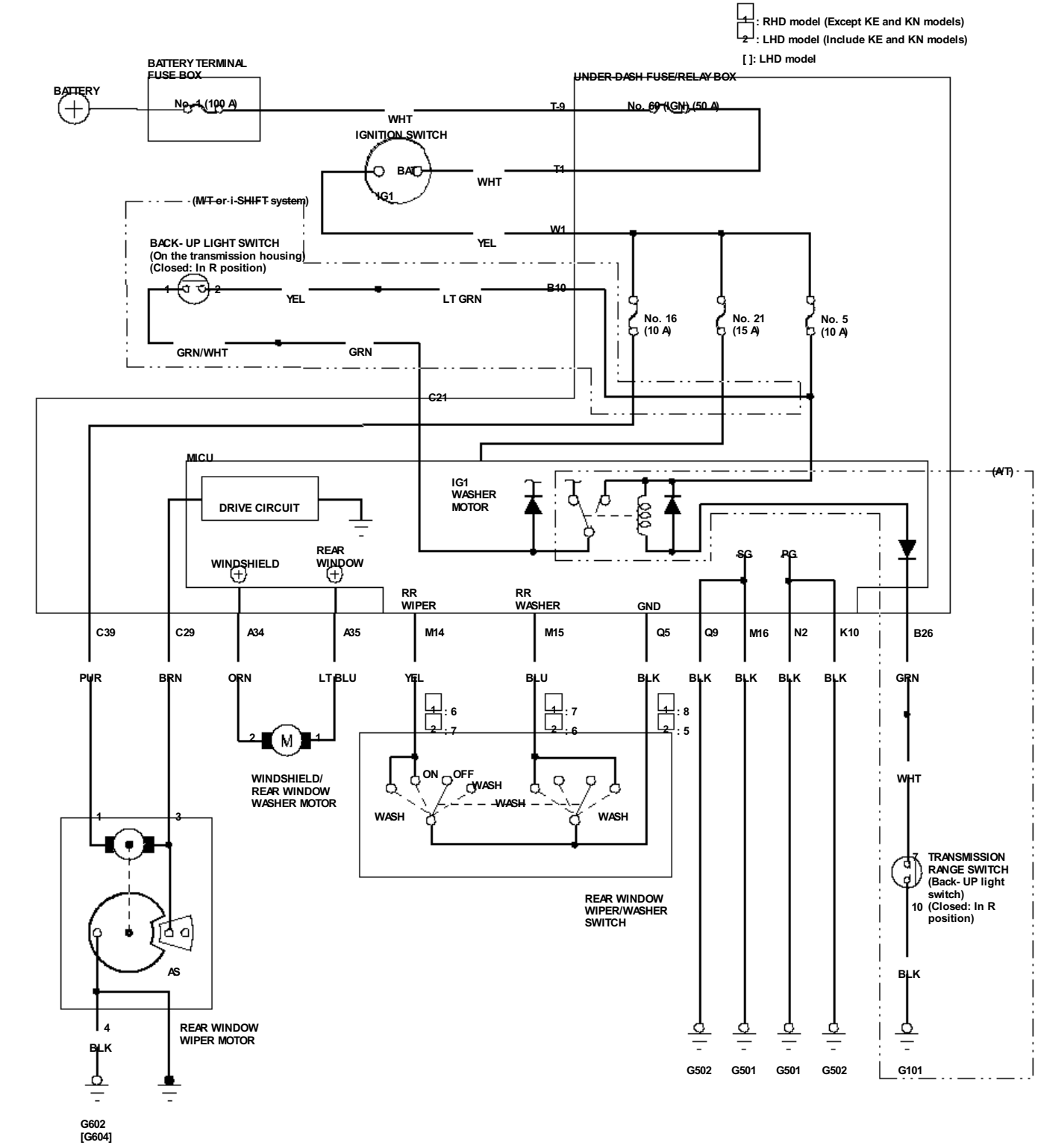
REAR WINDOW WIPER ARM
Replacement,
in the Shop Manual, P/N 62TF000B
Adjustment,
in the Shop Manual, P/N 62TF000B
Blade Replacement,
in the Shop Manual, P/N 62TF000B

REAR WINDOW WIPER MOTOR
Test,
in the Shop Manual, P/N 62TF000B
Replacement,
in the Shop Manual, P/N 62TF000B

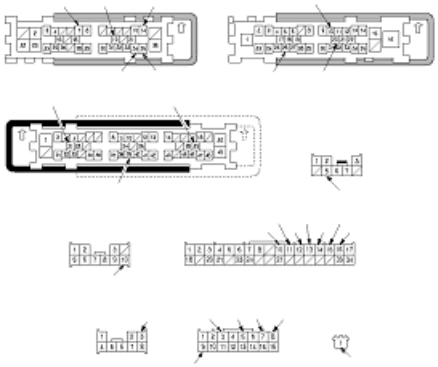
Wipers/Washers Circuit Diagram - Windshield



Wipers/Washers Circuit Diagram - Rear Window



Wipers/Washers (MICU) Input Test



NOTE:

- Before performing the input tests, check the No. 1 (10 A), No. 5 (10 A), No. 16 (10 A), No. 21 (15 A), No. 22 (7.5 A), No. 56 (30 A), and No. 60 (50 A) fuse in the under-dash fuse/relay box.
- If there is malfunction of the rear windshield wiper operation, and no DTCs are detected, check the rear windshield wiper motor and an open in the ground circuit of the rear windshield wiper.

1. Turn the ignition switch to LOCK (0).
2. RHD model: Remove the fuse lid panel, and remove the driver's dashboard lower cover.
   LHD model: Remove the fuse lid panel.
3. Disconnect under-dash fuse/relay box connectors A, B, C, G, K, M, N, Q, and W.
   NOTE:
   - All connector views are shown from wire side of female terminals.
   - The illustration shows the RHD model and the black portion shows the lock lever. The lock lever for LHD model is shown as the dashed lines.
4. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to Step 5 .
5. With the connectors still disconnected, make these input tests at the connectors.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the MICU must be faulty; replace the under-dash fuse/relay box.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
K10	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • An open in the wire
M16	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
N2	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
Q9	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • An open in the wire
W1	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 60 (IGN) (50 A) fuse in the under-dash fuse/relay box • Faulty ignition switch • An open in the wire
A7	GRN	Under all conditions	Connect the A7 terminal to the battery power: The windshield wiper motor should run at high speed.	• Poor ground (G202) • Faulty windshield wiper motor • An open in the wire
A14	BLU	Under all conditions	Connect the A14 terminal to the battery power: The windshield wiper motor should run at low speed.	
A34	ORN	Under all conditions	Connect the A34 terminal to battery power and A35 terminal to body ground:The windshield/rear window washer motor should run.	• Faulty windshield/rear window washer motor • An open in the wire
A35	LT BLU	Under all conditions	Connect the A35 terminal to battery power and A34 terminal to body ground:The windshield/rear window washer motor should run.	• Faulty windshield/rear window washer motor • An open in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
A19[B20]	PNK	The motor stops at auto-stop position.	Check for continuity to ground: There should be continuity.	• Faulty windshield wiper motor • Poor ground (G202) • An open in the wire
		Connect the A14 terminal to the battery power momentarily, and stop the motor operation before the motor reaches the auto-stop position.	Check for continuity to ground: There should be no continuity.	Faulty windshield wiper motor

[ ]: LHD model

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
C39·C29	PUR·BRN	Connect battery power to C39 terminal, then connect C29 terminal to body ground momentarily.	Check rear window wiper motor operation: The rear window wiper motor should run, and the park position.	• Faulty rear window wiper motor • An open in the wire • Poor ground (G602) [G604]
M10·Q5	RED·BLK	Windshield wiper/washer switch (LO or HI) ON	Check for continuity between M10 and Q5 terminals: There should be continuity.	• Faulty windshield wiper/washer switch • An open in the wire
		Windshield wiper/washer switch OFF	Check for continuity between M10 and Q5 terminals: There should be no continuity.	Faulty windshield wiper/washer switch
M11·Q5	ORN·BLK	Windshield wiper/washer switch (INT or LO) ON	Check for continuity between M11 and Q5 terminals: There should be continuity.	• Faulty windshield wiper/washer switch • An open in the wire
		Windshield wiper/washer switch OFF	Check for continuity between M11 and Q5 terminals: There should be no continuity.	Faulty windshield wiper/washer switch
M12·Q5	GRN·BLK	Windshield wiper/washer switch (MIST) ON	Check for continuity between M12 and Q5 terminals: There should be continuity.	• Faulty windshield wiper/washer switch • An open in the wire
		Windshield wiper/washer switch OFF	Check for continuity between M12 and Q5 terminals: There should be no continuity.	Faulty windshield wiper/washer switch
M13·Q5	PUR·BLK	Windshield wash switch ON	Check for continuity between M13 and Q5 terminals: There should be continuity.	• Faulty windshield wiper/washer switch • An open in the wire
		Windshield wash switch OFF	Check for continuity between M13 and Q5 terminals: There should be no continuity.	Faulty windshield wiper/washer switch
M14·Q5	YEL·BLK	Rear window wiper/washer switch (RR WIPER) ON	Check for continuity between M14 and Q5 terminals: There should be continuity.	• Faulty Rear window wiper/washer switch • An open in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
		Rear window wiper/washer switch OFF	Check for continuity between M14 and Q5 terminals:There should be no continuity.	Faulty Rear window wiper/washer switch
M15-Q5	BLU BLK	Rear window wiper/washer switch (RR WASH) ON	Check for continuity between M15 and Q5 terminals:There should be continuity.	• Faulty Rear window wiper/washer switch • An open in the wire
		Rear window wiper/washer switch OFF	Check for continuity between M15 and Q5 terminals:There should be no continuity.	Faulty Rear window wiper/washer switch

[ ]: LHD model

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
G5	LT BLU	Under all conditions	Check for continuity between the G5terminal and the automatic lighting/rain sensor 5P connector No. 1 terminal:There should be continuity.	An open in the wire
			Check for continuity to ground:There should be no continuity.	A short to ground in the wire
Q3	LT GRN	Under all conditions	Check for continuity between the Q3terminal and the automatic lighting/rain sensor 5P connector No. 5 terminal:There should be continuity.	An open in the wire
			Check for continuity to ground:There should be no continuity.	A short to ground in the wire
Q7	PNK	Intermittent dwell time controller turned *1 Rainfall sensitivity adjuster turned *2	Check resistance between the Q7 and Q5 terminals:The resistance should vary between 0 to 1 k.	• Faulty wiper/washer switch • An open in the wire
Q8	LT BLU	Under all conditions	Check for continuity between the Q8terminal and the automatic lighting/rain sensor 5P connector No. 2 terminal:There should be continuity.	An open in the wire
			Check for continuity to ground:There should be no continuity.	A short to ground in the wire
A34 *3	ORN	Under all conditions	Connector battery power to the A34 terminal:The windshield washer motor should run.	• Poor ground (G301) [G451] • Faulty washer motor • An open in the wire
B26(A/T)	GRN	Transmission range switch in R	Check for continuity to ground:There should be no continuity.	• Poor ground (G101) • Faulty transmission range switch • An open in the wire
		Transmission range switch in any other position than R	Check for continuity to ground:There should be no continuity.	• Faulty transmission range switch • A short to ground in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
B10·C21(M/T or i-SHIFT system)	LT GRN·GRN	Back-up light switch ON	Check for continuity between the B10and C21 terminals:There should be continuity.	• Faulty back-up light switch • An open in the wire
		Back-up light switch OFF	Check for continuity between the B10and C21 terminals:There should be no continuity.	• Faulty back-up light switch • A short to ground in the wire

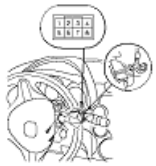
*1: With windshield wiper intermittent dwell time controller
*2: With automatic wiper system
*3: Without rear wiper
[ ]: LHD model

Wiper/Washer Switch Test/Replacement

1. Remove the steering column covers.
2. Disconnect the dashboard wire harness 8P connector (A) from the wiper/washer switch (B).
3. Remove the two screws, then slide out the wiper/washer switch.
4. Inspect the connector terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to Step 5 .

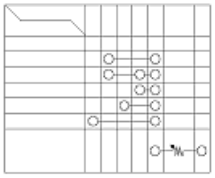
RHD model (Except KE and KN models)

LHD model (Include KE and KN models)

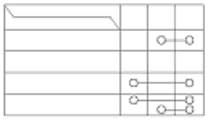


5. Check for continuity between the terminals in each switch position according to the table.
6. If the continuity is not as specified, replace the switch.
7. Install the switch in the reverse order of removal.

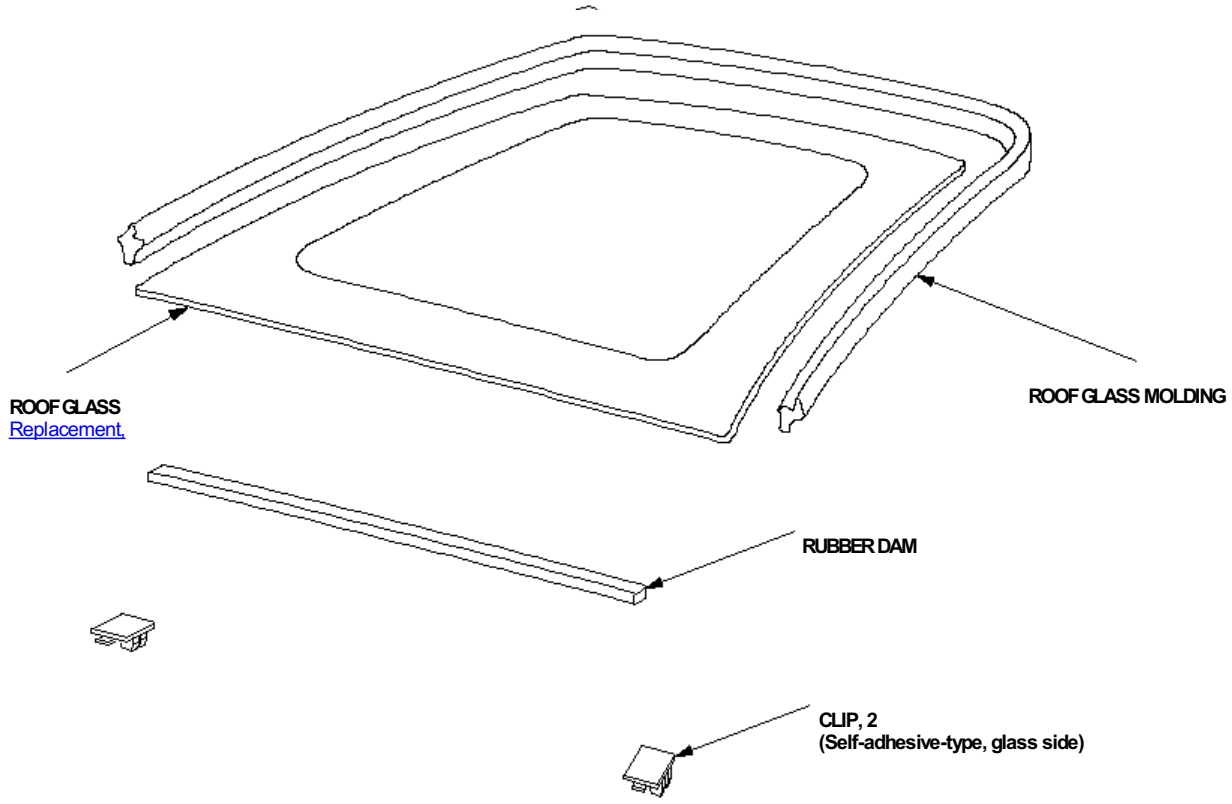
Windshield



Rear window

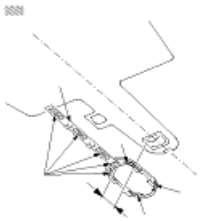


Glass Component Location Index



Automatic Lighting/Rain Sensor Cover Base Replacement

With Automatic Wiper



NOTE:

- Wear eye protection while cutting the glass adhesive with piano wire.
- LHD model is shown; RHD model is symmetrical.

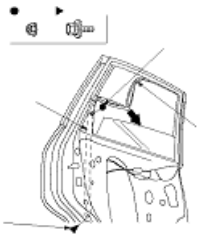
1. Remove these items:
   - Headliner
   - Automatic lighting/rain sensor
   - Rearview mirror
2. Carefully cut through the adhesive tape under the rain sensor cover base using the piano wire, then remove the base.
   NOTE: Take care not to damage the optical connector.
3. Use a putty knife to scrape off all of the old adhesive tape from the windshield. Clean the inside face of the windshield with isopropyl alcohol where new rain sensor cover is to be applied. Make sure the installing surface is kept free of water, oil and grease.
4. Apply primer on the double sided adhesive tape (A) of the automatic lighting/rain sensor cover base (B). Let the primer dry at least 10 minutes, then attach it to the windshield with in 12 hours.
5. Attach the automatic lighting/rain sensor cover base with adhesive tape to the inside face of the windshield as shown, then press the adhesive portions into place securely.
6. Reinstall all remaining removed parts.

Rear Door Glass and Regulator Replacement

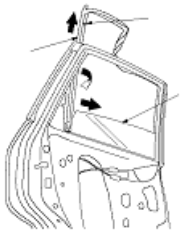
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the door and related parts.
- LHD model is shown; RHD model is symmetrical.

1. Remove the these items:
   - Rear door glass outer weatherstrip
   - Rear door sash trim
   - Rear door panel
2. Detach the harness clip, then disconnect the power door lock actuator connector.
3. Remove the plastic cover, as needed.
4. Carefully raise the glass (A) until you can see the bolts, then remove them. Remove the glass from the regulator (B), and carefully lower the glass.
   NOTE: Take care not to drop the glass inside the door.



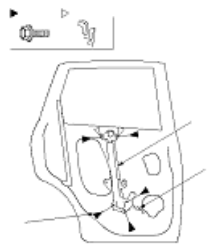
5. Pull the glass run channel (A) away as needed. Loosen the nut, and remove the bolt securing the rear lower channel (B).



6. Release the rear lower channel (A) from the glass (B).
   -1. Pull the channel forward, then remove the nut portion (C) from the door.
   -2. Twist the channel to pass it through the gap between the door panel and the rear sash.
   -3. Pull the channel up to remove it.

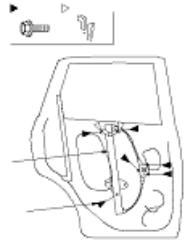
7. Carefully remove the glass (A) out through the window slot. Take care not to drop the glass inside the door.

Power window



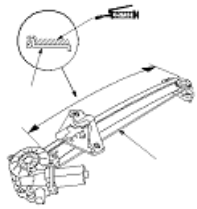
8. Power window: Disconnect and detach the connector (A) from the regulator (B).
9. Remove the bolts, pull the regulator up to release the hooks, then remove the regulator through the hole in the door.

Manual window

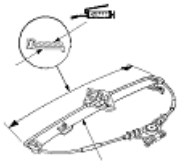


10. Apply multipurpose grease to all the sliding surfaces of the regulator (A) where shown.

Power window



Manual window



Roof Glass Replacement

NOTE:

- Put on gloves to protect your hands.
- Wear eye protection when removing the glass with piano wire.
- Use seat covers to avoid damaging the seat.
- When replacing a broken roof glass a commercially available windshield cutter can be efficiently used for cutting the adhesive. For details, follow the instructions of the tool manufacturer.
- Use glass adhesive set P/N 08C73-X0230N.

1. Remove these items:
   - Roof sunshade frame
   - Windshield molding
2. Remove the roof glass molding (A) from the edge of the roof glass (B), then remove it. If necessary, cut the molding with a utility knife.
3. If the old roof glass will be reinstalled, make alignment marks (C) across the glass and body with a grease pencil.
4. Apply protective tape along the edge of the body. Using an awl, make a hole through the adhesive from inside the vehicle at the corner portion of the roof glass. Push a piece of piano wire through the hole, and wrap each end around a piece of wood.

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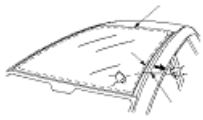
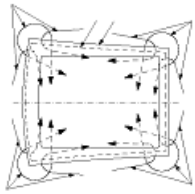
5. With a helper on the outside, pull the piano wire (A) back and forth in a sawing motion. Hold the piano wire as close to the roof glass (B) as possible to prevent damage to the body. Carefully cut through the rubber dam and adhesive (C) around the entire roof glass.



6. Carefully remove the roof glass.
7. With a knife, scrape the old adhesive smooth to a thickness of about 2 mm (0.08 in.) on the bonding surface around the entire roof glass opening flange:
   - Do not scrape down to the painted surface of the body; damage piano will interface with proper bonding.
   - Remove the clips, fasteners, and rubber dams from the body.

Cutting portions

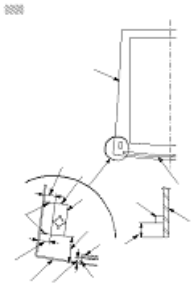


8. Clean the body bonding surface with a sponge dampened in alcohol. After cleaning, keep oil, grease and water from getting on the clean surface.
9. If the old roof glass will be reinstalled, use a putty knife to scrape off all of the old adhesive, and fasteners and the rubber dams from the roof glass. Clean the inside face and the edge of the roof glass with alcohol where new adhesive is to be applied. Make sure the bonding surface is kept free of water, oil and grease.

---

10. Attach the rubber dam (A) and clips (B) with adhesive tapes to the inside face of the roof glass (C) as shown:
    - Before installing the rubber dam and clips, apply primer to the inside face of the roof glass.
    - Be sure the clip line up with the alignment marks (D).
    - Be sure to install the left clip with its convex portion (E) backward.
    - Be sure to install the right clip with its convex portion rightward.
    - Be careful not to touch the roof glass where adhesive will be applied.

    Rubber dam adhesive tape:
    Thickness 0.16 mm (0.006 in.)
    Width 4 mm (0.30 in.)
    Clips adhesive tape:
    Thickness 0.4 mm (0.016 in.)
    Width 23.1 mm (0.91 in.)



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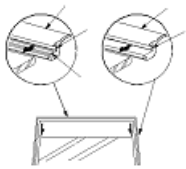
11. Attach the roof glass molding (A) with adhesive tapes (B, C) to the inside face of the roof glass as shown. Be careful not to touch the roof glass where adhesive will be applied.

    Molding adhesive tape: (B)
    Thickness 0.2 mm (0.008 in.)
    Width 4 mm (0.16 in.)
    Molding adhesive tape: (C)
    Thickness 0.2 mm (0.008 in.)
    Width 4 mm (0.11 in.)



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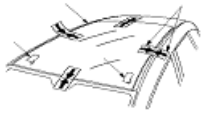
12. Set the roof glass (A) in the opening, and center it. Make alignment marks (B) across the roof glass and body with a grease pencil at the four points shown:
    - Align the clips (C) on the roof glass with the hole in the opening flange.
    - Be careful not to touch the roof glass where adhesive will be applied.
13. Remove the roof glass.



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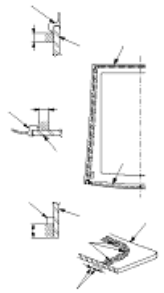
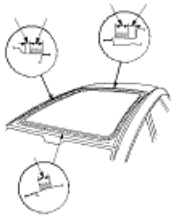
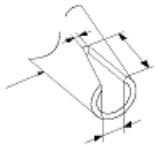
14. With a sponge, apply a light coat of glass primer roof glass (A) along the edge of the molding (B), and rubber dams (C) as shown, then lightly wipe it off with gauze or cheesecloth:
    - Do not apply body primer to the roof glass, and do not get body and glass primer sponges mixed up.
    - Never touch the primed surface with your hands. If you do, the adhesive may not bond to the roof glass properly, causing a leak after the roof glass is installed.
    - Keep water, dust, and adhesive materials away from the primed surfaces.
    - With the printed dots (D) on the roof glass as a guide, apply the glass primer to the corner portion of the roof glass.



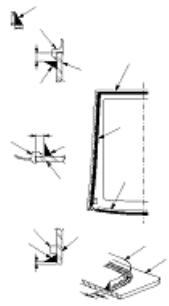
15. With a sponge, carefully apply a light coat of body primer to any exposed paint or metal around the flange where new adhesive will be applied. Let the body primer dry for at least 10 minutes:
    - Do not apply body primer to any remaining original adhesive on the flange.
    - Be careful not to mix up the body and glass primer sponges.
    - Never touch the primed surfaces with your hands.



16. Cut a “V" in the end of the nozzle (A) on the adhesive cartridge as shown.



17. Put the cartridge in a caulking gun, and run a bead of adhesive (A) around the edge of the roof glass (B) between the molding (C) and rubber dams (D) as shown. Apply the adhesive within 30 minutes after applying the glass primer. Make a slightly thicker bead at each corner.
18. Use suction cups to hold the roof glass over the opening align it with the alignment marks made in Step 12 , and set it down on the adhesive. Lightly push on the roof glass until its edges are fully seated on the adhesive all the way around.
    NOTE: Do not open or close the doors until the adhesive is dry.
19. Scrape or wipe the excess adhesive off with a putty knife or towel. To remove adhesive from a painted surface or the roof glass, wipe with a soft shop towel dampened with isopropyl alcohol.
20. Install the windshield molding.
21. After the adhesive has dried, then spray water over the roof glass and check for leaks. Mark leaking areas, and let the roof glass dry, then seal with sealant:
    - Let the vehicle stand for at least 4 hours after roof glass installation. If the vehicle has to be used within the first 4 hours, it must be driven slowly.
    - Keep the roof glass dry for the first hour after installation.
22. Reinstall all remaining remove parts. Advise the customer not to do the following things for 2 to 3 days:
    - Slam the doors with all the windows rolled up.
    - Twist the body excessively (such as when going in and out of driveways at an angel or driving over rough, uneven roads).



Windshield Replacement

NOTE:

- Put on gloves to protect your hands.
- Wear eye protection while cutting the glass adhesive with a piano wire.
- Use seat covers to avoid damaging the seat.
- When replacing a broken windshield, a commercially available windshield cutter can be efficiently used for cutting the adhesive. For details, follow the instructions of the manufacturer of the tool.
- LHD model is shown; RHD model is symmetrical.

1. Remove these items:
   - Cowl covers
   - Rearview mirror
   - Front pillar trim, both sides:
     - Without side curtain airbags
     - With side curtain airbags
   - Roof moldings, both sides
   - Automatic lighting/rain sensor (for some models)
2. Remove the molding (A) from the edge of the windshield (B). If necessary, cut the molding with a utility knife.
3. If the old windshield will be reinstalled, make alignment marks across the glass and body with a grease pencil.
4. Pull down the front portion of the headliner. Take care not to bend the headliner excessively, or you may crease or break it.
5. Apply protective tape along the edge of the dashboard and body. Using an awl, make a hole through the rubber dam and adhesive from inside the vehicle at the corner portion of the windshield. Push a piece of piano wire through the hole, and wrap each end around a piece of wood.

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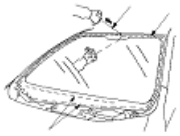
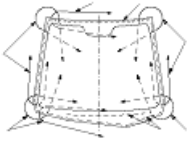
6. With a helper on the outside, pull the piano wire (A) back and forth in a sawing motion. Hold the piano wire as close to the windshield (B) as possible to prevent damage to the body and dashboard.
   Carefully cut through the rubber dam and adhesive (C) around the entire windshield.
7. Carefully remove the windshield.
8. With a utility knife, scrape the old adhesive smooth to a thickness of about 2 mm (0.08 in.) on the bonding surface around the entire windshield opening flange:
   - Do not scrape down to the painted surface of the body; damaged paint will interfere with proper bonding.
   - Remove the rubber dams and upper clips from the body.
9. Clean the body bonding surface with a sponge dampened in isopropyl alcohol. After cleaning, keep oil, grease and water from getting on the clean surface.
10. If the old windshield will be reinstalled, use a putty knife to scrape off all of the old adhesive, the upper clips and the rubber dams from the windshield. Clean the inside face and the edge of the windshield with isopropyl alcohol where new adhesive is to be applied. Make sure the bonding surface is kept free of water, oil and grease.



Cutting positions



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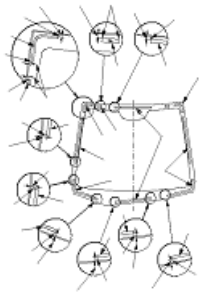
11. Attach the rubber dam A, rubber dam B, rubber dam C, rubber dam D, and the upper clips (E) with adhesive tape to the inside face of the windshield (F) as shown:
    - Be sure the rubber dam and upper clips line up with the alignment marks (G).
    - Be careful not to touch the windshield where adhesive will be applied.

    Rubber dam adhesive tape:
    Thickness 0.16 mm (0.006 in.)
    Width 3 mm (0.118 in.)
    Upper clip adhesive tape:
    Thickness 0.4 mm (0.02 in.)
    Width 13 mm (0.512 in.)



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12. Attach the molding (A) with adhesive tape (B) to the edge of the windshield (C):
    - Be sure each corner of the molding lines up with the ones of the windshield.
    - Be careful not to touch the windshield where adhesive will be applied.

    Molding adhesive tape:
    Thickness 0.8 mm (0.03 in.)
    Width 4 mm (0.16 in.)

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13. With glass roof:
    Attach the upper seal (A) to the inside of the molding (B).
    Molding adhesive tape:
    Thickness 0.1 mm (0.004 in.)
    Width 7 mm (0.28 in.)

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14. Set the windshield (A) in the opening, and center it.
    Make alignment marks (B) across the windshield and body with a grease pencil at the four points shown. Make sure the upper clips (C) contact with the edge of the body holes. Be careful not to touch the windshield where adhesive will be applied.

15. Remove the windshield.

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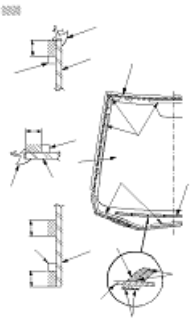
16. With a sponge, apply a light coat of glass primer to the windshield (A) along the edge of the molding (B) and the rubber dams (C) as shown, then lightly wipe it off with gauze or cheesecloth:
    - With the printed dots (D) on the windshield as a guide, apply glass primer to the bottom (E) of the windshield.
    - Apply glass primer to the molding.
    - Do not apply body primer to the windshield, and do not get body and glass primer sponges mixed up.
    - Never touch the primed surfaces with your hands. If you do, the adhesive may not bond to the windshield properly, causing a leak after the windshield is installed.
    - Keep water, dust, and abrasive materials away from the primed surface.



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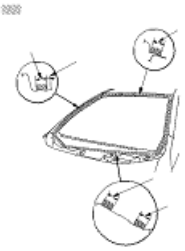
17. With a sponge, carefully apply a light coat of body primer to any exposed paint or metal around the flange where new adhesive will be applied. Let the body primer dry for at least 10 minutes:
    - Do not apply body primer to any remaining original adhesive on the flange.
    - Be careful not to mix up the body and glass primer sponges.
    - Never touch the primed surfaces with your hands.
    - Mask off the dashboard before painting the flange.



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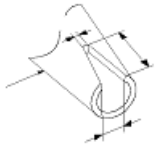
18. Cut a “V" in the end of the nozzle (A) on the adhesive cartridge as shown.



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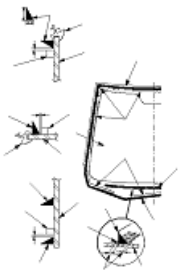
19. Pack adhesive into the cartridge without air pockets to ensure continuous delivery. Put the cartridge in a caulking gun, and run a bead of adhesive (A) to the windshield (B) along the edge of the molding (C) and rubber dams (D) as shown. Apply the adhesive within 30 minutes after applying the glass primer. Make a slightly thicker bead at each corner.
    - Apply glass primer to the bottom (E) of the windshield.
    - Apply glass primer to the molding.



20. Use suction cups to hold the windshield over the opening, align it with the alignment marks made in Step 14, and set it down on the adhesive. Lightly push on the windshield until its edges are fully seated on the adhesive all the way around.
    NOTE: Do not open or close any of the doors for about an hour until the adhesive is dry.

21. Scrape or wipe the excess adhesive off with a putty knife or towel. To remove adhesive from a painted surface or the windshield, wipe with a soft shop towel dampened with isopropyl alcohol.

22. After the adhesive has dried, spray water over the windshield and check for leaks. Mark leaking areas, and let the windshield dry, then seal with sealant:
    - Let the vehicle stand for at least 4 hours after windshield installation. If the vehicle has to be used within the first 4 hours, it must be driven slowly.
    - Keep the windshield dry for the first hour after installation.

23. Reinstall all remaining removed parts. Install the rearview mirror after the adhesive has dried thoroughly. Advise the customer not to do the following things for 2 to 3 days:
    - Slam the doors with all the windows rolled up.
    - Twist the body excessively (such as when going in and out of driveways at an angle or driving over rough, uneven roads).

DTC Troubleshooting: B2350

DTC B2350:
Communication Circuit Error (BUS-OFF)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

Are DTCs B1000 and B1011 also indicated with DTC B2350?
YES - Go to DTC B1000 troubleshooting.■
NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: B2352

DTC B2352:
Rain Light Sensor Unit Internal Error

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

Is DTC B2352 indicated?
YES - Replace the automatic lighting/rain sensor .■
NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.■

DTC Troubleshooting: B2355

DTC B2355:
Rain Light Sensor Unit Lost Communication with MICU (Headlight Switch Message)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Check for DTCs with the HDS.

   Is DTC B2355 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
4. Check for DTCs with the HDS.

   Are DTC B1155, B1156, B1157, B1159, B1160, and B1188 also indicated with DTC B2355?
   YES - Faulty MICU; replace the under-dash fuse/relay box. ■
   NO - Replace the automatic lighting/rain sensor .■

DTC Troubleshooting: B2356

DTC B2356:
Rain Light Sensor Unit Lost Communication with MICU (Wiper Switch Message)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Check for DTCs with the HDS.

   Is DTC B2356 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
4. Check for DTCs with the HDS.

   Are DTC B1155, B1156, B1157, B1159, B1160, and B1188 also indicated with DTC B2356?
   YES - Faulty MICU; replace the under-dash fuse/relay box. ■
   NO - Replace the automatic lighting/rain sensor .■

DTC Troubleshooting: B2357

DTC B2357:
Rain Light Sensor Unit Lost Communication with MICU

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Check for DTCs with the HDS.

   Is DTC B2357 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
4. Check for DTCs with the HDS.

   Are DTC B1155, B1156, B1157, B1159, B1160, and B1188 also indicated with DTC B2357?
   YES - Faulty MICU; replace the under-dash fuse/relay box. ■
   NO - Replace the automatic lighting/rain sensor .■

DTC Troubleshooting: B2375

DTC B2375:
Rain Sensing Malfunction

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Check for DTCs with the HDS.

   Is DTC B2375 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time.■
4. Check for loose or poor connections at the automatic lighting/rain sensor 5P connector.

   Is the connection OK?
   YES - Go to Step 5 .
   NO - Reconnect or repair the 5P connector.■
5. Check for damage of the automatic lighting/rain sensor 5P connector terminals.

   Are there any damage?
   YES - Repair the terminal.■
   NO - Go to Step 6 .
6. Check for dirt or damage of the windshield glass.

   Are there any dirt or damage?
   YES - Remove the dirt and, if necessary, repair or replace the windshield glass.■
   NO - Replace the automatic lighting/rain sensor .■

DTC Troubleshooting: B2376

DTC B2376:
Rain Sensing Malfunction

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Check for DTCs with the HDS.

Is DTC B2376 indicated?
YES - Replace the automatic lighting/rain sensor.■
NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: B1200

DTC B1200:
Communication Circuit Error (BUS-OFF)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Are DTCs B1000 and B1011 also indicated with DTC B1200?
   YES - Go to DTC B1000 troubleshooting.■
   NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: B1150

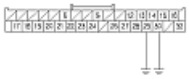
DTC B1150:
Communication Circuit Error (BUS-OFF)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

Are DTCs B1000 and B1011 also indicated with DTC B1150?
YES - Go to DTC B1000 troubleshooting.■
NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: B1170

DTC B1170:
Gauge Control Module Lost Communication with VSA Modulator-Control Unit (VSA Message)



1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1170 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
5. Check for VSA system DTCs with the HDS.

   Are any DTCs indicated?
   YES - Go to the indicated DTCs, then recheck.■
   NO - Go to Step 6 .
6. Turn the ignition switch to LOCK (0).
7. Disconnect the gauge control module 32P connector.
8. Disconnect the VSA modulator-control unit 36P connector.
9. Connect the gauge control module 32P connector No. 29 and No. 30 terminals and body ground with jumper wires.

10. Check for continuity between the VSA modulator-control unit 36P connector No. 1 and No. 14 terminals and body ground individually.

    Is there continuity?
    YES - Substitute a known-good VSA modulator-control unit, and recheck. If the indication goes away, replace the original VSA modulator-control unit. If the DTC is still present, replace the gauge control module. ■
    NO - Repair an open in the wire.■

DTC Troubleshooting: B1750

DTC B1750:
Communication Circuit Error (BUS-OFF)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

Are DTCs B1000 and B1011 also indicated with DTC B1750?
YES - Go to DTC B1000 troubleshooting.■
NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: B2450

DTC B2450:
Communication Circuit Error (BUS-OFF)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

Are DTCs B1000 and B1011 also indicated with DTC B2450?
YES - Go to DTC B1000 troubleshooting.■
NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: B2455

DTC B2455:
Auto Leveling Unit Lost Communication with Gauge Control Module

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B2455 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections between the gauge control module and the headlight leveling control unit.■
5. Check for DTCs with the HDS.

   Is DTC B1011 also indicated with DTC B2455?
   YES - Go to Step 6 .
   NO - Go to the headlight leveling control unit input test. ■
6. Connect the HDS to the data link connector, then turn the ignition switch to ON (II).
7. From the BODY ELECTRICAL system menu, select UNIT INFORMATION, and then select CONNECTED UNIT.

   Is the gauge control module detected?
   YES - Replace the gauge control module. ■
   NO - Go to Step 8 .
8. Turn the ignition switch to LOCK (0).
9. Disconnect the gauge control module 32P connector.
10. Turn the ignition switch to ON (II).
11. Measure the voltage between the gauge control module 32P connector No. 16 and No. 32 terminals and body ground respectively.

    Is there battery voltage?
    YES - Go to Step 12 .
    NO - Check the No. 1 (10 A) fuse and No. 22 (7.5 A) fuse in the under-dash fuse/relay box. If the fuse is blown, replace the fuse and recheck the DTCs. If the fuses are OK, repair and open in the wire between the under-dash fuse/relay box and the gauge control module.■
12. Turn the ignition switch to LOCK (0).

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13. Check for continuity between the gauge control module 32P connector No. 13 and No. 17 terminals and body ground respectively.

    Is there continuity?
    YES - Go to Step 14 .
    NO - Repair an open in the wire or poor ground (G501).■
14. Disconnect the under-dash fuse/relay box connector Q (16P).

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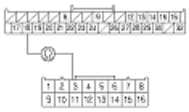
15. Check for continuity between the under-dash fuse/relay box connector Q (16P) No. 3 terminal and the gauge control module 32P connector No. 18 terminal.



    Is there continuity?
    YES - Replace the gauge control module. ■
    NO - Repair an open in the wire.■

DTC Troubleshooting: B2456

DTC B2456:
Auto Leveling Unit Lost Communication with MICU (Headlight Message)

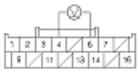
1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B2456 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections between the MICU and the headlight auto leveling control unit.■
5. Check for DTCs with the HDS.

   Are DTCs B1155, B1156, B1157, B1159, B1160, and B1188 also indicated with DTC B2456?
   YES - Faulty MICU, replace the under-dash fuse/relay box. ■
   NO - Go to the headlight auto leveling control unit input test. ■

DTC Troubleshooting: B2476

DTC B2476:
Front Height Sensor Failure

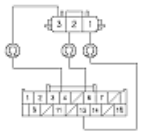


1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Check for DTCs with the HDS.

   Is DTC B2476 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time.■
4. Check for DTCs with the HDS.

   Is DTC B2477 also indicated with the DTC B2476?
   YES - Go to Step 10 .
   NO - Go to Step 5 .
5. Measure the voltage between the headlight leveling control unit 16P connector No. 4 and No. 6 terminals.

   Is there less than 0.4 V?
   YES - Go to Step 6 .
   NO - Go to Step 27 .
6. Turn the ignition switch to LOCK (0).
7. Disconnect the front suspension stroke sensor 3P connector.
8. Disconnect the headlight leveling control unit 16P connector.

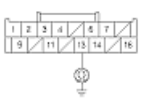


9. Check for continuity between the headlight leveling control unit 16P connector No. 4, No. 6 and No. 13 terminals and the front suspension stroke sensor 3P connector No. 3, No. 2 and No. 1 terminals individually.

   Is there continuity?
   YES - Replace the front suspension stroke sensor .■
   NO - Repair an open in the wire.■
10. Turn the ignition switch to LOCK (0).
11. Disconnect the front suspension stroke sensor 3P connector.
12. Turn the ignition switch to ON (II).
13. Clear the DTCs with the HDS.
14. Turn the ignition switch to LOCK (0) and then back to ON (II).
15. Check for DTCs with the HDS.

    Is only DTC B2476 indicated?
    YES - Replace the front suspension stroke sensor .■
    NO - Go to Step 16 .
16. Turn the ignition switch to LOCK (0).
17. Disconnect the rear suspension stroke sensor 3P connector.
18. Turn the ignition switch to ON (II).
19. Clear the DTCs with the HDS.
20. Turn the ignition switch to LOCK (0) and then back to ON (II).
21. Check for DTCs with the HDS.

    Is only DTC B2477 indicated?
    YES - Replace the rear suspension stroke sensor .■
    NO - Go to Step 22 .
22. Turn the ignition switch to LOCK (0).
23. Disconnect the headlight leveling control unit 16P connector.

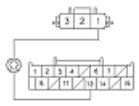


24. Check for continuity between the headlight leveling control unit 16P connector No. 13 terminal and body ground.

    Is there continuity?
    YES - Repair a short in the wire.■
    NO - Go to Step 25 .

---

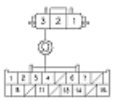
25. Check for continuity between the headlight leveling control unit 16P connector No. 13 terminal and the front suspension stroke sensor 3P connector No. 1 terminal.



Is there continuity?
YES - Go to Step 26 .
NO - Repair an open in the wire.■

---

26. Check for continuity between the headlight leveling control unit 16P connector No. 4 terminal and the front suspension stroke sensor 3P connector No. 3 terminal.



Is there continuity?
YES - Replace the headlight leveling control unit .■
NO - Repair an open in the wire.■

27. Turn the ignition switch to LOCK (0).

28. Disconnect the front suspension stroke sensor 3P connector.

29. Disconnect the headlight leveling control unit 16P connector.

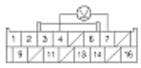
---

30. Check for continuity between the front suspension stroke sensor 3P connector No. 1 and No. 2 terminals.

Is there continuity?
YES - Repair a short in the wire.■
NO - Replace the front suspension stroke sensor .■

DTC Troubleshooting: B2477

DTC B2477:
Rear Height Sensor Failure



1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Check for DTCs with the HDS.

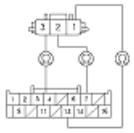
   Is DTC B2477 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time.■
4. Check for DTCs with the HDS.

   Is DTC B2476 also indicated with the DTC B2477?
   YES - Go to Step 10 .
   NO - Go to Step 5 .
5. Measure the voltage between the headlight leveling control unit 16P connector No. 4 and No. 7 terminals.

   Is there less than 0.4 V?
   YES - Go to Step 6 .
   NO - Go to Step 27 .
6. Turn the ignition switch to LOCK (0).
7. Disconnect the rear suspension stroke sensor 3P connector.
8. Disconnect the headlight leveling control unit 16P connector.

---

9. Check for continuity between the headlight leveling control unit 16P connector No. 4, No. 7 and No. 13 terminals and the rear headlight leveling sensor 3P connector No. 3, No. 2 and No. 1 terminals individually.



   Is there continuity?
   YES - Replace the rear suspension stroke sensor .■
   NO - Repair an open in the wire.■
10. Turn the ignition switch to LOCK (0).
11. Disconnect the front suspension stroke sensor 3P connector.
12. Turn the ignition switch to ON (II).
13. Clear the DTCs with the HDS.
14. Turn the ignition switch to LOCK (0) and then back to ON (II).
15. Check for DTCs with the HDS.

    Is only DTC B2476 indicated?
    YES - Replace the front suspension stroke sensor .■
    NO - Go to Step 16 .
16. Turn the ignition switch to LOCK (0).
17. Disconnect the rear suspension stroke sensor 3P connector.
18. Turn the ignition switch to ON (II).
19. Clear the DTCs with the HDS.
20. Turn the ignition switch to LOCK (0) and then back to ON (II).
21. Check for DTCs with the HDS.

    Is only DTC B2477 indicated?
    YES - Replace the rear suspension stroke sensor .■
    NO - Go to Step 22 .
22. Turn the ignition switch to LOCK (0).
23. Disconnect the headlight leveling control unit 16P connector.

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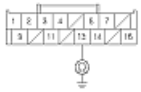
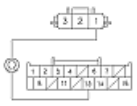
24. Check for continuity between the headlight leveling control unit 16P connector No. 13 terminal and body ground.



    Is there continuity?
    YES - Repair a short in the wire.■
    NO - Go to Step 25 .

---

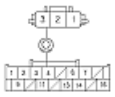
25. Check for continuity between the headlight leveling control unit 16P connector No. 13 terminal and the rear suspension stroke sensor 3P connector No. 1 terminal.



Is there continuity?
YES - Go to Step 26 .
NO - Repair an open in the wire.■

---

26. Check for continuity between the headlight leveling control unit 16P connector No. 4 terminal and the rear suspension stroke sensor 3P connector No. 3 terminal.



Is there continuity?
YES - Replace the headlight leveling control unit .■
NO - Repair an open in the wire.■

27. Turn the ignition switch to LOCK (0).

28. Disconnect the rear suspension stroke sensor 3P connector.

29. Disconnect the headlight leveling control unit 16P connector.

---

30. Check for continuity between the rear suspension stroke sensor 3P connector No. 1 and No. 2 terminals.

Is there continuity?
YES - Repair a short in the wire.■
NO - Replace the rear suspension stroke sensor .■

DTC Troubleshooting: B2479

DTC B2479:
Auto Leveling Unit EEPROM Error

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Check for DTCs with the HDS.

Is DTC B2479 indicated?
YES - Replace the headlight leveling control unit .■
NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: B2480

DTC B2480:
VSP Sensor Failure
NOTE: This DTC is stored when the vehicle speed circuit malfunction is occurred. If this DTC is stored, go to the PGM-FI system and A/T system DTCs troubleshooting.

DTC Troubleshooting: B2481

DTC B2481:
VSP Sensor Failure

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Check for DTCs with the HDS.

   Is DTC B2481 indicated?
   YES - Substitute a known-good gauge control module, then go to Step 4 .
   NO - Intermittent failure, the system is OK at this time.■
4. Check for DTCs with the HDS.

   Is DTC B2481 indicated?
   YES - Replace the headlight leveling control unit .■
   NO - The original gauge control module must be faulty; replace the gauge control module. ■

DTC Troubleshooting: B2482

DTC B2482:
Combination Switch Headlight Switch Signal Error

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Turn the headlight ON, and then back OFF.
4. Check for DTCs with the HDS.

Is DTC B2482 indicated?
YES - Replace the combination light switch.■
NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: B1900

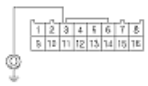
DTC B1900:
Communication Circuit Error (BUS-OFF)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

Are DTCs B1000 and B1011 also indicated with DTC B1900?
YES - Go to DTC B1000 troubleshooting.■
NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: B1000

DTC B1000:
Communication Circuit Error (BUS-OFF)



1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1000 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure. The communication bus line is OK at this time. Check for any worn or shorted wires.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the appropriate connector at each control unit in the table.

Unit	Connector
Gauge control module	32P connector
Climate control unit	36P connector
Automatic lighting/rain sensor	5P connector
Headlight leveling control unit	16P connector
Hands free telephone control unit	28P connector
Immobilizer-keyless control unit	7P connector

7. Turn the ignition switch to ON (II).
8. Clear the DTCs with the HDS.
9. Turn the ignition switch to LOCK (0) and then back to ON (II).
10. Wait for 6 seconds.
11. Check for DTCs with the HDS.

    Is DTC B1000 indicated?
    YES - Go to Step 12 .
    NO - Go to Step 17 .
12. Turn the ignition switch to LOCK (0).
13. Disconnect the under-dash fuse/relay box connector Q (16P).
14. Check for continuity between under-dash fuse/relay box connector Q (16P) No. 3 terminal and body ground.

    Is there continuity?
    YES - Repair a short to ground in the wire between the under-dash fuse/relay box connector and the affected control unit.■
    NO - Go to Step 15 .
15. Turn the ignition switch to ON (II).

---

16. Measure the voltage between under-dash fuse/relay box connector Q (16P) No. 3 terminal and body ground.

    Is there voltage?
    YES - Repair a short to power in the wire between the under-dash fuse/relay box connector and the affected control unit.■
    NO - Faulty MICU, replace the under-dash fuse/relay box. ■
17. Turn the ignition switch to LOCK (0).
18. Reconnect the gauge control module 32P connector.
19. Turn the ignition switch to ON (II).
20. Clear the DTCs with the HDS.
21. Turn the ignition switch to LOCK (0) and then back to ON (II).
22. Wait for 6 seconds or more.
23. Check for DTCs with the HDS.

    Is DTC B1000 indicated?
    YES - Replace the gauge control module. ■
    NO - Go to Step 24 .
24. Reconnect the climate control unit 36P connector. If the climate control unit is not equipped, skip this step, then go

to Step 30 .

25. Turn the ignition switch to ON (II).
26. Clear the DTCs with the HDS.
27. Turn the ignition switch to LOCK (0) and then back to ON (II).
28. Wait for 6 seconds or more.
29. Check for DTCs with the HDS.

    Is DTC B1000 indicated?
    YES - Replace the climate control unit. ■
    NO - Go to Step 30 .

30. Reconnect the automatic lighting/rain sensor 5P connector. If the automatic lighting/rain sensor is not equipped, skip this step, then go to Step 36 .
31. Turn the ignition switch to ON (II).
32. Clear the DTCs with the HDS.
33. Turn the ignition switch to LOCK (0) and then back to ON (II).
34. Wait for 6 seconds or more.
35. Check for DTCs with the HDS.

    Is DTC B1000 indicated?
    YES - Replace the automatic lighting/rain sensor. ■
    NO - Go to Step 36 .

36. Reconnect the headlight leveling control unit 16P connector. If the headlight leveling control unit is not equipped, skip this step, then go to Step 42 .
37. Turn the ignition switch to ON (II).
38. Clear the DTCs with the HDS.
39. Turn the ignition switch to LOCK (0) and then back to ON (II).
40. Wait for 6 seconds or more.
41. Check for DTCs with the HDS.

    Is DTC B1000 indicated?
    YES - Replace the headlight leveling control unit .■
    NO - If the hands free telephone system is equipped, go to Step 42 . If not equipped, replace the immobilizer-keyless control unit. ■

42. Reconnect the hands free telephone control unit 28P connector.
43. Turn the ignition switch to ON (II).
44. Clear the DTCs with the HDS.
45. Turn the ignition switch to LOCK (0) and then back to ON (II).
46. Wait for 6 seconds or more.
47. Check for DTCs with the HDS.

    Is DTC B1000 indicated?
    YES - Replace the hands free telephone control unit. ■
    NO - Replace the immobilizer-keyless control unit. ■

DTC Troubleshooting: B1277

DTC B1277:
Headlight AUTO Position Circuit Malfunction

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Turn the combination light switch POSITION (SMALL), AUTO, and ON (low beam) positions for 6 seconds in each position, and then OFF position.
4. Check for DTCs with the HDS.

   Is DTC B1277 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
5. Select LIGHTING from the BODY ELECTRICAL system select menu, and enter the DATA LIST.
6. Check each combination light switch position value with the DATA LIST menu.

When the combination light switch is turned OFF

Data List	Value
Headlight Switch (OFF)	ON
Headlight Switch (SMALL)	OFF
Headlight Switch (AUTO)	OFF
Headlight Switch (HEADLIGHT)	OFF

When the combination light switch is turned to POSITION (SMALL)

Data List	Value
Headlight Switch (OFF)	OFF
Headlight Switch (SMALL)	ON
Headlight Switch (AUTO)	OFF
Headlight Switch (HEADLIGHT)	OFF

When the combination light switch is turned to AUTO

Data List	Value
Headlight Switch (OFF)	OFF
Headlight Switch (SMALL)	ON
Headlight Switch (AUTO)	ON
Headlight Switch (HEADLIGHT)	ON

When the combination light switch is turned ON (HEADLIGHT)

Data List	Value
Headlight Switch (OFF)	OFF
Headlight Switch (SMALL)	ON
Headlight Switch (AUTO)	OFF
Headlight Switch (HEADLIGHT)	ON

Are all data list values correct?
YES - Faulty MICU; replace the under-dash fuse/relay box. ■
NO - Go to Step 7 .

7. Turn the ignition switch to LOCK (0).
8. Disconnect the combination light switch 12P connector.
9. Turn the ignition switch to ON (II).
10. Select LIGHTING from the BODY ELECTRICAL system select menu, and enter the DATA LIST.
11. Check each combination light switch position value with the DATA LIST menu.

When the combination light switch is turned OFF

Data List	Value
Headlight Switch (OFF)	OFF

Data List	Value
Headlight Switch (SMALL)	OFF
Headlight Switch (AUTO)	OFF
Headlight Switch (HEADLIGHT)	OFF

Are all data list values indicated OFF?
YES - Go to Step 15 .
NO - Go to Step 12 .

12. Turn the ignition switch to LOCK (0).
13. Disconnect under-dash fuse/relay box connector M (34P).
14. Check for continuity between body ground and under-dash fuse/relay box connector M (34P) No. 5, No. 7, and No. 8 terminals individually.

Is there continuity?
YES - Repair a short to ground in the wire.■
NO - Faulty MICU; replace the under-dash fuse/relay box. ■

15. Turn the ignition switch to LOCK (0).
16. Do the combination light switch test.

Is the combination light switch OK?
YES - Go to Step 17 .
NO - Replace the combination light switch.■

17. Disconnect under-dash fuse/relay box connectors M (34P).

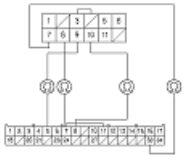
---

18. Check for continuity between under-dash fuse/relay box connector M (34P) terminals and the combination light switch 12P connector terminals as shown:

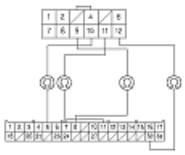
Under-dash fuse/relay box connector M (34P)	Combination light switch 12P connector
8	10 [9]
5	9 [10]
7	8 [11]
33	7 [12]

[ ]: LHD model (Include KE and KN models)

RHD model (Except KE and KN models)



LHD model (Include KE and KN models)



Is there continuity?
YES - Go to Step 19 .
NO - Repair an open in the wire.■

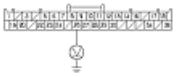
19. Check for continuity between under-dash fuse/relay box connector M (34P) terminals as shown:

From terminal	To terminal
8	3, 4, 5, 7
7	3, 4, 5

Is there continuity?
YES - Repair a short between the wires.■
NO - Faulty MICU; replace the under-dash fuse/relay box. ■

A/C Pressure Switch Circuit Troubleshooting

NOTE:



- If the blower motor does not run at all speeds, the A/C compressor will be inoperative. Run the self-diagnostic function, and check the DTC B1241. Before performing any other troubleshooting, repair the cause of the inoperative blower motor.
- Do not use this troubleshooting procedure if any of the following items are operative; condenser fan, radiator fan, A/C compressor, or if the heater is inoperative. Refer to the symptom troubleshooting index.
- Check the A/C high-side pressure.
- Before doing symptom troubleshooting, check for powertrain DTCs. Also check for B-CAN codes.

1. Turn the ignition switch to ON (II).
2. Check if the blower motor operates at all speeds.

   Does the blower motor operate at all speeds?
   YES - Go to Step 3 .
   NO - Repair the problem in the blower motor circuit. ■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the climate control unit 36P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between the climate control unit 36P connector No. 26 terminal and body ground.

   Is there battery voltage?
   YES - Go to Step 14 .
   NO - Go to Step 7 .
7. Turn the ignition switch to LOCK (0).
8. Disconnect the A/C pressure switch 2P connector.
9. Turn the ignition switch to ON (II).

---

10. Measure the voltage between the A/C pressure switch 2P connector No. 2 terminal and body ground.

    Is there battery voltage?
    YES - Go to Step 11 .
    NO - Repair open in the wire between the A/C pressure switch and the MICU. If the wire is OK, substitute a known-good MICU and recheck. If the symptom goes away, replace the original MICU .■

---

11. Check for continuity between the No. 1 and No. 2 terminals of the A/C pressure switch.

    Is there continuity?
    YES - Go to Step 12 .
    NO - Replace the A/C pressure switch .■

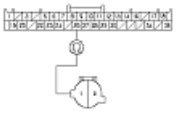
---

12. Connect the A/C pressure switch 2P connector No. 2 terminal to body ground with a jumper wire.

    Do the compressor and fans operate?
    YES - Go to Step 13 .
    NO - Check for B-CAN codes. ■
13. Disconnect the jumper wire and A/C pressure switch 2P connector.

---

14. Check for continuity between the climate control unit 36P connector No. 26 terminal and the A/C pressure switch 2P connector No. 1 terminal.

    Is there continuity?
    YES - Check for loose wires or poor connections at the climate control unit 36P connector and at the A/C pressure switch 2P connector.■
    NO - Repair open in the wire between the climate control unit and A/C pressure switch.■
15. Turn the ignition switch to LOCK (0).
16. Jump the SCS line with the HDS.
    NOTE: This step must be done to protect the engine control module (ECM)/powertrain control module (PCM) from damage.
17. Disconnect ECM/PCM connector A (49P).

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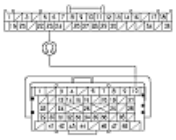
18. Measure the evaporator temperature sensor resistance between the climate control unit 36P connector No. 23 terminal and ECM/PCM connector A (49P) No. 10 terminal.



Is the resistance less than 24 kΩ?

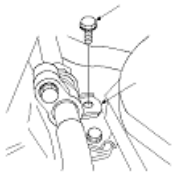
YES - Check for loose wires or poor connections at the climate control unit connectors. If the connections are good, substitute a known-good climate control unit and recheck. If the symptom goes away, replace the original climate control unit .■

NO - Test the evaporator temperature sensor. ■

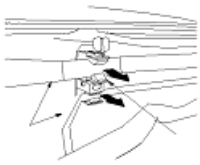
A/C Evaporator Core Replacement

LHD model

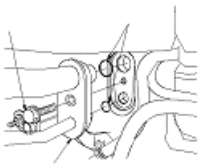
1. Recover the refrigerant with a recovery/recycling/charging station.
2. Remove the cowl cover and the under-cowl panel.
3. Remove the bolt from the A/C line clamp (A).



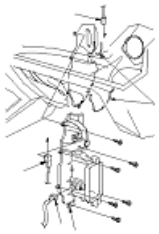
4. Open the clamp (A), then remove the A/C lines (B).



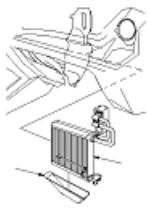
5. Remove the bolt, then disconnect the A/C line (A) from the evaporator core and remove the O-rings (B).
6. Remove the blower unit.
7. Remove the mode control motor.



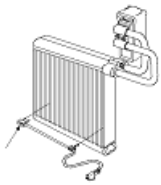
8. Disconnect the connectors (A) from the evaporator temperature sensor and the power transistor, then remove the connector clip (B). Remove the self-tapping screws, the expansion valve cover (C), and the seal (D).



9. Carefully pull out the evaporator core assembly (A) without bending the lines, the remove the plate (B).

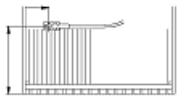


10. Pull out the evaporator temperature sensor (A) from the evaporator core.

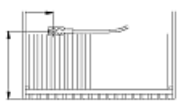


11. Install the evaporator temperature sensor in the evaporator core, and note these items:
    - When the evaporator temperature sensor (A) is installed into the new evaporator core, set the sensor into the factory-preset position (B, C).
    - When the evaporator temperature sensor is reinstalled into the original evaporator core, set the sensor into the new position (D, E) because the fin may be deforming by the previous installation.

Installing into the factory-preset position



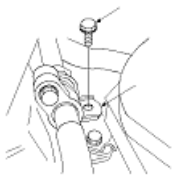
Installing into the new position



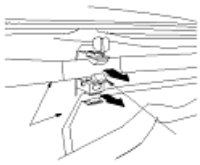
12. Install the core in the reverse order of removal and note these items:
    - If you're installing a new evaporator core, add refrigerant oil (SP-10).
    - Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
    - Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
    - Do not spill the refrigerant oil on the vehicle; it may damage the paint; if the refrigerant oil contacts the paint, wash it off immediately.
    - Make sure that there is no air leakage.
    - Charge the system.

RHD model

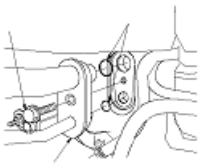
1. Recover the refrigerant with a recovery/recycling/charging station.
2. Remove the cowl cover and the under-cowl panel.
3. Remove the bolt from the A/C line clamp (A).



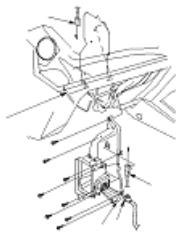
4. Open the clamp (A), then remove the A/C lines (B).



5. Remove the bolt, then disconnect the A/C line (A) from the evaporator core and remove the O-rings (B).
6. Remove the blower unit.
7. Remove the mode control motor.

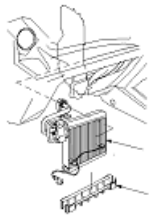


8. Disconnect the connectors (A) from the evaporator temperature sensor and the power transistor, then remove the connector clip (B). Remove the self-tapping screws, the expansion valve cover (C), and the seal (D).

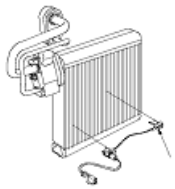


9. The tapping screw (A) is removed, the cover (B) is knocked down to the insulator side, and it removes.

10. Carefully pull out the evaporator core assembly (A) without bending the lines, the remove the plate (B).

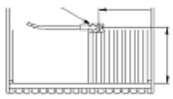


11. Pull out the evaporator temperature sensor (A) from the evaporator core.

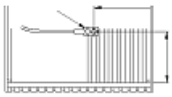


12. Install the evaporator temperature sensor in the evaporator core, and note these items:
    - When the evaporator temperature sensor (A) is installed into the new evaporator core, set the sensor into the factory-preset position (B, C).
    - When the evaporator temperature sensor is reinstalled into the original evaporator core, set the sensor into the new position (D, E) because the fin may be deforming by the previous installation.

Installing into the factory-preset position



Installing into the new position

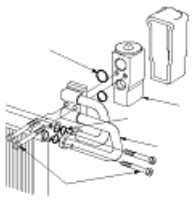


13. Install the core in the reverse order of removal and note these items:
    - If you're installing a new evaporator core, add refrigerant oil (SP-10).
    - Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
    - Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
    - Do not spill the refrigerant oil on the vehicle; it may damage the paint; if the refrigerant oil contacts the paint, wash it off immediately.
    - Make sure that there is no air leakage.
    - Charge the system.

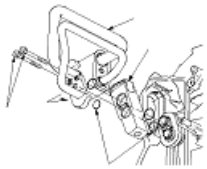
A/C Evaporator Expansion Valve Replacement

1. Remove the evaporator core.
2. Remove the bolts, O-rings (A) and the expansion valve (B) from the pipe (C).
3. Install the expansion valve in the reverse order of removal, and note these items:
   - Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
   - Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
   - Do not spill the refrigerant oil on the vehicle; it may damage the paint; if the refrigerant oil contacts the paint, wash it off immediately.
   - Make sure that there is no air leakage.
   - Charge the system.

LHD model

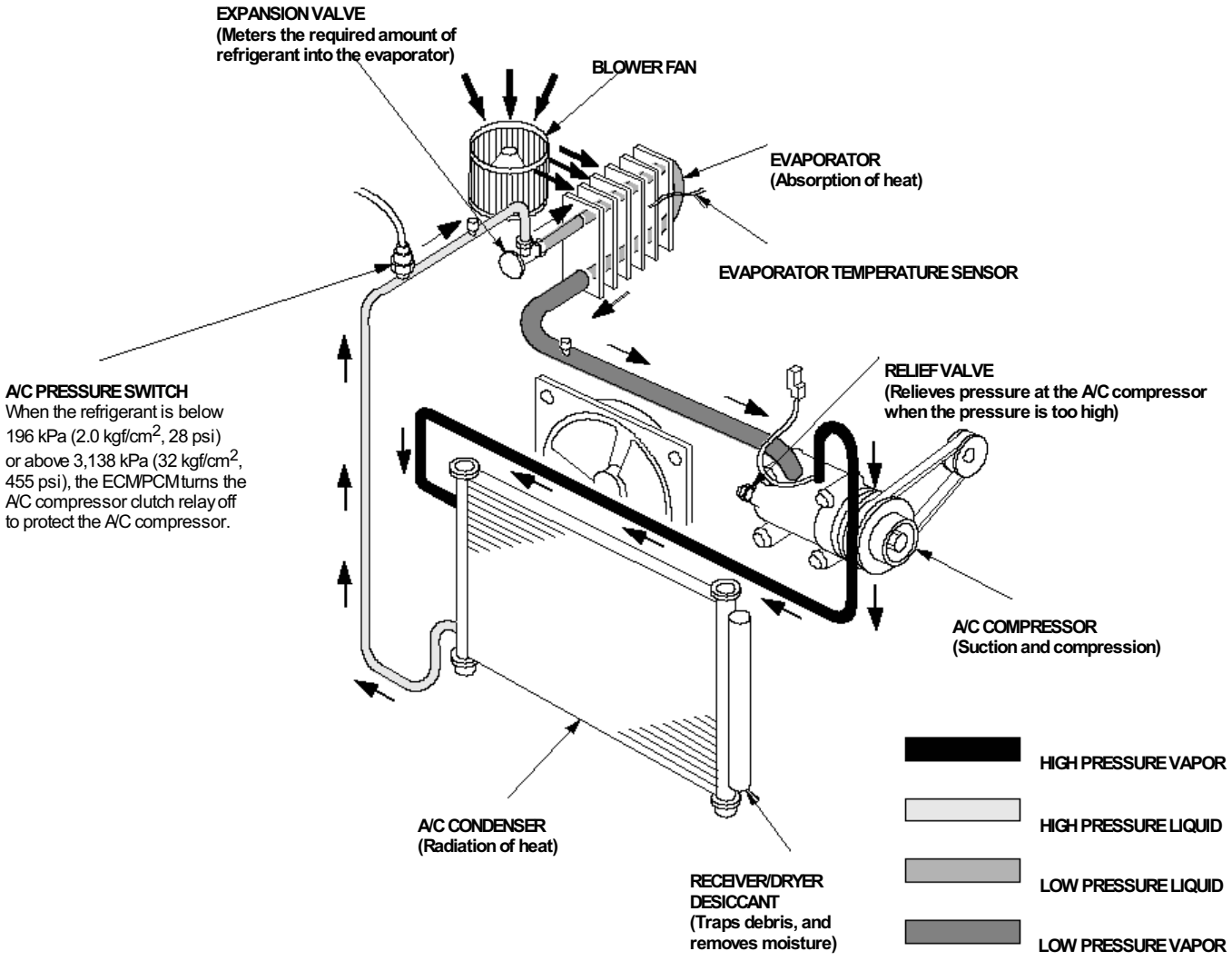


RHD model

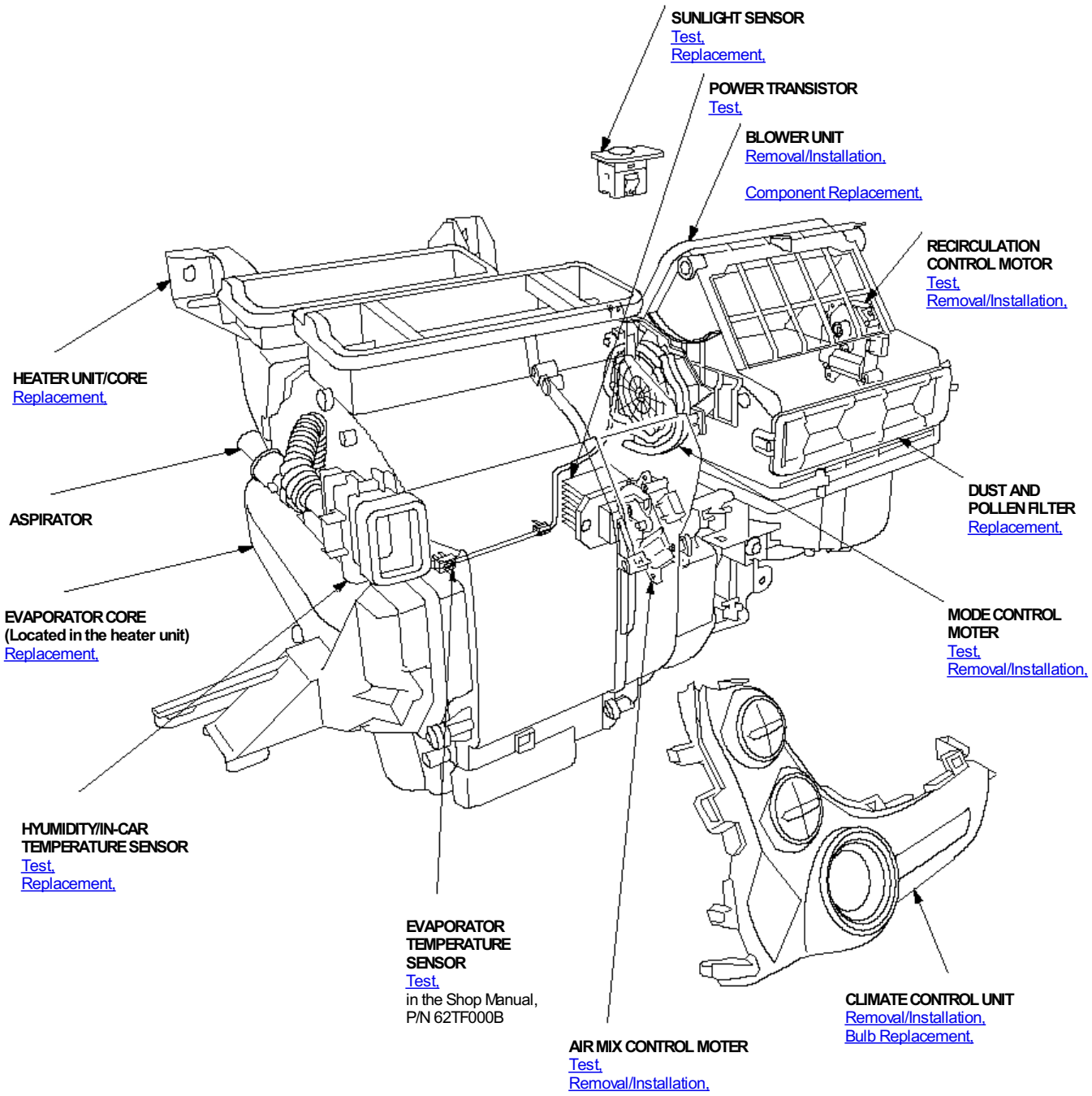


Climate Control System Description

The air conditioning system removes heat from the passenger compartment by transferring heat from the ambient air to the evaporator. The evaporator cools the air with the refrigerant that is circulating through the evaporator. The refrigerant expands in the evaporator, and the evaporator becomes very cold and absorbs the heat from the ambient air. The blower fan pushes air across the evaporator where the heat is absorbed, and then it blows the cool air into the passenger compartment.

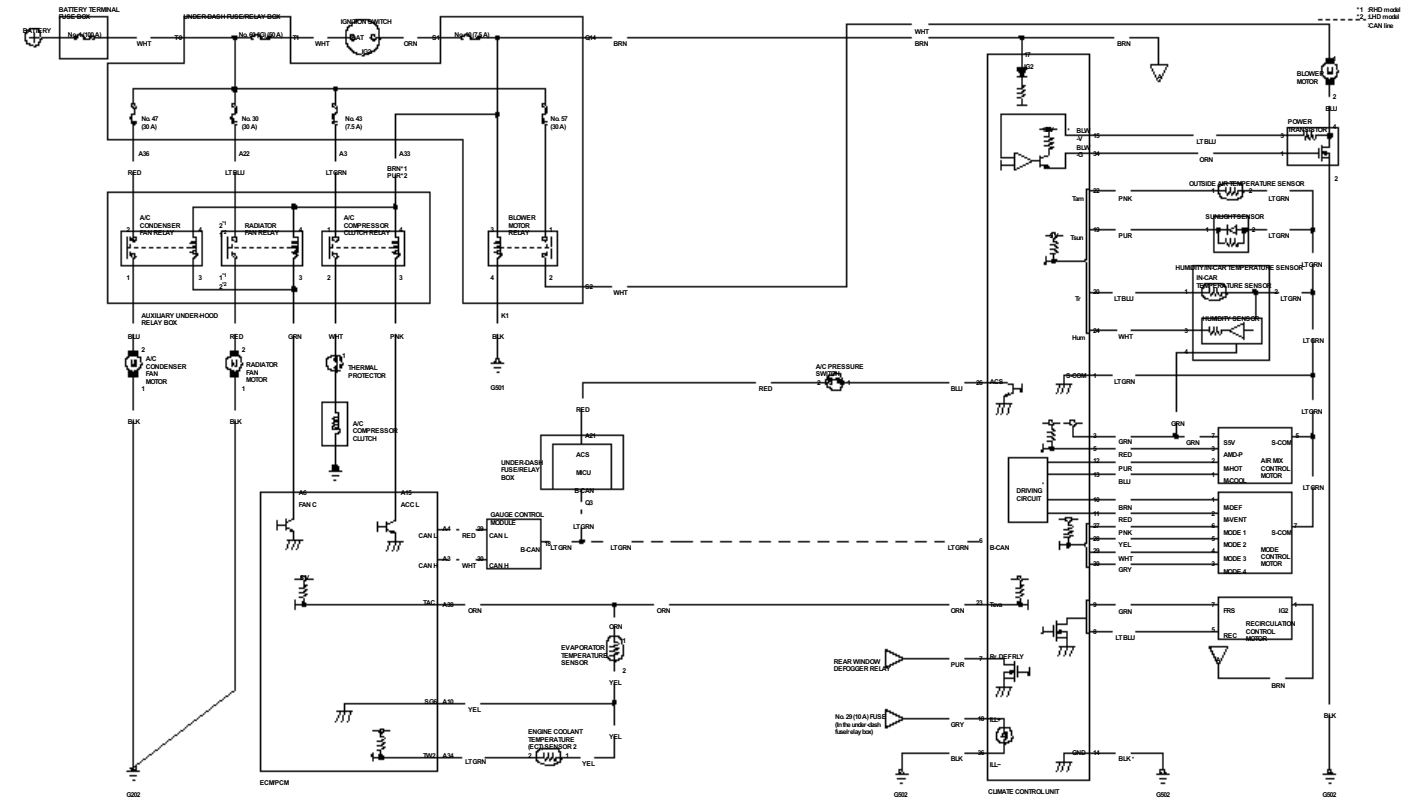


Climate Control Component Location Index



LHD model is shown, RHD model is similar.

Climate Control Circuit Diagram



Recirculation control doors do not change between Fresh and Recirculate

Diagnostic procedure

1. Recirculation control motor circuit troubleshooting

Also check for

- Blown fuse No. 10 (7.5 A) in the under-dash fuse/relay box
- Cleanliness and tightness of all terminals

Blower, heater controls, and A/C do not work

Diagnostic procedure

1. Climate control power and ground circuit troubleshooting

Also check for

- HVAC DTCs
- Blown fuse No. 10 (7.5 A) in the under-dash fuse/relay box
- Poor ground at G502
- Cleanliness and tightness of all terminals

Both fans do not run with the A/C on (but the A/C compressor runs with the A/C on)

Diagnostic procedure

1. Radiator and A/C condenser fans common circuit troubleshooting

Also check for

- HVAC DTCs
- Blown fuse No. 30 (30 A) and No. 47 (30 A) in the under-dash fuse/relay box
- Poor ground at G202
- Cleanliness and tightness of all terminals

A/C condenser fan does not run at all (but radiator fan runs with the A/C on)

Diagnostic procedure

1. A/C condenser fan circuit troubleshooting

Also check for

- HVAC DTCs
- Blown fuse No. 47 (30 A) in the under-hood fuse/relay box
- Cleanliness and tightness of all terminals

A/C compressor clutch does not engage (but both fans run with the A/C on)

Diagnostic procedure

1. A/C compressor clutch circuit troubleshooting

Also check for

- HVAC DTCs
- Blown fuse No. 43 (7.5 A) in the under-dash fuse/relay box
- Cleanliness and tightness of all terminals

A/C system does not come on (both fans and the A/C compressor do not work); heater is OK

Diagnostic procedure

1. A/C pressure switch circuit troubleshooting

Also check for

- Powertrain DTCs
- Cleanliness and tightness of all terminals

Blower fan runs slower than expected in cold weather

Diagnostic procedure

1. ECT troubleshooting: ECT sensor 2 circuit low voltage, ECT sensor 2 circuit high voltage
2. NOTE: It is normal for the blower to run slowly until the engine coolant temperature begins to rise. If the blower continues to run slowly for an abnormal length of time, continue to troubleshoot the problem.

Also check for

- Powertrain DTCs

HDS does not communicate with the climate control unit or the vehicle

Diagnostic procedure

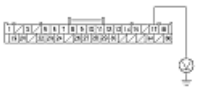
1. DLC circuit troubleshooting

Climate Control Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Recirculation control doors do not change between Fresh and Recirculate	Recirculation control motor circuit troubleshooting	• Blown fuse No. 10 (7.5 A) in the under-dash fuse/relay box • Cleanliness and tightness of all terminals
Blower, heater controls, and A/C do not work	Climate control power and ground circuit troubleshooting	• HVAC DTCs • Blown fuse No. 10 (7.5 A) in the under-dash fuse/relay box • Poor ground at G502 • Cleanliness and tightness of all terminals
Both fans do not run with the A/C on (but the A/C compressor runs with the A/C on)	Radiator and A/C condenser fans common circuit troubleshooting	• HVAC DTCs • Blown fuse No. 30 (30 A) and No. 47 (30 A) in the under-dash fuse/relay box • Poor ground at G202 • Cleanliness and tightness of all terminals
A/C condenser fan does not run at all (but radiator fan runs with the A/C on)	A/C condenser fan circuit troubleshooting	• HVAC DTCs • Blown fuse No. 47 (30 A) in the under-hood fuse/relay box • Cleanliness and tightness of all terminals
A/C compressor clutch does not engage (but both fans run with the A/C on)	A/C compressor clutch circuit troubleshooting	• HVAC DTCs • Blown fuse No. 43 (7.5 A) in the under-dash fuse/relay box • Cleanliness and tightness of all terminals
A/C system does not come on (both fans and the A/C compressor do not work); heater is OK	A/C pressure switch circuit troubleshooting	• Powertrain DTCs • Cleanliness and tightness of all terminals
Blower fan runs slower than expected in cold weather	ECT troubleshooting: ECT sensor 2 circuit low voltage, ECT sensor 2 circuit high voltage NOTE: It is normal for the blower to run slowly until the engine coolant temperature begins to rise. If the blower continues to run slowly for an abnormal length of time, continue to troubleshoot the problem.	Powertrain DTCs
HDS does not communicate with the climate control unit or the vehicle	DLC circuit troubleshooting	

Climate Control Power and Ground Circuit Troubleshooting

1. Check the No. 10 (7.5 A) fuse in the under-dash fuse/relay box.



Is the fuse OK?
YES - Go to Step 2 .
NO - Replace the fuse, and recheck. If the fuse blows again, check for a short in the No. 10 (7.5 A) fuse circuit.■

2. Disconnect the climate control unit 36P connector.
3. Turn the ignition switch to ON (II).
4. Measure the voltage between the climate control unit 36P connector No. 17 terminal and body ground.

Is there battery voltage?
YES - Go to Step 5 .
NO - Repair open in the wire between the No. 10 (7.5 A) fuse in the under-dash fuse/relay box and the climate control unit.■

5. Turn the ignition switch to LOCK (0).

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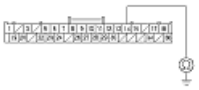
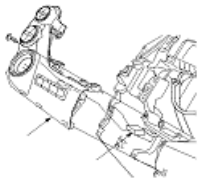
6. Check for continuity between the climate control unit 36P connector No. 14 terminal and body ground.



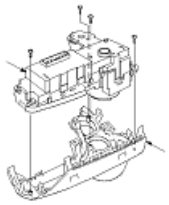
Is there continuity?
YES - Check for loose wires and poor connections at the climate control unit 36P connector. If connections are good, substitute a known-good climate control unit and recheck. If the symptom/indication goes away, replace the original climate control unit .■
NO - Check for open in the wire between the climate control unit and body ground. If the wire is OK, check for poor body ground at G502. ■

Climate Control Unit Removal/Installation

1. Remove the audio unit.
2. Remove the self-tapping screw and pull the climate control unit (A).
3. Disconnect the connector (B) and climate control unit.



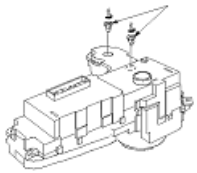
4. Remove the self-tapping screws and the climate control unit (A) from the panel (B).
5. Install the control unit in the reverse order of removal. After installation, operate the various functions to see whether work properly.
6. Run the self-diagnostic function to confirm that there are no problems in the system.



Climate Control Unit Bulb Replacement

NOTE:

- Do not work in a dusty or dirty place.
- Do not work with dusty hands.
- Discharge static electricity from your body before and during the work.
- Do not touch the circuit board(s) with your bare hands.



1. Remove the climate control unit.
2. Remove the bulb(s) (A) with a flat-tip screwdriver.

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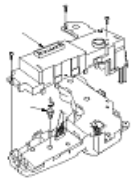
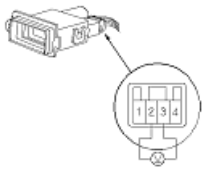
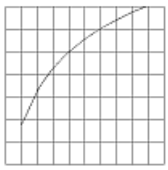
3. Remove the self-tapping screws and open the cover (A), then remove the bulb (B) with a flat-tip screwdriver.
4. Install the bulb(s) in the reverse order of removal. After installation, operate the various functions to see whether it works properly.
5. Run the self-diagnostic function to confirm that there are no problems in the system.



Humidity/In-car Temperature Sensor Test

Humidity Sensor Test





1. Remove the humidity/in-car temperature sensor.
2. Connect the humidity/in-car temperature sensor 4P connector.
3. Turn the ignition switch to ON (II). Measure the voltage between the terminals with the (+) probe on the No. 3 terminal and the (−) probe on the No. 2 terminal with the connector connected.
4. If the voltage is not as specified, replace the humidity/in-car temperature sensor.

In-car Temperature Sensor Test

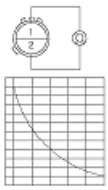
1. Remove the humidity/in-car temperature sensor.
2. Connect the humidity/in-car temperature sensor 4P connector.
3. Test the humidity/in-car temperature sensor while holding it in front of the dashboard center vent.
   - Measure the resistance with the system set to Max Cool.
   - Measure the resistance with the system set to Max Hot.
4. Compare the resistance reading between the No. 1 and No. 2 terminals of the humidity/in-car temperature sensor with the specifications shown in the graph; the resistance should be within the specifications.
5. If the resistance is not as specified, replace the humidity/in-car temperature sensor.

Humidity/In-car Temperature Sensor Replacement

1. Remove the instrument panel.
2. Remove the aspirator air hose (A) and disconnect the connector (B).
3. Remove the self-tapping screw and humidity/in-car temperature sensor (C) from the adapter (D).
4. Install the sensor in the reverse order of removal. Be sure to connect the air hose securely.

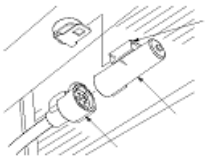
Outside Air Temperature Sensor Test

1. Remove the outside air temperature sensor.
2. Dip the sensor in ice water, and measure the resistance. Then pour warm water on the sensor, and check for a change in resistance.
3. Compare the resistance reading between the No. 1 and No. 2 terminals of the outside air temperature sensor with the specifications shown in the graph; the resistance should be within the specifications.
4. If the resistance is not as specified, replace the outside air temperature sensor.



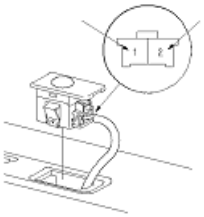
Outside Air Temperature Sensor Replacement

NOTE: The L15A7 engine model remove the front bumper.



1. Lift the tab (A) to release the lock, then remove the outside air temperature sensor (B) from the front bumper beam. Disconnect the 2P connector (C) from the outside air temperature sensor.
2. Install the sensor in the reverse order of removal.

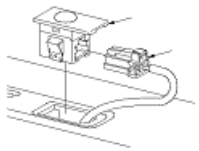
Sunlight Sensor Test



1. Remove the sunlight sensor.
2. Turn the ignition switch to ON (II). Measure the voltage between the terminals with the (+) probe on the No. 1 terminal and the (−) probe on the No. 2 terminal with the connector connected.
   NOTE: The voltage readings will not change under the light of a flashlight or a fluorescent lamp. Voltage should be:
   - 3.6−3.7 V or more with the sensor out of direct sunlight.
   - 3.3−3.5 V or less with the sensor in direct sunlight.
3. If the voltage is not as specified, replace the sunlight sensor.

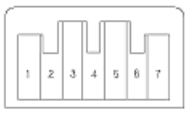
Sunlight Sensor Replacement

1. Remove the sunlight sensor (A) from the dashboard, then disconnect the connector (B). Be careful not to damage the sensor and the dashboard.
2. Install the sensor in the reverse order of removal.



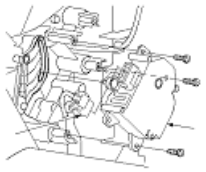
Air Mix Control Motor Test

NOTE: Before testing, check for HVAC DTCs.



1. Disconnect the 7P connector from the air mix control motor.
   NOTICE
   Incorrectly applying power and ground to the air mix control motor will damage it. Follow the instructions carefully.
2. Connect battery power to the No. 1 terminal of the air mix control motor, and ground the No. 2 terminal; the air mix control motor should run, and stop at Max Cool. If it doesn't, reverse the connections; the air mix control motor should run, and stop at Max Hot. When the air mix control motor stops running, disconnect battery power immediately.
3. If the air mix control motor did not run in Step 2 , remove it, then check the air mix control linkage and door for smooth movement.
   - If the linkage and door move smoothly, replace the air mix control motor.
   - If the linkage or door sticks or binds, repair them as needed.
   - If the air mix control motor runs smoothly, go to Step 4 .
4. Measure the resistance between the No. 5 and No. 7 terminals. It should be between 4.2 to 7.8 kΩ.
5. Reconnect the air mix control motor 7P connector, then turn the ignition switch to ON (II).
6. Using the backprobe set, measure the voltage between the No. 3 and No. 5 terminals.
   Max Cool: **About 1.0 V**
   Max Hot: **About 4.0 V**
7. If either the resistance or voltage readings are not as specified, replace the air mix control motor.

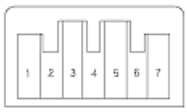
Air Mix Control Motor Replacement



1. Remove the passenger's dashboard undercover and the glove box.
2. Disconnect the 7P connector (A) from the air mix control motor (B). Remove the self-tapping screws and the air mix control motor from the heater unit.
3. Install the motor in the reverse order of removal. Make sure the pin on the motor is properly engaged with the linkage. After installation, make sure the motor runs smoothly.

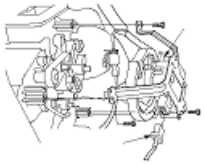
Mode Control Motor Test

NOTE: Before testing, check for HVAC DTCs.



1. Disconnect the 7P connector from the mode control motor.
   NOTICE
   Incorrectly applying power and ground to the mode control motor will damage it. Follow the instructions carefully.
2. Connect battery power to the No. 1 terminal of the mode control motor, and ground the No. 2 terminal; the mode control motor should run smoothly, and stop at Vent. If it doesn't, reverse the connections; the mode control motor should run smoothly, and stop at Defrost. When the mode control motor stops running, disconnect battery power immediately.
3. If the mode control motor did not run in Step 2, remove it, then check the mode control linkage and doors for smooth movement.
   - If the linkage and doors move smoothly, replace the mode control motor.
   - If the linkage or doors stick or bind, repair them as needed.
   - If the mode control motor runs smoothly, go to Step 4.
4. Use a digital multimeter with an output of 1 mA or less at the 20 kΩ range. With the mode control motor running as in Step 2, check for continuity between the No. 3, 4, 5, and 6 terminals and the No. 7 terminal individually. There should be continuity for a moment at each terminal as the motor moves past the switch's terminal.
5. If there is no continuity for a moment at each terminal, replace the mode control motor.

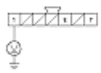
Mode Control Motor Replacement



1. Remove the passenger's dashboard undercover.
2. Remove the glove box.
3. Disconnect the 7P connector (A) from the mode control motor (B). Remove the self-tapping screws and the mode control motor from the heater unit.
4. Install the motor in the reverse order of removal. Make sure the pin on the motor is properly engaged with the linkage. After installation, make sure the motor runs smoothly.

Recirculation Control Motor Circuit Troubleshooting

1. Check the No. 10 (7.5 A) fuse in the under-dash fuse/relay box.



Is the fuse OK?
YES - Go to Step 2 .
NO - Replace the fuse, and recheck. If the fuse blows again, check for a short in the No. 10 (7.5 A) fuse circuit.■

2. Disconnect the recirculation control motor 7P connector.
3. Turn the ignition switch to ON (II).
4. Measure the voltage between the recirculation control motor 7P connector No. 1 terminal and body ground.

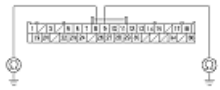
Is there battery voltage?
YES - Go to Step 5 .
NO - Repair open in the wire between the No. 10 (7.5 A) fuse in the under-dash fuse/relay box and the recirculation control motor.■

5. Turn the ignition switch to LOCK (0).
6. Test the recirculation control motor.

Is the recirculation control motor OK?
YES - Go to Step 7 .
NO - Replace the recirculation control motor, or repair the recirculation control linkage or door.■

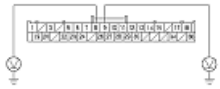
7. Disconnect the climate control unit 36P connector.

8. Check for continuity between body ground and the climate control unit 36P connector No. 8 and No. 9 terminals individually.



Is there continuity?
YES - Repair short to body ground in the wire(s) between the climate control unit and the recirculation control motor.■
NO - Go to Step 9 .

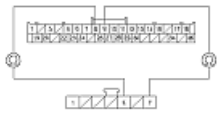
9. Turn the ignition switch to ON (II), and check the same terminals for voltage to body ground.



Is there any voltage?
YES - Repair short to power in the wires between the climate control unit and the recirculation control motor. This short may also damage the climate control unit. Repair the short to power before replacing the climate control unit.■
NO - Go to Step 10 .

10. Turn the ignition switch to LOCK (0).

11. Check for continuity between the following terminals of the climate control unit 36P connector and the recirculation control motor 7P connector.



36P:	7P:
No. 8	No. 5
No. 9	No. 7

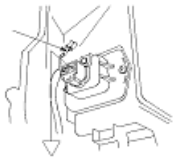
Is there continuity?
YES - Check for loose wires or poor connections at the climate control unit 36P connector and at the recirculation control motor 7P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit .■
NO - Repair open in the wire(s) between the climate control unit and the recirculation control motor.■

Blower Power Transistor Test

1. Remove the passenger's dashboard undercover.
2. Disconnect the 4P connector from the power transistor.

3. Measure the resistance between the No. 3 and No. 4 terminals of the power transistor. It should be about 1.5 kΩ.
   - If the resistance is within the specifications, go to Step 4 .
   - If the resistance is not within the specifications, replace the power transistor.
     NOTE: Also check the blower motor. Power transistor failure can be caused by a defective blower motor.

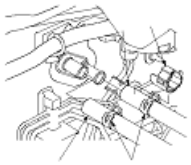
4. Carefully release the lock tab on the No. 1 terminal (ORN) (A) in the 4P connector, then remove the terminal and insulate it from body ground.



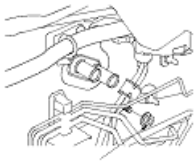
5. Reconnect the 4P connector to the power transistor.
6. Make sure the ORN wire is completely isolated, then supply 12 V to the No. 1 cavity with a jumper wire.
7. Turn the ignition switch to ON (II), and check that the blower motor runs.
   - If the blower motor does not run, replace the power transistor.
     NOTE: A faulty blower motor can cause the power transistor to fail. If the power transistor is replaced, also check the blower motor for binding, and replace it if necessary.
   - If the blower motor runs, the power transistor is OK.

Heater Unit/Core Replacement

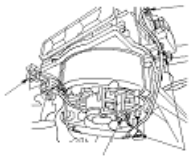
SRS components are located in this area. Review the SRS component locations, and the precautions and procedures before doing repairs or service.



1. Do the battery terminal disconnection procedure.
2. Disconnect the A/C line from the evaporator core.
3. Drain the engine coolant from the radiator.
4. From the inlet heater hose, remove the clip (A). Slide the hose clamps (B) back, then disconnect the inlet heater hose (C) and the outlet heater hose (D) from the heater unit. Engine coolant will run out when the hoses are disconnected; drain it into a clean drip pan. Be sure not to let coolant spill on the electrical parts or the painted surfaces. If any coolant spills, rinse it off immediately.



5. Remove the mounting nut from the heater unit. Take care not to damage or bend the fuel lines or brake lines, etc.
6. Remove the dashboard.



7. Disconnect the connectors (A) from the blower motor and the recirculation control motor. Remove the clips (B).

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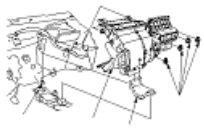
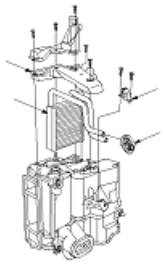
8. Disconnect these connectors (A): The mode control motor, the power transistor, the evaporator temperature sensor, air mix control motor. Remove the wire harness (B).



9. Remove the duct (A) and the drain hose (B). Remove the mounting nuts and blower-heater unit (C).



10. Remove the self-tapping screws and the heater core cover (A), the stay (B), the grommet (C), and carefully pull out the heater core (D).
11. Install the heater core, and the evaporator core in the reverse order of removal.
12. Install the heater unit in the reverse order of removal, and note these items:
    - Do not interchange the inlet and outlet heater hoses, and install the hose clamps securely.
    - Refill the cooling system with engine coolant.
    - Make sure that there is no coolant leakage.
    - Make sure that there is no air leakage.
    - Refer to the evaporator core replacement.
13. Do the battery terminal reconnection procedure.

How to Troubleshoot the Climate Control

How to Check for DTCs with the HDS

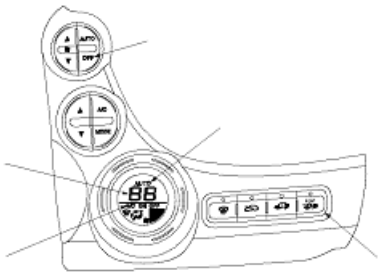
1. Make sure the ignition switch to LOCK (0).
2. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
3. Turn the ignition switch to ON (II).
4. Make sure the HDS communicates with the vehicle and the climate control unit. If it doesn't, troubleshoot the DLC circuit.
5. Select HVAC/CLIMATE CONTROL in the BODY ELECTRICAL menu.
6. Select DTCs in the HVAC/CLIMATE CONTROL menu.
7. Check for DTCs. If any DTCs are indicated, write down the DTCs, then go to the indicated DTC troubleshooting. If no DTCs are indicated, refer to symptom troubleshooting.
   NOTE:
   - After troubleshooting, clear the DTCs with the HDS.
   - For specific operations, refer to the user's manual that came with the HDS.

How to Use the Self-diagnostic Function with the HDS

1. Make sure the ignition switch to LOCK (0).
2. Connect the HDS to the data link connector (DLC).
3. Turn the ignition switch to ON (II).
4. Make sure the HDS communicates with the vehicle and the climate control unit. If it doesn't, troubleshoot the DLC circuit.
5. Select HVAC/CLIMATE CONTROL in the BODY ELECTRICAL menu.
6. Select INSPECTION in the HVAC/CLIMATE CONTROL menu.
7. Select CLIMATE CONTROL SELF TEST in the INSPECTION menu.
8. Check for DTCs. If any DTCs are indicated, write down the DTCs, then go to the indicated DTC troubleshooting.
   NOTE:
   - After troubleshooting, clear the DTCs with the HDS.
   - For specific operations, refer to the user's manual that came with the HDS.

How to Use the Self-diagnostic Function without the HDS

The climate control unit has a self-diagnostic function. To run the self-diagnostic function, do the following:



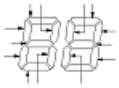
1. Turn the ignition switch to LOCK (0), and then to ON (II).
2. Press and hold the OFF button. While pressing the REAR WINDOW DEFOGGER/MIRROR HEATER button five times within 10 seconds, then release the OFF button and the self-diagnostic will begin.
   NOTE:
   - The blower motor will run at various speeds regardless of what the panel is displaying.
   - If there is a problem with the system, it will flash 88, or 88 AUTO or 88 A/C, and one or more of the 14 indicator segments (A through P). Refer to checking for DTCs.
   - If there are no problems detected, the segments will not illuminate, and the system will appear to be turned off.

Canceling the Self-diagnostic Function

1. Turn the ignition switch to LOCK (0) to cancel the self-diagnostic function. After completing repair work, run the self-diagnostic function again to make sure that there are no other DTCs.

Checking for DTCs

The temperature display indicates single or multiple DTCs. If indicator segments A, C, E, J, AUTO and A/C are on at the same time, there may be an open in the common ground wire. If no DTCs are present, the indicator remains blank.



DTC (Temperature Indicator Segment and AUTO Indicator)	Detection Item
A and AUTO	An open in the in-car temperature sensor circuit
B and AUTO	A short in the in-car temperature sensor circuit
C and AUTO	An open in the outside air temperature sensor circuit
D and AUTO	A short in the outside air temperature sensor circuit
E and AUTO	An open in the sunlight sensor circuit
F and AUTO	A short in the sunlight sensor circuit
G and AUTO	An open in the evaporator temperature sensor circuit
H and AUTO	A short in the evaporator temperature sensor circuit
J and AUTO	An open in the humidity sensor circuit
K and AUTO	A short in the humidity sensor circuit
A and A/C	An open in the air mix control motor circuit
B and A/C	A short in the air mix control motor circuit
C and A/C	A problem in the air mix control motor circuit, linkage, door, or motor
D and A/C	An open or short in the mode control motor circuit
E and A/C	A problem in the mode control motor circuit, linkage, doors, or motor
F and A/C	A problem in the blower motor circuit
A	Climate control unit internal error
B	Climate control unit lost communication with gauge control module (VSP message)
C	Climate control unit lost communication with gauge control module (ECT message)
D	Climate control unit lost communication with gauge control module (ILLUMI message)
E	Communication circuit error (BUS-OFF)

Displaying Sensor Inputs at the Climate Control Unit

The climate control unit has a mode that displays sensor inputs it receives. This mode shows you what the climate control unit is receiving from each of the sensors, one at a time, and it can help you determine if a sensor is faulty.

Check these items before using the sensor input display mode

1. Turn the ignition switch to ON (II), and check the recirculation door function; press the recirculation button to switch from FRESH to RECIRC. The air volume and sound should change slightly.
2. Set the temperature control knob to the desired test temperature. When selecting the test temperature, note these items:
   - "Lo" temperature setting will default to MAX COOL, VENT, and RECIRC.
   - "Hi" temperature setting will default to MAX HOT, FLOOR, and FRESH.
   - 19 through 31 °C settings will use the automatic climate control logic.
3. Turn the ignition switch to LOCK (0).

To run the sensor input display mode, follow these steps

1. Turn the ignition switch to LOCK (0).
2. Press and hold both the AUTO and RECIRCULATION buttons, then start the engine.
3. After the engine starts, release both buttons. The display panel control unit will flash the sensor number and then the value for that sensor. Record the value displayed.
4. To advance to the next sensor, press the REAR WINDOW DEFOGGER button.

Sensor	Item	Displayed Value
1	Mode Positioning	BIT
2	In-car Temperature	°C
3	Outside Air Temperature	°C

Sensor	Item	Displayed Value
4	Solar Radiation Sensor Value: Dark = 00, Flashlight = 04, Cloudy = 10, Sunny = 65	10 kcal/m ^{2} ·h
5	Evaporator Outlet Air Temperature	°C
6	Air Mix Opening (Low value indicates cooler air distribution, higher value indicates warmer air distribution)	% of opening
7	Vehicle speed (Vehicle must be driven to display speed)	10 km/h
8	Engine Coolant Temperature	°C
9	Vent Temperature Air Out (TAO)	°C
A	Humidity Sensor Value	%
B	Illumination duty	Step
C	Software version	———

NOTE:

- The sensor values will be displayed in degrees Celsius (°C) or an alphanumeric code. Use the chart to convert the value to degrees Fahrenheit (°F).
- If the sensor value displays ‘‘Er" this indicates there is an open or short in the circuit or sensor. Check for DTCs using the HDS, or refer to checking DTCs by DTC indication to check for DTCs.
- If necessary, compare the sensor input display to a like, known-good vehicle under the same test conditions.
- If the sensor is out of the normal range, refer to the sensor test or substitute a known-good sensor, and recheck.

5. To cancel the sensor input display mode, press the AUTO button or turn the ignition switch to LOCK (0).

Celsius to Fahrenheit Conversion Table

°C	°F	°C	°F	°C	°F	°C	°F	°C	°F
0	32	10	50	20	68	30	86	40	104
1	34	11	52	21	70	31	88	41	106
2	36	12	54	22	72	32	90	42	108
3	37	13	55	23	73	33	91	43	109
4	39	14	57	24	75	34	93	44	111
5	41	15	59	25	77	35	95	45	113
6	43	16	61	26	79	36	97	46	115
7	45	17	63	27	81	37	99	47	117
8	46	18	64	28	82	38	100	48	118
9	48	19	66	29	84	39	102	49	120
50	122	60	140	70	158	80	176	90	194
51	124	61	142	71	160	81	178	91	196
52	126	62	144	72	162	82	180	92	198
53	127	63	145	73	163	83	181	93	199
54	128	64	147	74	165	84	183	94	201
55	131	65	149	75	167	85	185	95	203
56	133	66	151	76	169	86	187	96	205
57	135	67	152	77	170	87	188	97	207
58	136	68	154	78	172	88	190	98	208
59	139	69	158	79	174	89	192	99	210

Alphanumeric Conversion Table

Display Reading (Alphanumeric)	°C	°F	%
A1 thru A9	−1 thru −9	30 thru 16	−1 thru −9
B0 thru B9	−10 thru −19	14 thru −2	−10 thru −19
C0 thru C9	−20 thru −29	−4 thru −20	−20 thru −29
D0 thru D9	−30 thru −39	−22 thru −38	−30 thru −39
E0 thru E9	−40 thru −49	−40 thru −58	−40 thru −49
F0 thru F9	———	———	+100 thru +109

HVAC DTC Troubleshooting: A

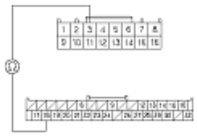
DTC indicator A:
Climate Control Unit Internal Error
NOTE: Check the battery condition and the charging system.

1. Clear the DTC with the HDS.
2. Turn the ignition switch to LOCK (0), and then to ON (II).
3. Do the self-diagnostic function with the climate control unit.
4. Check for DTCs.

Is DTC A indicated?
YES - The climate control unit is faulty, replace the climate control unit. ■
NO - Intermittent failure, the climate control unit is OK at this time.■

DTC Troubleshooting: B1205 (B), B1206 (C), B1207

DTC B1205 or DTC indicator B:
Climate Control Unit Lost Communication with Gauge Control Module (VSP/NE message)
DTC B1206 or DTC indicator C:
Climate Control Unit Lost Communication with Gauge Control Module (ECT message)
DTC B1207 or DTC indicator D:
Climate Control Unit Lost Communication with Gauge Control Module (ILLUMI message)



1. Clear the DTC with the HDS.
2. Turn the ignition switch to LOCK (0), and then to ON (II).
3. Do the self-diagnostic function with the HDS or climate control unit.
4. Check the DTCs.

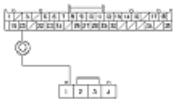
   Is DTC B1205 or B, and/or B1206 or C, and/or B1207 or D indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, check for loose wires or poor connections on the gauge control module and climate control unit circuit.■
5. Select UNIT INFORMATION in the BODY ELECTRICAL menu.
6. Select CONNECTED UNIT in the UNIT INFORMATION menu.

   Is gauge control module detected?
   YES - Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit .■
   NO - Go to Step 7 .
7. Disconnect under-dash fuse/relay box connector Q (16P).
8. Disconnect the gauge control module 32P connector.
9. Check for continuity between under-dash fuse/relay box connector Q (16P) No. 3 terminal and the gauge control module 32P connector No. 18 terminal.

   Is there continuity?
   YES - Go to the gauge control module input test. ■
   NO - Repair open in the wire between the MICU and the gauge control module.■

DTC Troubleshooting: B1225 (A and AUTO)

DTC B1225 or DTC indicator A and AUTO:
An Open in the In-car Temperature Sensor Circuit



1. Clear the DTC with the HDS.
2. Turn the ignition switch to LOCK (0), and then to ON (II).
3. Do the self-diagnostic function with the HDS or climate control unit.
4. Check for DTCs.

   Is DTC B1225 or A and AUTO indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, check for loose wires or poor connections on the in-car temperature sensor circuit.■
5. Turn the ignition switch to LOCK (0).
6. Remove the humidity/in-car temperature sensor, and test it.

   Is the in-car temperature sensor OK?
   YES - Go to Step 7 .
   NO - Replace the humidity/in-car temperature sensor .■
7. Disconnect the climate control unit 36P connector.
8. Check for continuity between the climate control unit 36P connector No. 20 terminal and the humidity/in-car temperature sensor 4P connector No. 1 terminal.

   Is there continuity?
   YES - Go to Step 9 .
   NO - Repair open in the wire between the climate control unit and the in-car temperature sensor.■

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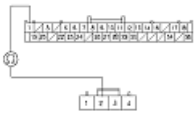
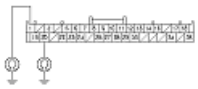
9. Check for continuity between the climate control unit 36P connector No. 1 terminal and the humidity/in-car temperature sensor 4P connector No. 2 terminal.



   Is there continuity?
   YES - Check for loose wires or poor connections at the climate control unit 36P connector and at the humidity/in-car temperature sensor 4P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit .■
   NO - Repair open in the wire between the climate control unit and the in-car temperature sensor.■

DTC Troubleshooting: B1226 (B and AUTO)

DTC B1226 or DTC indicator B and AUTO:
A Short in the In-car Temperature Sensor Circuit



1. Clear the DTC with the HDS.
2. Turn the ignition switch to LOCK (0), and then to ON (II).
3. Do the self-diagnostic function with the HDS or climate control unit.
4. Check for DTCs.

   Is DTC B1226 or B and AUTO indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure.■
5. Turn the ignition switch to LOCK (0).
6. Remove the humidity/in-car temperature sensor , and test it.

   Is the in-car temperature sensor OK?
   YES - Go to Step 7 .
   NO - Replace the humidity/in-car temperature sensor .■
7. Disconnect the climate control unit 36P connector.
8. Check for continuity between body ground and the climate control unit 36P connector No. 1 and No. 20 terminals individually.

   Is there continuity?
   YES - Repair short to body ground in the wires between the climate control unit and the in-car temperature sensor.■
   NO - Go to Step 9 .

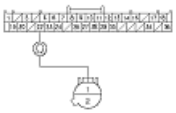
---

9. Check for continuity between the climate control unit 36P connector No. 1 and No. 20 terminals.

   Is there continuity?
   YES - Repair short in the wires between the climate control unit and the in-car temperature sensor.■
   NO - Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit .■

DTC Troubleshooting: B1227 (C and AUTO)

DTC B1227 or DTC indicator C and AUTO:
An Open in the Outside Air Temperature Sensor Circuit



1. Clear the DTC with the HDS.
2. Turn the ignition switch to LOCK (0), and then to ON (II).
3. Do the self-diagnostic function with the HDS or climate control unit.
4. Check for DTCs.

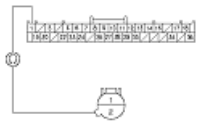
   Is DTC B1227 or C and AUTO indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, check for loose wires or poor connections on the outside air temperature sensor circuit.■
5. Turn the ignition switch to LOCK (0).
6. Remove the outside air temperature sensor, and test it.

   Is the outside air temperature sensor OK?
   YES - Go to Step 7 .
   NO - Replace the outside air temperature sensor .■
7. Disconnect the climate control unit 36P connector.
8. Check for continuity between the climate control unit 36P connector No. 22 terminal and the outside air temperature sensor 2P connector No. 1 terminal.

   Is there continuity?
   YES - Go to Step 9 .
   NO - Repair open in the wire between the climate control unit and the outside air temperature sensor.■

---

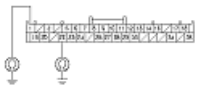
9. Check for continuity between the climate control unit 36P connector No. 1 terminal and the outside air temperature sensor 2P connector No. 2 terminal.



   Is there continuity?
   YES - Check for loose wires or poor connections at the climate control unit 36P connector and at the outside air temperature sensor 2P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit .■
   NO - Repair open in the wire between the climate control unit and the outside air temperature sensor.■

DTC Troubleshooting: B1228 (D and AUTO)

DTC B1228 or DTC indicator D and AUTO:
A Short in the Outside Air Temperature Sensor Circuit



1. Clear the DTC with the HDS.
2. Turn the ignition switch to LOCK (0), and then to ON (II).
3. Do the self-diagnostic function with the HDS or climate control unit.
4. Check for DTCs.

   Is DTC B1228 or D and AUTO indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure.■
5. Turn the ignition switch to LOCK (0).
6. Remove the outside air temperature sensor, and test it.

   Is the outside air temperature sensor OK?
   YES - Go to Step 7 .
   NO - Replace the outside air temperature sensor .■
7. Disconnect the climate control unit 36P connector.
8. Check for continuity between body ground and the climate control unit 36P connector No. 1 and No. 22 terminals individually.

   Is there continuity?
   YES - Repair short to body ground in the wires between the climate control unit and the outside air temperature sensor.■
   NO - Go to Step 9 .

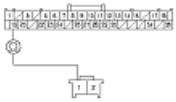
---

9. Check for continuity between the climate control unit 36P connector No. 1 and No. 22 terminals.

   Is there continuity?
   YES - Repair short in the wires between the climate control unit and the outside air temperature sensor.■
   NO - Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit .■

DTC Troubleshooting: B1229 (E and AUTO)

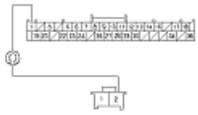
DTC B1229 or DTC indicator E and AUTO:
An Open in the Sunlight Sensor Circuit



1. Clear the DTC with the HDS.
2. Turn the ignition switch to LOCK (0), and then to ON (II).
3. Do the self-diagnostic function with the HDS or climate control unit.
4. Check for DTCs.

   Is DTC B1229 or E and AUTO indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, check for loose wires or poor connections on the sunlight sensor circuit.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the sunlight sensor connector.
7. Disconnect the climate control unit 36P connector.
8. Check for continuity between the climate control unit 36P connector No. 19 terminal and the sunlight sensor 2P connector No. 1 terminal.

   Is there continuity?
   YES - Go to Step 9 .
   NO - Repair open in the wire between the climate control unit and the sunlight sensor.■



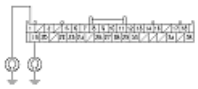
9. Check for continuity between the climate control unit 36P connector No. 1 terminal and the sunlight sensor 2P connector No. 2 terminal.

   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wire between the climate control unit and the sunlight sensor.■
10. Reconnect the sunlight sensor connector.
11. Reconnect the climate control unit 36P connector.
12. Test the sunlight sensor.

    Is the sunlight sensor OK?
    YES - Check for loose wires or poor connections at the climate control unit 36P connector and at the sunlight sensor connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit .■
    NO - Replace the sunlight sensor. ■

DTC Troubleshooting: B1230 (F and AUTO)

DTC B1230 or DTC indicator F and AUTO:
A Short in the Sunlight Sensor Circuit



1. Clear the DTC with the HDS.
2. Turn the ignition switch to LOCK (0), and then to ON (II).
3. Do the self-diagnostic function with the HDS or climate control unit.
4. Check for DTCs.

   Is DTC B1230 or F and AUTO indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the sunlight sensor connector.
7. Disconnect the climate control unit 36P connector.
8. Check for continuity between body ground and the climate control unit 36P connector No. 1 and No. 19 terminals individually.

   Is there continuity?
   YES - Repair short to body ground in the wires between the climate control unit and the sunlight sensor.■
   NO - Go to Step 9 .

---

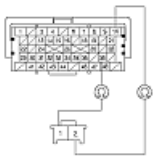
9. Check for continuity between the climate control unit 36P connector No. 1 and No. 19 terminals.

   Is there continuity?
   YES - Repair short in the wires between the climate control unit and the sunlight sensor.■
   NO - Go to Step 10 .
10. Reconnect the sunlight sensor connector.
11. Reconnect the climate control unit 36P connector.
12. Test the sunlight sensor.

    Is the sunlight sensor OK?
    YES - Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit .■
    NO - Replace the sunlight sensor. ■

DTC Troubleshooting: B1231 (G and AUTO)

DTC B1231 or DTC indicator G and AUTO:
An Open in the Evaporator Temperature Sensor Circuit



1. Clear the DTC with the HDS.
2. Turn the ignition switch to LOCK (0), and then to ON (II).
3. Do the self-diagnostic function with the HDS or climate control unit.
4. Check for DTCs.

   Is DTC B1231 or G and AUTO indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, check for loose wires or poor connections on the evaporator temperature sensor circuit.■
5. Turn the ignition switch to LOCK (0).
6. Remove the evaporator temperature sensor, and test it.

   Is the evaporator temperature sensor OK?
   YES - Go to Step 7 .
   NO - Replace the evaporator temperature sensor .■
7. Jump the SCS line with the HDS.
   NOTE: This step must be done to protect the engine control module (ECM)/powertrain control module (PCM) from damage.
8. Disconnect ECM/PCM connector A (49P).
9. Check for continuity between the following terminals of ECM/PCM connector A (49P) and the evaporator temperature sensor 2P connector.

49P:	2P:
No. 10	No. 2
No. 38	No. 1

   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wire(s) between the ECM/PCM and the evaporator temperature sensor.■

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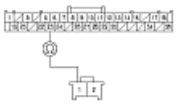
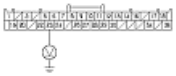
10. Check for continuity between the climate control unit 36P connector No. 23 terminal and the evaporator temperature sensor 2P connector No. 1 terminal.



    Is there continuity?
    YES - Go to Step 11 .
    NO - Repair open in the wire between the climate control unit and the evaporator temperature sensor.■
11. Reconnect ECM/PCM connector A (49P).
12. Reconnect the climate control unit 36P connector.
13. Turn the ignition switch to ON (II).

---

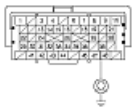
14. Measure the voltage between the climate control unit 36P connector No. 23 terminal and body ground.



    Is there about 4.30–5.25 V?
    YES - Check for loose wires or poor connections at ECM/PCM connector A (49P). If the connections are good, substitute a known-good ECM/PCM and recheck the original climate control unit.■
    NO - Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit .■

DTC Troubleshooting: B1232 (H and AUTO)

DTC B1232 or DTC indicator H and AUTO:
A Short in the Evaporator Temperature Sensor Circuit



1. Clear the DTC with the HDS.
2. Turn the ignition switch to LOCK (0), and then to ON (II).
3. Do the self-diagnostic function with the HDS or climate control unit.
4. Check for DTCs.

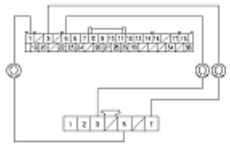
   Is DTC B1232 or H and AUTO indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure.■
5. Turn the ignition switch to LOCK (0).
6. Remove the evaporator temperature sensor, and test it.

   Is the evaporator temperature sensor OK?
   YES - Go to Step 7 .
   NO - Replace the evaporator temperature sensor .■
7. Disconnect the climate control unit 36P connector.
8. Jump the SCS line with the HDS.
   NOTE: This step must be done to protect the engine control module (ECM)/powertrain control module (PCM) from damage.
9. Disconnect ECM/PCM connector A (49P).
10. Check for continuity between ECM/PCM connector A (49P) No. 38 terminal and body ground.

    Is there continuity?
    YES - Repair short to body ground in the wire between the ECM/PCM and the climate control unit.■
    NO - Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit .■

DTC Troubleshooting: B1233 (A and A/C)

DTC B1233 or DTC indicator A and A/C:
An Open in the Air Mix Control Motor Circuit



1. Clear the DTC with the HDS.
2. Turn the ignition switch to LOCK (0), and then to ON (II).
3. Do the self-diagnostic function with the HDS or climate control unit.
4. Check for DTCs.

   Is DTC B1233 or A and A/C indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, check for loose wires or poor connections on the air mix control motor circuit.■
5. Turn the ignition switch to LOCK (0).
6. Test the air mix control motor.

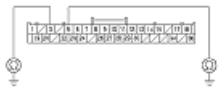
   Is the air mix control motor OK?
   YES - Go to Step 7 .
   NO - Replace the air mix control motor. ■
7. Disconnect the air mix control motor 7P connector.
8. Disconnect the climate control unit 36P connector.
9. Check for continuity between the following terminals of the climate control unit 36P connector and the air mix control motor 7P connector.

36P:	7P:
No. 1	No. 5
No. 3	No. 7
No. 5	No. 3

   Is there continuity?
   YES - Check for loose wires or poor connections at the climate control unit 36P connector and at the air mix control motor 7P connector. If the connections are good, substitute a known-good climate control unit and recheck. If the symptom/indication goes away, replace the original climate control unit .■
   NO - Repair open in the wires between the climate control unit and the air mix control motor.■

DTC Troubleshooting: B1234 (B and A/C)

DTC B1234 or DTC indicator B and A/C:
A Short in the Air Mix Control Motor Circuit



1. Clear the DTC with the HDS.
2. Turn the ignition switch to LOCK (0), and then to ON (II).
3. Do the self-diagnostic function with the HDS or climate control unit.
4. Check for DTCs.

   Is DTC B1234 or B and A/C indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure.■
5. Turn the ignition switch to LOCK (0).
6. Test the air mix control motor.

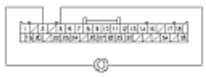
   Is the air mix control motor OK?
   YES - Go to Step 7 .
   NO - Replace the air mix control motor. ■
7. Disconnect the air mix control motor 7P connector.
8. Disconnect the climate control unit 36P connector.
9. Check for continuity between body ground and the climate control unit 36P connector No. 3 and No. 5 terminals individually.

   Is there continuity?
   YES - Repair short to body ground in the wires between the climate control unit and the air mix control motor.■
   NO - Go to Step 10 .

---

10. Check for continuity between the climate control unit 36P connector No. 3 and No. 5 terminals.

    Is there continuity?
    YES - Repair short in the wires.■
    NO - Go to Step 11 .



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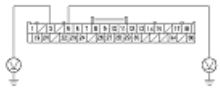
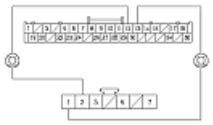
11. Turn the ignition switch to ON (II), and check the same terminals for voltage to body ground.

    Is there any voltage?
    YES - Repair short to power in the wires between the climate control unit and the air mix control motor. This short may also damage the climate control unit. Repair the short to power before replacing the climate control unit.■
    NO - Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit .■



DTC Troubleshooting: B1235 (C and A/C)

DTC B1235 or DTC indicator C and A/C:
A Problem in the Air Mix Control Motor Circuit, Linkage, Door, or Motor



1. Clear the DTC with the HDS.
2. Turn the ignition switch to LOCK (0), and then to ON (II).
3. Do the self-diagnostic function with the HDS or climate control unit.
4. Check for DTCs.

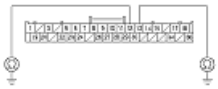
   Is DTC B1235 or C and A/C indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure.■
5. Turn the ignition switch to LOCK (0).
6. Test the air mix control motor.

   Is the air mix control motor OK?
   YES - Go to Step 7 .
   NO - Replace the air mix control motor, or repair the air mix control linkage or door.■
7. Disconnect the air mix control motor 7P connector.
8. Disconnect the climate control unit 36P connector.
9. Check for continuity between the following terminals of the climate control unit 36P connector and the air mix control motor 7P connector.

36P:	7P:
No. 12	No. 2
No. 13	No. 1

   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wires between the climate control unit and the air mix control motor.■

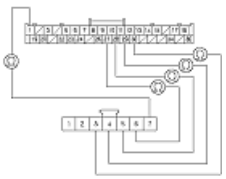
10. Check for continuity between body ground and the climate control unit 36P connector No. 12 and No. 13 terminals individually.



    Is there continuity?
    YES - Repair short to body ground in the wires between the climate control unit and the air mix control motor.■
    NO - Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit .■

DTC Troubleshooting: B1239 (D and A/C)

DTC B1239 or DTC indicator D and A/C:
An Open or Short in the Mode Control Motor Circuit



1. Clear the DTC with the HDS.
2. Turn the ignition switch to LOCK (0), and then to ON (II).
3. Do the self-diagnostic function with the HDS or climate control unit.
4. Check for DTCs.

   Is DTC B1239 or D and A/C indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, check for loose wires or poor connections on the mode control motor circuit.■
5. Turn the ignition switch to LOCK (0).
6. Test the mode control motor.

   Is the mode control motor OK?
   YES - Go to Step 7 .
   NO - Replace the mode control motor. ■
7. Disconnect the mode control motor 7P connector.
8. Disconnect the climate control unit 36P connector.
9. Check for continuity between the following terminals of the climate control unit 36P connector and the mode control motor 7P connector.

36P:	7P:
No. 1	No. 7
No. 27	No. 6
No. 28	No. 5
No. 29	No. 4
No. 30	No. 3

   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wires between the climate control unit and the mode control motor.■

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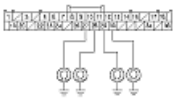
10. Check for continuity between body ground and the climate control unit 36P connector No. 27, No. 28, No. 29, and No. 30 terminals individually.



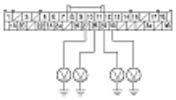
    Is there continuity?
    YES - Repair short to body ground in the wires between the climate control unit and the mode control motor.■
    NO - Go to Step 11 .
11. Check for continuity between the climate control unit 36P connector terminals as follows.

From terminal	To terminals
27	28, 29, 30
28	29, 30
29	30

    Is there continuity between any of the terminals?
    YES - Repair the short in the wires.■
    NO - Go to Step 12 .

---

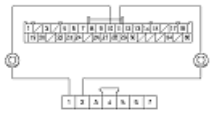
12. Turn the ignition switch to ON (II), and check the same terminals for voltage to body ground.



    Is there any voltage?
    YES - Repair short to power in the wires between the climate control unit and the mode control motor. This short may also damage the climate control unit. Repair the short to power before replacing the climate control unit.■
    NO - Check for loose wires or poor connections at the climate control unit 36P connector and at the mode control motor 7P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit .■

DTC Troubleshooting: B1240 (E and A/C)

DTC B1240 or DTC indicator E and A/C:
A Problem in the Mode Control Motor Circuit, Linkage, Doors, or Motor



1. Clear the DTC with the HDS.
2. Turn the ignition switch to LOCK (0), and then to ON (II).
3. Do the self-diagnostic function with the HDS or climate control unit.
4. Check for DTCs.

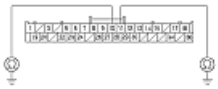
   Is DTC B1240 or E and A/C indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure.■
5. Turn the ignition switch to LOCK (0).
6. Test the mode control motor.

   Is the mode control motor OK?
   YES - Go to Step 7 .
   NO - Replace the mode control motor, or repair the mode control linkage or doors.■
7. Disconnect the mode control motor 7P connector.
8. Disconnect the climate control unit 36P connector.
9. Check for continuity between the following terminals of the climate control unit 36P connector and the mode control motor 7P connector.

36P:	7P:
No. 10	No. 1
No. 11	No. 2

   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wires between the climate control unit and the mode control motor.■

10. Check for continuity between body ground and the climate control unit 36P connector No. 10 and No. 11 terminals individually.



    Is there continuity?
    YES - Repair short to body ground in the wires between the climate control unit and the mode control motor.■
    NO - Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit .■

DTC Troubleshooting: B1241 (F and A/C)

DTC B1241 or DTC indicator F and A/C:
A Problem in the Blower Motor Circuit

1. Clear the DTC with the HDS.
2. Turn the ignition switch to LOCK (0), and then to ON (II).
3. Do the self-diagnostic function with the HDS or climate control unit.
4. Check for DTCs.

   Is DTC B1241 or F and A/C indicated?
   YES - Go to Step 5.
   NO - Intermittent failure, check for loose wires or poor connections on the blower motor circuit.■
5. Turn the ignition switch to LOCK (0).
6. Check the No. 10 (7.5 A) and No. 57 (30 A) fuses in the under-dash fuse/relay box.

   Are the fuses OK?
   YES - Go to Step 7.
   NO - Replace the fuses, and recheck. If fuses blow again, check for a short in the No. 10 (7.5 A) and No. 57 (30 A) fuses circuit.■
7. Connect the blower motor 2P connector No. 2 terminal to body ground with a jumper wire.
8. Turn the ignition switch to ON (II).

   Does the blower motor run?
   YES - Go to Step 9.
   NO - Go to Step 24.
9. Turn the ignition switch to LOCK (0).
10. Disconnect the jumper wire.
11. Disconnect the power transistor 4P connector.

---

12. Check for continuity between the power transistor 4P connector No. 2 terminal and body ground.

    Is there continuity?
    YES - Go to Step 13.
    NO - Check for an open in the wire between the power transistor and body ground. If the wire is OK, check for poor body ground at G502. ■

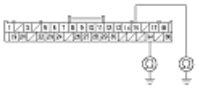
---

13. Connect the power transistor 4P connector No. 2 and No. 4 terminals with a jumper wire.
14. Turn the ignition switch to ON (II).

    Does the blower motor run at high speed?
    YES - Go to Step 15.
    NO - Repair open in the BLU wire between the power transistor and the blower motor.■
15. Turn the ignition switch to LOCK (0).
16. Disconnect the jumper wire.
17. Disconnect the climate control unit 36P connector.

---

18. Check for continuity between body ground and the climate control unit 36P connector No. 15 and No. 34 terminals individually.

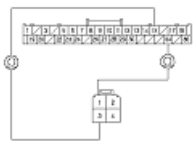


    Is there continuity?
    YES - Repair short to body ground in the wires between the climate control unit and the power transistor.■
    NO - Go to Step 19.

---

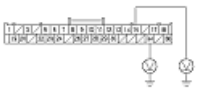
19. Check for continuity between the following terminals of the climate control unit 36P connector and the power transistor 4P connector.

36P:	4P:
No. 15	No. 3
No. 34	No. 1



    Is there continuity?
    YES - Go to Step 20.
    NO - Repair open in the wires between the climate control unit and the power transistor.■
20. Turn the ignition switch to ON (II).

21. Measure the voltage between body ground and the climate control unit 36P connector No. 15 and No. 34 terminals individually.



Is there voltage?
YES - Repair short to power in the wires.■
NO - Go to Step 22 .

22. Reconnect the climate control unit 36P connector.

23. Test the power transistor.

Is the power transistor OK?
YES - Check for loose wires or poor connections at the climate control unit 36P connector and at the power transistor 4P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit .■
NO - Replace the power transistor. ■

24. Disconnect the blower motor 2P connector.

25. Measure the voltage between the blower motor 2P connector No. 1 terminal and body ground.

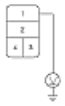
Is there battery voltage?
YES - Replace the blower motor. ■
NO - Go to Step 26 .

26. Turn the ignition switch to LOCK (0).

27. Remove the blower motor relay from the under-dash fuse/relay box, and test it.

Is the relay OK?
YES - Go to Step 28 .
NO - Replace the blower motor relay .■

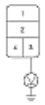
28. Measure the voltage between the blower motor relay 4P socket No. 1 terminal and body ground.



Is there battery voltage?
YES - Go to Step 29 .
NO - Replace the under-dash fuse/relay box. ■

29. Turn the ignition switch to ON (II).

30. Measure the voltage between the blower motor relay 4P socket No. 3 terminal and body ground.



Is there battery voltage?
YES - Go to Step 31 .
NO - Replace the under-dash fuse/relay box. ■

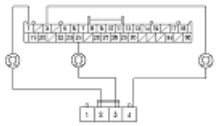
31. Turn the ignition switch to LOCK (0).

32. Check for continuity between the blower motor relay 4P socket No. 4 terminal and body ground.

Is there continuity?
YES - Repair open in the WHT wire between the blower motor relay and the blower motor.■
NO - Check for open in the wire between the blower motor relay and body ground. If the wire is OK, check for poor body ground at G501. ■

DTC Troubleshooting: B2967 (J and AUTO)

DTC B2967 or DTC indicator J and AUTO:
An Open in the Humidity Sensor Circuit



1. Clear the DTC with the HDS.
2. Turn the ignition switch to LOCK (0), and then to ON (II).
3. Do the self-diagnostic function with the HDS or climate control unit.
4. Check for DTCs.

   Is DTC B2967 or J and AUTO indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, check for loose wires or poor connections on the humidity sensor circuit.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the climate control unit 36P connector.
7. Disconnect the humidity/in-car temperature sensor 4P connector.
8. Check for continuity between the following terminals of the climate control unit 36P connector and the humidity/in-car temperature sensor 4P connector.

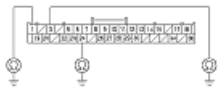
36P:	4P:
No. 1	No. 2
No. 3	No. 4
No. 24	No. 3

   Is there continuity?
   YES - Go to Step 9 .
   NO - Repair open in the wires between the climate control unit and the humidity sensor.■
9. Reconnect the humidity/in-car temperature sensor 4P connector.
10. Reconnect the climate control unit 36P connector.
11. Test the humidity temperature sensor.

    Is the humidity sensor OK?
    YES - Check for loose wires or poor connections at the climate control unit 36P connector and at the humidity/in-car temperature sensor 4P connector. If the connections are good, substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit .■
    NO - Replace the humidity/in-car temperature sensor. ■

DTC Troubleshooting: B2968 (K and AUTO)

DTC B2968 or DTC indicator K and AUTO:
A Short in the Humidity Sensor Circuit



1. Clear the DTC with the HDS.
2. Turn the ignition switch to LOCK (0), and then to ON (II).
3. Do the self-diagnostic function with the HDS or climate control unit.
4. Check for DTCs.

   Is DTC B2968 or K and AUTO indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the climate control unit 36P connector.
7. Disconnect the humidity/in-car temperature sensor 4P connector.
8. Check for continuity between body ground and the climate control unit 36P connector No. 1, 3, and No. 24 terminals individually.

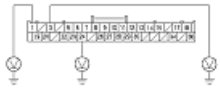
   Is there continuity?
   YES - Repair short to body ground in the wires between the climate control unit and the humidity sensor.■
   NO - Go to Step 9 .
9. Check for continuity between terminals of the climate control unit 36P connector as follows.

From terminal	To terminals
1	3, 24
3	24

   Is there continuity between any of the terminals?
   YES - Repair the short in the wires.■
   NO - Go to Step 10 .

---

10. Turn the ignition switch to ON (II), and check the same terminals for voltage to body ground.

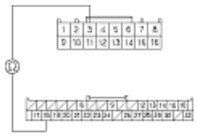


    Is there any voltage?
    YES - Repair short to power in the wires between the climate control unit and the humidity sensor. This short may also damage the climate control unit. Repair the short to power before replacing the climate control unit .■
    NO - Go to Step 11 .
11. Reconnect the humidity/in-car temperature sensor 4P connector.
12. Reconnect the climate control unit 36P connector.
13. Test the humidity temperature sensor.

    Is the humidity temperature sensor OK?
    YES - Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit .■
    NO - Replace the humidity/in-car temperature sensor. ■

DTC Troubleshooting: B2969

DTC B2969:
Climate Control Unit Lost Communication with MICU (WIPSW message)



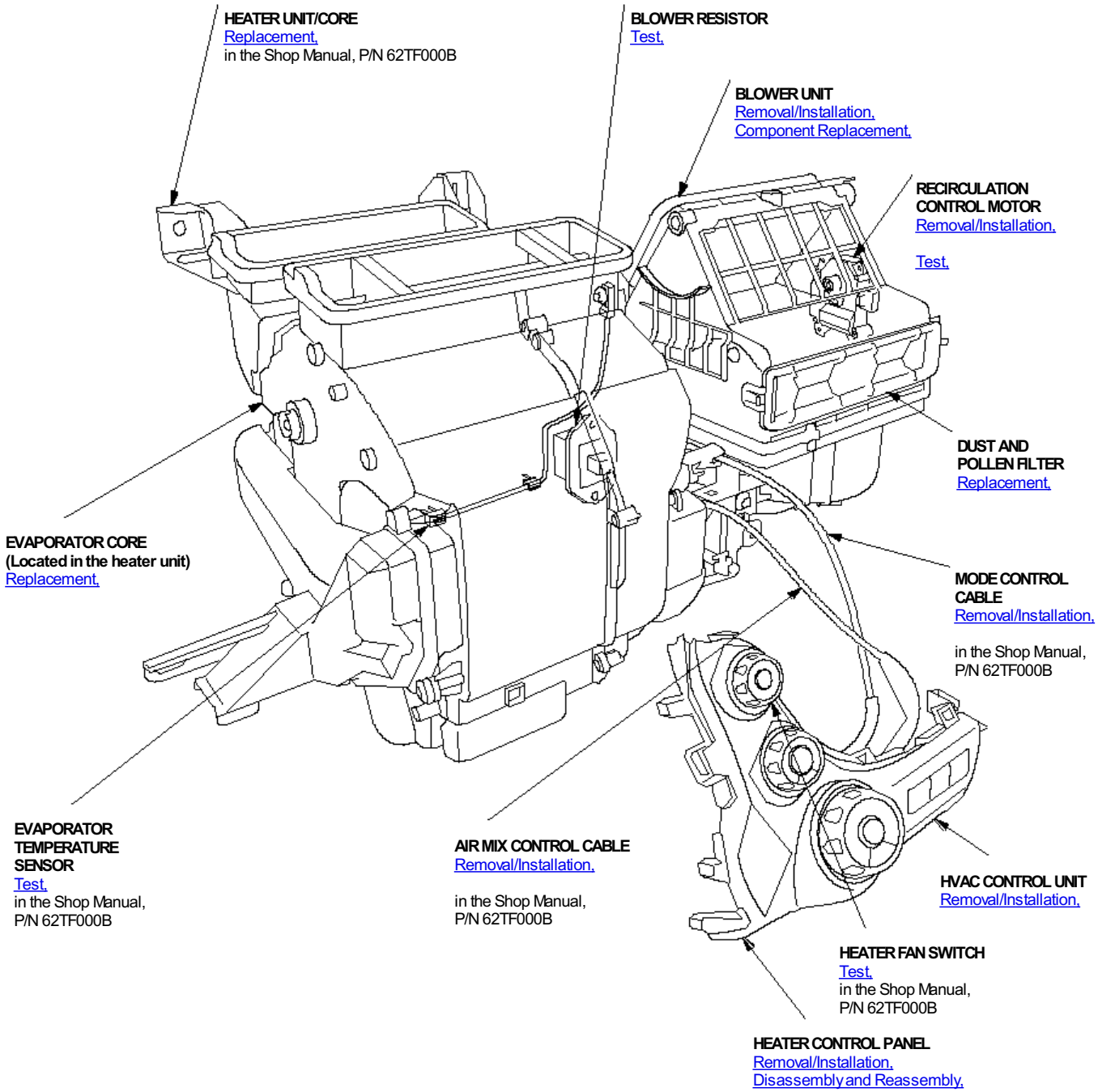
1. Clear the DTC with the HDS.
2. Turn the ignition switch to LOCK (0), and then to ON (II).
3. Do the self-diagnostic function with the HDS or climate control unit.
4. Check the DTCs.

   Is DTC B2969 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, check for loose wires or poor connections on the gauge control module and climate control unit circuit.■
5. Select UNIT INFORMATION in the BODY ELECTRICAL menu.
6. Select CONNECTED UNIT in the UNIT INFORMATION menu.

   Is MICU detected?
   YES - Substitute a known-good climate control unit, and recheck. If the symptom/indication goes away, replace the original climate control unit .■
   NO - Go to Step 7 .
7. Disconnect under-dash fuse/relay box connector Q (16P).
8. Disconnect the gauge control module 32P connector.
9. Check for continuity between under-dash fuse/relay box connector Q (16P) No. 3 terminal and the gauge control module 32P connector No. 18 terminal.

   Is there continuity?
   YES - Go to the MICU input test. ■
   NO - Repair open in the wire between the MICU and the gauge control module.■

Heating and A/C Component Location Index



LHD model is shown, RHD model is similar.

A/C condenser fan does not run at all (but radiator fan runs with the A/C on)

Diagnostic procedure

1. A/C condenser Fan Circuit Troubleshooting

Also check for

- Blown fuse No. 47 (30 A) in the under-dash fuse/relay box
- Poor ground at G202
- Cleanliness and tightness of all connectors

Both fans do not run with the A/C on (but the A/C compressor runs with the A/C on)

Diagnostic procedure

1. Radiator and A/C condenser Fans Common Circuit Troubleshooting

Also check for

- Blown fuse No. 30 (30 A) and No. 47 (30 A) in the under-dash fuse/relay box
- Poor ground at G202
- Cleanliness and tightness of all connectors

A/C compressor clutch does not engage (but both fans run with the A/C on)

Diagnostic procedure

1. A/C compressor Clutch Circuit Troubleshooting

Also check for

- Blown fuse No. 43 (7.5 A) in the under-dash fuse/relay box
- Cleanliness and tightness of all connectors

A/C system does not come on (both fans and the A/C compressor do not work); heater is OK

Diagnostic procedure

1. A/C Pressure Switch Circuit Troubleshooting

Also check for

- Poor ground at G502
- Cleanliness and tightness of all connectors

A/C Pressure Switch Circuit Troubleshooting

HVAC Control (Lever type)

NOTE:

- Do not use this troubleshooting procedure if any of these items are working properly with the A/C switch ON; condenser fan, radiator fan, A/C compressor, or if the heater does not work. Refer to the symptom troubleshooting index.
- Check the A/C high-side pressure.

1. Disconnect the A/C pressure switch 2P connector.
2. Turn the ignition switch to ON (II).
3. Measure the voltage between the A/C pressure switch 2P connector No. 2 terminal and body ground.

   Is there battery voltage?
   YES - Go to Step 4 .
   NO - Go to Step 20 .
4. Turn the ignition switch to LOCK (0).

---

5. Check for continuity between the No. 1 and No. 2 terminals of the A/C pressure switch.

   Is there continuity?
   YES - Go to Step 6 .
   NO - Replace the A/C pressure switch.■
6. Reconnect the A/C pressure switch 2P connector.
7. Disconnect the A/C switch 5P connector.
8. Turn the ignition switch to ON (II).

---

9. Measure the voltage between the A/C switch 5P connector No. 2 terminal and body ground.

   Is there battery voltage?
   YES - Go to Step 10 .
   NO - Repair open in the wire between the A/C pressure switch and the A/C switch.■
10. Turn the ignition switch to LOCK (0).
11. Test the A/C switch.

    Is the A/C switch OK?
    YES - Go to Step 12 .
    NO - Replace the A/C switch.■
12. Disconnect the heater fan switch 8P connector.

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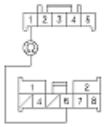
13. Check for continuity between the A/C switch 5P connector No. 1 terminal and the heater fan switch 8P connector No. 6 terminal.



    Is there continuity?
    YES - Go to Step 14 .
    NO - Repair open in the wire between the A/C switch and the heater fan switch.■
14. Test the heater fan switch.

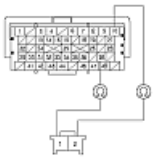
    Is the heater fan switch OK?
    YES - Go to Step 15 .
    NO - Replace the heater fan switch. ■
15. Remove the evaporator temperature sensor and test it.

    Is the evaporator temperature sensor OK?
    YES - Go to Step 16 .
    NO - Replace the evaporator temperature sensor. ■
16. Jump the SCS line with the HDS.
    NOTE: This step must be done to protect the engine control module (ECM)/powertrain control module (PCM) from damage.
17. Disconnect ECM/PCM connector A (49P).

---

18. Check for continuity between the following terminals of ECM/PCM connector A (49P) and the evaporator temperature sensor 2P connector.

49P:	2P:
No. 10	No. 2
No. 38	No. 1



Is there continuity?

YES - Go to Step 19 .
NO - Repair open in the wire(s) between the ECM/PCM and the evaporator temperature sensor.■

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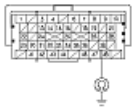
19. Check for continuity between ECM/PCM connector A (49P) No. 38 terminal and body ground.



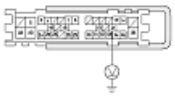
Is there continuity?

YES - Repair short to body ground in the wire between the ECM/PCM and the evaporator temperature sensor.■
NO - Check for loose wires or poor connections at ECM/PCM connector A (49P), the evaporator temperature sensor 2P connector, the A/C pressure switch 2P connector, the A/C switch 5P connector and at the heater fan switch 8P connector. If the connections are good, substitute a known-good ECM/PCM, and recheck. If the symptom/indication goes away, replace the original ECM /PCM.■

20. Turn the ignition switch to LOCK (0).
21. Reconnect the A/C pressure switch 2P connector.
22. Make sure the A/C switch is OFF.
23. Turn the ignition switch to ON (II).

---

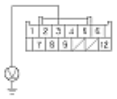
24. Measure the voltage between under-dash fuse/relay box connector A (36P) No. 21 terminal and body ground with the under-dash fuse/relay box connectors connected.



Is there battery voltage?

YES - Repair open in the wire between the A/C pressure switch and the MICU.■
NO - Check for loose wires or poor connections at the under-dash fuse/relay box. If the connections are OK, substitute a known-good MICU and recheck. If the symptom goes away, replace the original MICU .■

HVAC Control (Push button type)



NOTE:

- Do not use this troubleshooting procedure if any of the following items are operative; condenser fan, radiator fan, A/C compressor, or if the heater is inoperative. Refer to the symptom troubleshooting index.
- Check the A/C high-side pressure.

1. Turn the ignition switch to ON (II).
2. Check if the blower motor operates at all speeds.

Does the blower motor operate at all speeds?

YES - Go to Step 3 .
NO - Repair the problem in the blower motor circuit. ■

3. Turn the ignition switch to LOCK (0).
4. Disconnect the HVAC control unit 12P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between the HVAC control unit 12P connector No. 3 terminal and body ground.

Is there battery voltage?

YES - Go to Step 13 .
NO - Go to Step 7 .

7. Turn the ignition switch to LOCK (0).
8. Disconnect the A/C pressure switch 2P connector.
9. Turn the ignition switch to ON (II).

---

10. Measure the voltage between the A/C pressure switch 2P connector No. 2 terminal and body ground.

Is there battery voltage?

YES - Go to Step 11 .
NO - Go to Step 23 .

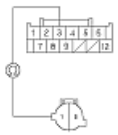
---

11. Check for continuity between the No. 1 and No. 2 terminals of the A/C pressure switch.

Is there continuity?
YES - Go to Step 12 .
NO - Replace the A/C pressure switch.■

---

12. Check for continuity between the HVAC control unit 12P connector No. 3 terminal and the A/C pressure switch 2P connector No. 1 terminal.



Is there continuity?
YES - Check for loose wires or poor connections at the HVAC control unit 12P connector and at the A/C pressure switch 2P connector.■
NO - Repair open in the wire between the HVAC control unit and A/C pressure switch.■

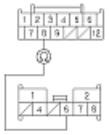
13. Turn the ignition switch to LOCK (0).

14. Disconnect the heater fan switch 8P connector.

15. Disconnect the HVAC control unit 12P connector.

---

16. Check for continuity between the HVAC control unit 12P connector No. 8 terminal and the heater fan switch 8P connector No. 6 terminal.



Is there continuity?
YES - Go to Step 17 .
NO - Repair open in the wire between the HVAC control unit and heater fan switch.■

17. Disconnect the evaporator temperature sensor 2P connector.

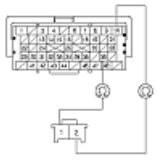
18. Jump the SCS line with the HDS.
NOTE: This step must be done to protect the engine control module (ECM)/powertrain control module (PCM) from damage.

19. Disconnect ECM/PCM connector A (49P).

---

20. Check for continuity between the following terminals of ECM/PCM connector A (49P) and the evaporator temperature sensor 2P connector.

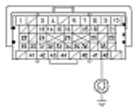
49P:	2P:
No. 10	No. 2
No. 38	No. 1



Is there continuity?
YES - Go to Step 21 .
NO - Repair open in the wire(s) between the ECM/PCM and the evaporator temperature sensor.■

---

21. Check for continuity between ECM/PCM connector A (49P) No. 38 terminal and body ground.



Is there continuity?
YES - Repair short to body ground in the wire between the ECM/PCM and evaporator temperature sensor.■
NO - Go to Step 22 .

22. Remove the evaporator temperature sensor and test it.

Is the evaporator temperature sensor OK?
YES - Check for loose wires or poor connections at ECM/PCM connector A (49P). If the connections are good, check the ECM/PCM grounds. If the grounds are good, substitute a known-good ECM/PCM, and recheck. If the symptom/indication goes away, replace the original ECM/PCM. ■
NO - Replace the evaporator temperature sensor .■

23. Turn the ignition switch to LOCK (0).

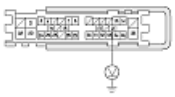
24. Reconnect the A/C pressure switch 2P connector.

25. Make sure the A/C switch is OFF.

26. Turn the ignition switch to ON (II).

---

27. Measure the voltage between under-dash fuse/relay box connector A (36P) No. 21 terminal and body ground with the under-dash fuse/relay box connectors connected.



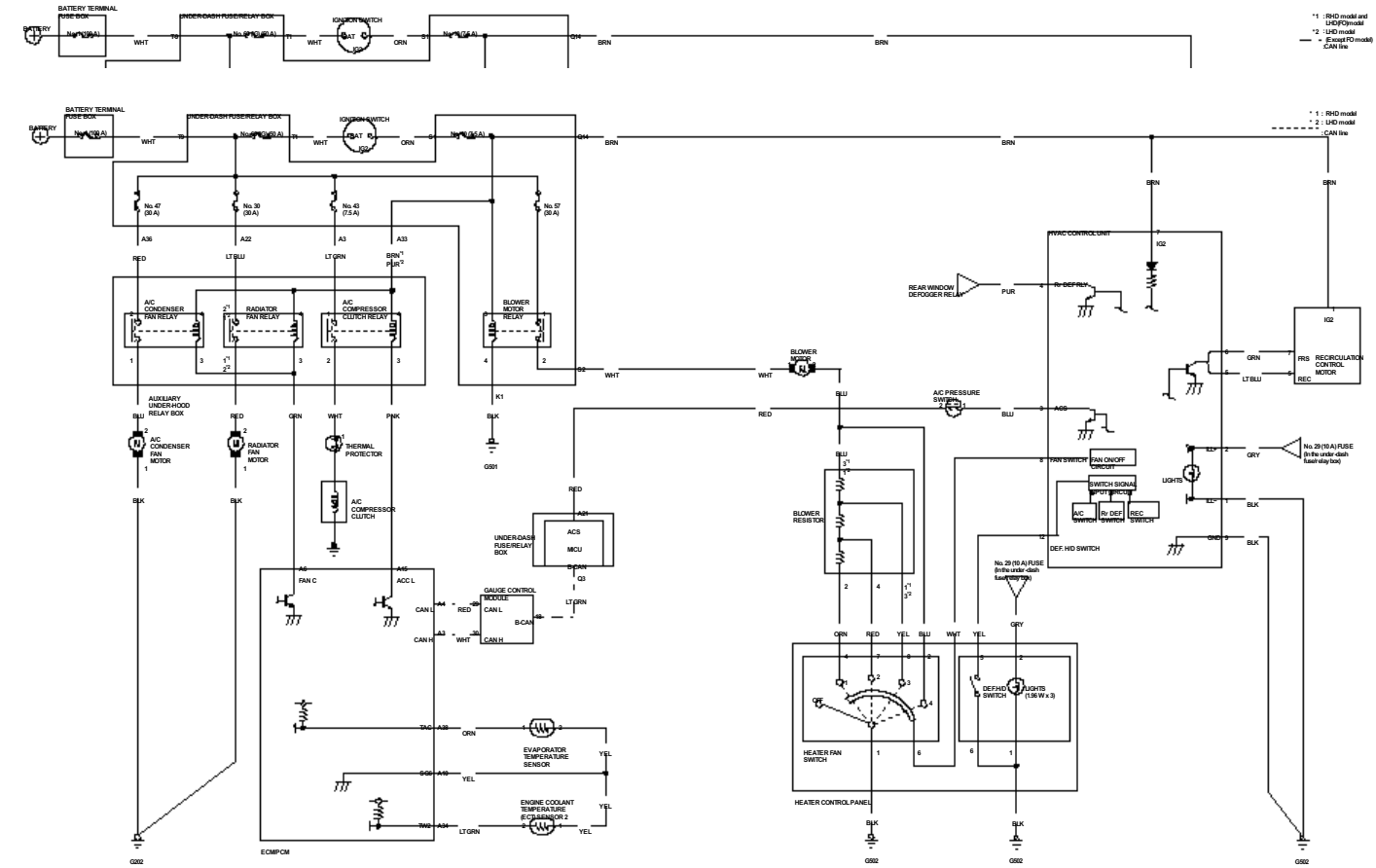
Is there battery voltage?
YES - Repair open in the wire between the A/C pressure switch and the MICU.■
NO - Check for loose wires or poor connections at the under-dash fuse/relay box. If the connections are OK, substitute a known-good MICU and recheck. If the symptom goes away, replace the original MICU .■

Heating and A/C System Description

[HVAC Control Unit Inputs and Outputs]

Heating and A/C Circuit Diagram

HVAC Control (Lever type)



Recirculation control doors do not change between Fresh and Recirculate

Diagnostic procedure

1. Recirculation control motor circuit troubleshooting

Also check for

- Blown fuse No. 10 (7.5 A) in the under-dash fuse/relay box
- Cleanliness and tightness of all terminals

Heater controls, and A/C do not work

Diagnostic procedure

1. HVAC control power and ground circuit troubleshooting

Also check for

- Blown fuse No. 10 (7.5 A) in the under-dash fuse/relay box
- Poor ground at G502
- Cleanliness and tightness of all terminals

Blower motor runs, but one or more speeds are inoperative

Diagnostic procedure

1. Blower Motor Circuit Troubleshooting

Also check for

- Cleanliness and tightness of all connectors

Blower motor does not run at all

Diagnostic procedure

1. Blower Motor Circuit Troubleshooting

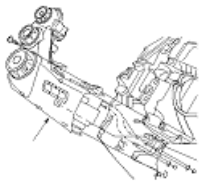
Also check for

- Blown fuse No. 10 (7.5 A) and No. 57 (30 A) in the under-dash fuse/relay box
- Poor ground at G501
- Cleanliness and tightness of all connectors

Heating and A/C Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Recirculation control doors do not change between Fresh and Recirculate	Recirculation control motor circuit troubleshooting	• Blown fuse No. 10 (7.5 A) in the under-dash fuse/relay box • Cleanliness and tightness of all terminals
Heater controls, and A/C do not work	HVAC control power and ground circuit troubleshooting	• Blown fuse No. 10 (7.5 A) in the under-dash fuse/relay box • Poor ground at G502 • Cleanliness and tightness of all terminals
Blower motor runs, but one or more speeds are inoperative	Blower Motor Circuit Troubleshooting	Cleanliness and tightness of all connectors
Blower motor does not run at all	Blower Motor Circuit Troubleshooting	• Blown fuse No. 10 (7.5 A) and No. 57 (30 A) in the under-dash fuse/relay box • Poor ground at G501 • Cleanliness and tightness of all connectors
A/C condenser fan does not run at all (but radiator fan runs with the A/C on)	A/C condenser Fan Circuit Troubleshooting	• Blown fuse No. 47 (30 A) in the under-dash fuse/relay box • Poor ground at G202 • Cleanliness and tightness of all connectors
Both fans do not run with the A/C on (but the A/C compressor runs with the A/C on)	Radiator and A/C condenser Fans Common Circuit Troubleshooting	• Blown fuse No. 30 (30 A) and No. 47 (30 A) in the under-dash fuse/relay box • Poor ground at G202 • Cleanliness and tightness of all connectors
A/C compressor clutch does not engage (but both fans run with the A/C on)	A/C compressor Clutch Circuit Troubleshooting	• Blown fuse No. 43 (7.5 A) in the under-dash fuse/relay box • Cleanliness and tightness of all connectors
A/C system does not come on (both fans and the A/C compressor do not work); heater is OK	A/C Pressure Switch Circuit Troubleshooting	• Poor ground at G502 • Cleanliness and tightness of all connectors

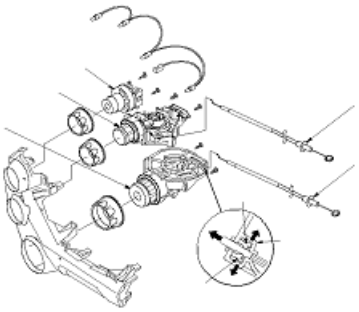
Heater Control Panel Removal/Installation



1. Remove the audio unit.
2. Remove the control cables from the heater unit.
3. Remove the self-tapping screw and pull the heater control panel (A).
4. Disconnect the connectors and remove the heater control panel.
5. Install the control panel in the reverse order of removal. After installation, operate the various functions to see whether it works properly.

Heater Control Panel Disassembly/Reassembly

1. Remove the heater control panel.
2. Using a snap ring pliers, widen the cable stops (A) in the cable holder (B), then pull out the mode control cable (C) and air mix control cable (D).
3. Hook the tip of the new control cables to the dial or slider, then push the cable housing into the cable holder until it locks into place.
4. After assembly, check that the dial turns smoothly.



HVAC Control Power and Ground Circuit Troubleshooting

1. Check the No. 10 (7.5 A) fuse in the under-dash fuse/relay box.

Is the fuse OK?
YES - Go to Step 2 .
NO - Replace the fuse, and recheck. If the fuse blows again, check for a short in the No. 10 (7.5 A) fuse circuit.■

2. Disconnect the HVAC control unit 12P connector.
3. Turn the ignition switch to ON (II).
4. Measure the voltage between the HVAC control unit 12P connector No. 7 terminal and body ground.

Is there battery voltage?
YES - Go to Step 5 .
NO - Repair open in the wire between the No. 10 (7.5 A) fuse in the under-dash fuse/relay box and the HVAC control unit.■

5. Turn the ignition switch to LOCK (0).

---

6. Check for continuity between the HVAC control unit 12P connector No. 9 terminal and body ground.

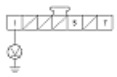
Is there continuity?
YES - Check for loose wires or poor connections at the HVAC control unit 12P connector. If the connections are good, substitute a known-good HVAC control unit, and recheck.■
NO - Check for open in the wire between the HVAC control unit and body ground. If the wire is OK, check for poor ground at G502. ■

HVAC Control Unit Removal/Installation

1. Remove the heater control panel.
2. Remove the self-tapping screws and the HVAC control unit (A). If necessary, replace the bulbs (B).
3. Install the control unit in the reverse order of removal. After installation, operate the various functions to make sure they work properly.

Recirculation Control Motor Circuit Troubleshooting

1. Check the No. 10 (7.5 A) fuse in the under-dash fuse/relay box.



Is the fuse OK?
YES - Go to Step 2 .
NO - Replace the fuse, and recheck. If the fuse blows again, check for a short in the No. 10 (7.5 A) fuse circuit.■

2. Disconnect the recirculation control motor 7P connector.
3. Turn the ignition switch to ON (II).
4. Measure the voltage between the recirculation control motor 7P connector No. 1 terminal and body ground.

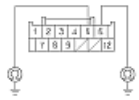
Is there battery voltage?
YES - Go to Step 5 .
NO - Repair open in the wire between the No. 10 (7.5 A) fuse in the under-dash fuse/relay box and the recirculation control motor.■

5. Turn the ignition switch to LOCK (0).
6. Test the recirculation control motor.

Is the recirculation control motor OK?
YES - Go to Step 7 .
NO - Replace the recirculation control motor, or repair the recirculation control linkage or door.■

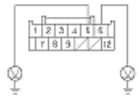
7. Disconnect the HVAC control unit 12P connector.

8. Check for continuity between body ground and the HVAC control unit 12P connector No. 5 and No. 6 terminals individually.



Is there continuity?
YES - Repair short to body ground in the wire(s) between the HVAC control unit and the recirculation control motor.■
NO - Go to Step 9 .

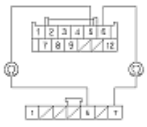
9. Turn the ignition switch to ON (II), and check the same terminals for voltage to body ground.



Is there any voltage?
YES - Repair short to power in the wires between the HVAC control unit and the recirculation control motor. This short may also damage the HVAC control unit. Repair the short to power before replacing the HVAC control unit.■
NO - Go to Step 10 .

10. Turn the ignition switch to LOCK (0).

11. Check for continuity between the following terminals of the HVAC control unit 12P connector and the recirculation control motor 7P connector.

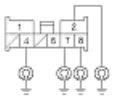


12P:	7P:
No. 5	No. 5
No. 6	No. 7

Is there continuity?
YES - Check for loose wires or poor connections at the HVAC control unit 12P connector and at the recirculation control motor 7P connector. If the connections are good, substitute a known-good HVAC control unit, and recheck. If the symptom/indication goes away, replace the original HVAC control unit .■
NO - Repair open in the wire(s) between the HVAC control unit and the recirculation control motor.■

Blower Motor Circuit Troubleshooting

1. Turn the ignition switch to ON (II) and the heater fan switch ON.



Does the blower motor run in each speed?
YES - Go to Step 2 .
NO - Go to Step 16 .

2. Turn the heater fan switch OFF.
3. Make sure the ignition switch is ON (II).

Does the blower motor run?
YES - Go to Step 4 .
NO - Go to Step 9 .

4. Turn the ignition switch to LOCK (0).
5. Disconnect the blower motor 2P connector.
6. Disconnect the blower resistor 4P connector.
7. Disconnect the heater fan switch 8P connector.
8. Check for continuity between the heater fan switch 8P connector No. 2, 4, 7, and No. 8 terminals and body ground individually.

Is there continuity?
YES - Repair short to body ground in the wires between the blower motor, the blower resistor and the heater fan switch.■
NO - Replace the heater fan switch. ■

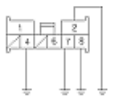
9. Turn the ignition switch to LOCK (0).
10. Disconnect the blower resistor 4P connector.
11. Test the blower resistor.

Is the blower resistor OK?
YES - Go to Step 12 .
NO - Replace the blower resistor.■

12. Reconnect the blower resistor 4P connector.
13. Disconnect the heater fan switch 8P connector.
14. Turn the ignition switch to ON (II).

---

15. Ground each of the heater fan switch 8P connector terminals individually in the following order: No. 4, 7, 8, and No. 2.



Does the blower motor run at progressively higher speeds?
YES - Replace the heater fan switch. ■
NO - Repair any open or cause of excessive resistance in the appropriate wires between the blower resistor and the heater fan switch.■

16. Turn the heater fan switch OFF and the ignition switch to LOCK (0).
17. Check the No. 57 (30 A) and the No. 10 (7.5 A) fuses in the under-dash fuse/relay box.

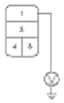
Are the fuses OK?
YES - Go to Step 18 .
NO - Replace the fuses, and recheck. If the fuses blow again, check for a short in the No. 57 (30 A) and No. 10 (7.5 A) fuses circuit.■

18. Remove the blower motor relay from the under-dash fuse/relay box, and test it.

Is the relay OK?
YES - Go to Step 19 .
NO - Replace the blower motor relay .■

---

19. Measure the voltage between the blower motor relay 4P socket No. 1 terminal and body ground.

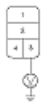


Is there battery voltage?
YES - Go to Step 20 .
NO - Replace the under-dash fuse/relay box.■

20. Turn the ignition switch to ON (II).

---

21. Measure the voltage between the blower motor relay 4P socket No. 3 terminal and body ground.



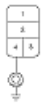
Is there battery voltage?

YES - Go to Step 22 .
NO - Replace the under-dash fuse/relay box.■

22. Turn the ignition switch to LOCK (0).

---

23. Check for continuity between the blower motor relay 4P socket No. 4 terminal and body ground.



Is there continuity?
YES - Go to Step 24 .
NO - Check for an open in the wire between the blower motor relay and body ground. If the wire is OK, check for poor ground at G501. ■

---

24. Connect the blower motor 2P connector No. 2 terminal to body ground with a jumper wire.
25. Turn the ignition switch to ON (II).

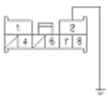
Does the blower motor run?
YES - Go to Step 26 .
NO - Go to Step 34 .

26. Turn the ignition switch to LOCK (0).
27. Disconnect the jumper wire.
28. Disconnect the heater fan switch 8P connector.
29. Test the heater fan switch.

Is the heater fan switch OK?
YES - Go to Step 30 .
NO - Replace the heater fan switch. ■

---

30. Connect the heater fan switch 8P connector No. 2 terminal to body ground with a jumper wire.
31. Turn the ignition switch to ON (II).

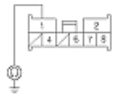


Does the blower motor run?
YES - Go to Step 32 .
NO - Repair open in the wire between the blower motor and the heater fan switch.■

32. Turn the ignition switch to LOCK (0).

---

33. Check for continuity between the heater fan switch 8P connector No. 1 terminal and body ground.



Is there continuity?
YES - Replace the heater fan switch. ■
NO - Check for an open in the wire between the heater fan switch and body ground. If the wire is OK, check for poor ground at G502. ■

34. Disconnect the jumper wire.
35. Disconnect the blower motor 2P connector.

---

36. Measure the voltage between the blower motor 2P connector No. 1 terminal and body ground.

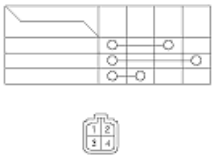
Is there battery voltage?
YES - Replace the blower motor.■
NO - Check for an open in the wire between the blower motor relay and blower motor.■

Blower Resistor Test

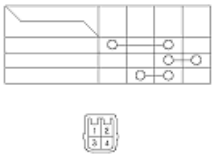
1. Disconnect the 4P connector (A) from the blower resistor.

2. Measure the resistance between the following terminals of the blower resistor and compare them with the values in the table.
3. If the resistance is not within the specifications, replace the blower resistor.

LHD (Except FO model)



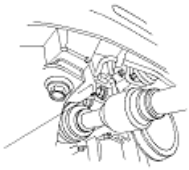
RHD model and LHD (FO) model



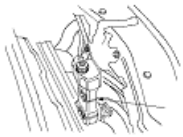
Coolant Replacement

1. Start the engine. Set the heater temperature control dial to maximum heat, then turn the ignition switch to LOCK (0). Make sure the engine and radiator are cool to the touch.
2. Remove the radiator cap.
3. Loosen the drain plug (A), and drain the coolant.

4. Remove the drain bolt (A) located at the rear of the engine block.
5. After the coolant has drained, then reinstall the bolt with a new washer and tighten it securely.
6. Tighten the radiator drain plug securely.
7. Remove, drain, and reinstall the coolant reservoir.



8. Fill the coolant reservoir to the MAX mark (A) with genuine Honda Long Life Antifreeze/Coolant Type 2 (P/N OL999-9001).



9. Pour genuine Honda Long Life Antifreeze/Coolant Type 2 into the radiator up to the base of the filler neck.
   NOTE:
   - Always use genuine Honda Long Life Antifreeze/Coolant Type 2 (P/N OL999-9001). Using a non-Honda coolant can result in corrosion, causing the cooling system to malfunction or fail.
   - Genuine Honda Long Life Antifreeze/Coolant Type 2 is a mixture of 50 % antifreeze and 50 % water. Do not add water.

   Engine Coolant Capacities (Including the coolant reservoir capacity of 0.44 L (0.116 US gal, 0.097 Imp gal)):
   L15A7 engine: M/T model (With heater): At Coolant Change: 4.547 L (1.199 US gal, 0.999 Imp gal)
   After Engine Overhaul: 5.03 L (1.329 US gal, 1.107 Imp gal)
   M/T model (Without heater): At Coolant Change: 4.11 L (1.086 US gal, 0.904 Imp gal)
   After Engine Overhaul: 4.60 L (1.215 US gal, 1.012 Imp gal)
   A/T model (With heater): At Coolant Change: 4.46 L (1.178 US gal, 0.981 Imp gal)
   After Engine Overhaul: 4.95 L (1.308 US gal, 1.089 Imp gal)
   A/T model (Without heater): At Coolant Change: 4.03 L (1.065 US gal, 0.887 Imp gal)
   After Engine Overhaul: 4.52 L (1.195 US gal, 0.994 Imp gal)
   L13Z1 engine: M/T model (With heater): At Coolant Change: 4.53 L (1.197 US gal, 0.997 Imp gal)
   After Engine Overhaul: 5.02 L (1.326 US gal, 1.104 Imp gal)
   M/T model (Without heater): At Coolant Change: 4.10 L (1.083 US gal, 0.902 Imp gal)
   After Engine Overhaul: 4.59 L (1.213 US gal, 1.010 Imp gal)
   A/T model (With heater): At Coolant Change: 4.45 L (1.176 US gal, 0.979 Imp gal)
   After Engine Overhaul: 4.94 L (1.305 US gal, 1.087 Imp gal)
   A/T model (Without heater): At Coolant Change: 4.02 L (1.062 US gal, 0.884 Imp gal)
   After Engine Overhaul: 4.51 L (1.192 US gal, 0.992 Imp gal)

10. Loosely install the radiator cap.
11. Start the engine, and let it run until it warms up (the radiator fan comes on at least twice).
12. Turn off the engine. Check the level in the radiator and add genuine Honda Long Life Antifreeze/ Coolant Type 2, if needed.
13. Put the radiator cap on tightly, then start the engine again, and check for leaks.
14. Clean up any spilled engine coolant.

Wheel Alignment

Special Tool Required

Wheel alignment gauge attachment, 56 x 62 mm
07NAJ-SS00301

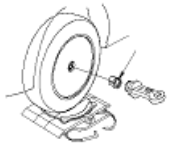
The suspension can be adjusted for front camber and front toe. However, each of these adjustments are interrelated to each other. For example, when you adjust the camber, the toe will change. Therefore, you must adjust the front wheel alignment whenever you adjust camber or toe.

Pre-Alignment Checks

For proper inspection and adjustment of the wheel alignment, do these checks:

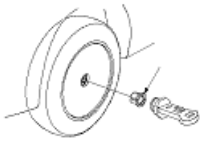
1. Release the parking brake to avoid an incorrect measurement.
2. Make sure the suspension is not modified.
3. Make sure the fuel tank is full, and that the spare tyre or the temporary repair kit, the jack, and the tools are in place on the vehicle.
4. Check the tyre size and tyre pressure according to tyre information.
5. Check the runout of the wheels and tyres.
6. Check the suspension ball joints.
   - Ball joint boot inspection.
   - Lower arm ball joint inspection.
7. Before doing alignment inspections, be sure to remove all extra weight from the vehicle, and no one should be inside the vehicle (driver or passengers).
8. Bounce the vehicle up and down several times to stabilize the suspension.
9. Check that the steering column is set at the center tilt and telescopic position.

Front Caster Inspection



1. Raise the front of the vehicle, and remove the wheel caps.
   NOTE: Push out the cap on the aluminum wheel from the inside after removing the wheel.
2. Set the turning radius gauges beneath the front wheels, and place the boards under the rear wheels the same thickness as the turning radius gauges, then lower the vehicle.
   NOTE: Be sure that the vehicle is level with the wheels on the turning radius gauges and the boards.
3. Install the wheel alignment gauge attachment (A) and camber/caster gauge on the wheel hub, and apply the front brake.
4. Turn the front wheel 20 ° outward, then turn the adjusting screw of the camber/caster gauge to set the bubble at 0 °.
5. Turn the wheel 20 ° inward and read the caster angle on the gauge with the bubble at the center of the gauge.
   Front caster angle: 3 ° 20 '± 1 °
   - If the measurement is within specifications, measure the front camber angle.
   - If the measurement is not within specifications, check for bent or damaged suspension components.

Front Camber Inspection

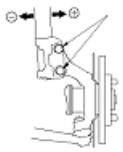


1. Turn the front wheels to the straight ahead position.
2. Raise the front of the vehicle, and remove the wheel caps.
   NOTE: Push out the cap on the aluminum wheel from the inside after removing the wheel.
3. Install the wheel alignment gauge attachment (A) and camber/caster gauge on the wheel hub.
4. Read the camber angle on the gauge with the bubble at the center of the gauge.
   Front camber angle: 0 ° 00 '± 1 °
   (Maximum difference between the right and left side: 0 ° 45 ')
   - If the measurement is within specifications, measure the rear camber.
   - If the measurement for the front camber is not within specifications, go to the front camber adjustment.

Front Camber Adjustment

The front camber can be adjusted by exchanging one or both of the damper pinch bolts with the smaller diameter adjusting bolt(s). The difference between the adjusting bolt diameter and the pinch bolt hole diameter allows for a small range of adjustment.

1. Raise the front of the vehicle, and support it with safety stands in the proper locations.
2. Remove the front wheels.
3. Loosen the damper pinch bolts (A), and adjust the camber angle by moving the bottom of the damper within the range of the damper pinch bolt free play.
4. Tighten the damper pinch bolts to the specified torque.
5. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheels.
6. Lower the vehicle to the ground, and bounce the front of the vehicle up and down several times to settle the suspension.
7. Measure the camber angle.
   - If the measurement is within specification, measure the rear camber.
   - If the measurement is not within specification, go to Step 8 .
8. Raise the front of the vehicle, and support it with safety stands in the proper locations.
9. Remove the front wheels.



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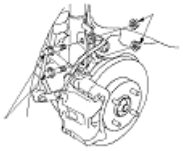
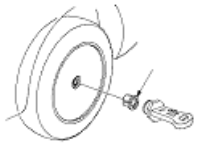
10. Replace the damper pinch bolts with the adjusting bolts (A), and adjust the camber angle.
    NOTE:
    - The camber angle can be adjusted up to ±20 ' (center of tolerance) by replacing one damper pinch bolt with the adjusting bolt.
    - The camber angle can be adjusted up to ±40 ' by replacing both the damper pinch bolts with the adjusting bolts.
11. Tighten the adjusting bolts to the specified torque value.
12. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheels.
13. Lower the vehicle to the ground, and bounce the front of the vehicle up and down several times to settle the suspension.
14. Measure the camber angle. If the camber angle is not within specification, repeat Step 8 through 13 to readjust the camber angle. If the camber measurement is correct, measure the toe-in, and adjust it if necessary.



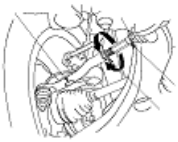
Rear Camber Inspection

1. Raise the rear of the vehicle, and remove the wheel caps.
   NOTE: Push out the cap on the aluminum wheel from the inside after removing the wheel.
2. Install the wheel alignment gauge attachment (A) and camber/caster gauge on the wheel hub.
3. Read the camber angle on the gauge with the bubble at the center of the gauge.
   Rear camber angle: −1 ° 00 '±1 °
   (Maximum difference between the right and left side: 0 ° 45 ')
   - If the measurement is within specifications, measure the toe-in.
   - If the measurement is not within specifications, check for bent or damaged suspension components.



Front Toe Inspection/Adjustment

1. Set the steering column to the middle tilt and telescopic positions. Center the steering wheel spokes, and hold it.
2. Check the toe with the wheels pointed straight ahead.
   Front toe-in: 0±3 mm (0±0.12 in.)
   - If adjustment is required, go to Step 3 .
   - If no adjustment is required, go to rear toe inspection.
3. Loosen the tie-rod locknuts (A) while holding the flat surface sections (B) of the tie-rod end with a wrench, and turn both tie-rods (C) until the front toe is within specifications.
4. After adjusting, tighten the tie-rod locknuts to the specified torque value. Reposition the rack end boot if it is twisted or displaced.
5. Go to rear toe inspection.
   NOTE: Adjust both the right and left wheels at the same time by the same amount in opposite directions to obtain the correct toe and to keep the steering wheel straight.



Rear Toe Inspection

1. Release the parking brake to avoid and incorrect measurement.
2. Check the toe.
   Rear toe-in: **2.5±2.5 mm (0.10±0.10 in.)**

   - If the measurement is within specifications, measure the turning angle.
   - If the measurement is not within specifications, check for bent or damaged suspension components.

Turning Angle Inspection

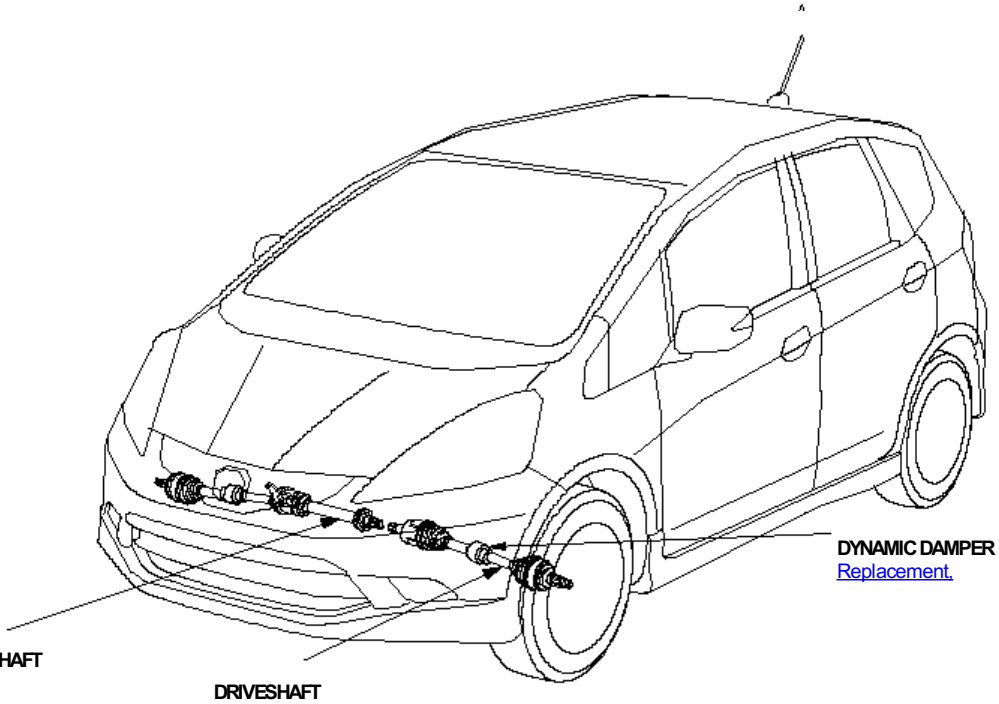
1. Raise the vehicle and set the turning radius gauges beneath the front wheels, and place the boards under the rear wheels the same thickness as the turning radius gauges, then lower the vehicle.
   NOTE: Be sure that the vehicle is level with the wheels on the turning radius gauges and the boards.
2. Turn the wheel right and left while applying the brake, and measure the turning angle of the both wheels.
   Turning angle:

Inward:	**40 ° 19 '±2 °**
Outward (reference):	**33 ° 19 '±1 °**

3. If the measurement is not within the specifications, even up both sides of the tie-rod threaded section length while adjusting the front toe. If it is correct, but the turning angle is not within the specifications, check for bent or damaged suspension components.

Driveline/Axle Component Location Index

M/T model



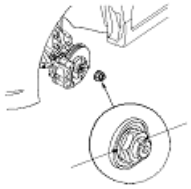
DYNAMIC DAMPER
Replacement,

INTERMEDIATE SHAFT
Removal,
Disassembly,
Reassembly,
Installation,

DRIVESHAFT
Inspection,
Removal,
Disassembly,
Reassembly,
Installation,

Driveshaft Removal

Special Tools Required

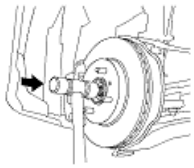


Ball joint remover, 28 mm
07MAC-SL00201

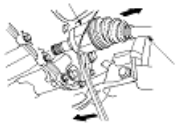
1. Raise the vehicle on a lift.
2. Remove the front wheels.
3. Pry up the locking tab (A) on the spindle nut (B), then remove the nut.
4. Drain the transmission fluid. Reinstall the drain plug using a new sealing washer:
   - Manual transmission
   - Automatic transmission

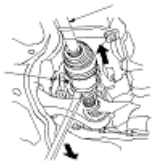
5. Remove the lock pin (A) from the lower arm ball joint, and remove the castle nut (B), then separate the ball joint from the knuckle using the ball joint remover.
   NOTE:
   - Be careful not to damage the ball joint boot when installing the remover.
   - Do not force or hammer on the lower arm, or pry could damage the ball joint.

6. Pull the knuckle outward, and separate the outboard joint from the front hub using a plastic hammer.

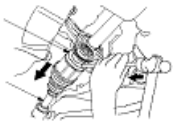


7. Left and Right driveshaft (M/T model)/Left driveshaft (A/T model): Pry the inboard joint (A) from the differential with a prybar. Remove the driveshaft as an assembly.
   NOTE:
   - Do not pull on the driveshaft (B), or the inboard joint may come apart. Pull the inboard joint straight out to avoid damaging the oil seal.
   - Be careful not to damage the oil seal with the prybar.

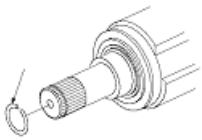




8. Right driveshaft (A/T model): Drive the inboard joint (A) off of the intermediate shaft using a drift and a hammer. Remove the driveshaft as an assembly.
   NOTE: Do not pull on the driveshaft (B), or the inboard joint may come apart.



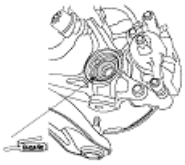
9. Remove the set ring (A) from the inboard joint (Except A/T model right driveshaft).



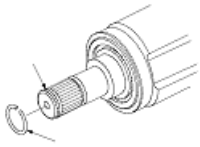
10. Remove the set ring (A) from the intermediate shaft (A/T model right driveshaft).

Driveshaft Installation

NOTE: Before starting installation, make sure the mating surfaces of the joint and the splined section are clean.

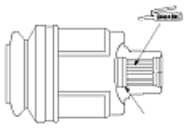


1. Apply about 5 g (0.18 oz) molybdenum grease to the contact area (A) of the outboard joint and the front wheel bearing.
   NOTE: The grease helps to prevent noise and vibration.

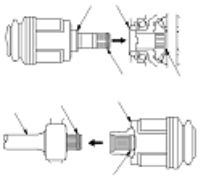


2. Install a new set ring (A) onto the set ring groove (B) of the driveshaft inboard joint (except A/T model right driveshaft).

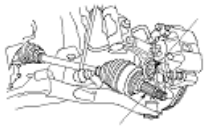
3. Install a new set ring (A) onto the set ring groove (B) of the intermediate shaft (A/T model).



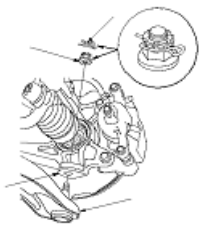
4. Apply 0.5−1.0 g (0.02−0.04 oz) of molybdenum grease to the whole splined surface (A) of the right driveshaft. After applying grease, remove the grease from the splined grooves at intervals of 2−3 splines and from the set ring groove (B) so that air can bleed from the intermediate shaft.
5. Clean the areas where the driveshaft contacts the differential thoroughly with solvent or brake cleaner, and dry with compressed air.
   NOTE: Do not wash the rubber parts with solvent.



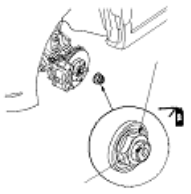
6. Insert the inboard end (A) of the driveshaft into the differential (B) or intermediate shaft (C) until the set ring (D) locks in the groove (E).
   NOTE: Insert the driveshaft horizontally to prevent damaging the oil seal.



7. Install the outboard joint (A) into the front hub (B) on the knuckle.



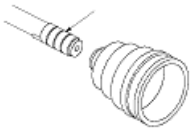
8. Wipe off any grease contamination from the ball joint tapered section and threads, then install the knuckle (A) onto the lower arm (B). Be careful not to damage the ball joint boot. Wipe off the grease before tightening the nut at the ball joint. Torque the new castle nut (C) to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole.
   NOTE:
   - Make sure the ball joint boot is not damaged or cracked.
   - Do not align the nut by loosening it.
9. Install the lock pin (D) into the ball joint pin hole.



10. Apply a small amount of engine oil to the seating surface of the new spindle nut (A).
11. Install the spindle nut, then tighten it. After tightening, use a drift to stake the spindle nut shoulder (B) against the driveshaft.
12. Clean the mating surfaces of the brake disc and the wheel, then install the front wheels.
13. Turn the front wheel by hand, and make sure there is no interference between the driveshaft and surrounding parts.
14. Refill the transmission with the recommended transmission fluid:
    - Manual transmission
    - Automatic transmission
15. Lower the vehicle on the lift.
16. Check the wheel alignment, and adjust it if necessary.
17. Test-drive the vehicle.

Driveshaft Reassembly

Exploded View
M/T model



Exploded View
A/T model

Special Tools Required

Boot band tool,
KD-3191

or equivalent commercially available
Boot band pincers,
Kent-Moore J-35910

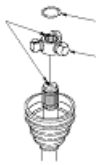
or equivalent commercially available
Boot band pliers,
commercially available

NOTE: Refer to the Exploded View as needed during this procedure.

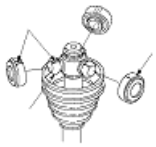
Inboard Joint Side

1. Wrap the splines with vinyl tape (A) to prevent damaging the inboard boot.
2. Install the inboard boot onto the driveshaft, then remove the vinyl tape. Be careful not to damage the inboard boot.

3. Install the spider (A) onto the driveshaft by aligning the marks (B) you made on the spider and the end of the driveshaft.
4. Install a new circlip (C) into the driveshaft groove. Always rotate the circlip in its groove to make sure it is fully seated.

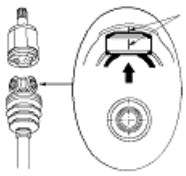


5. Fit the rollers (A) onto the spider (B) with the high shoulders facing outward, and note these items:
   - Reinstall the rollers in their original positions on the spider by aligning the marks (C) you made.
   - Hold the driveshaft pointed up to prevent the rollers from falling off.

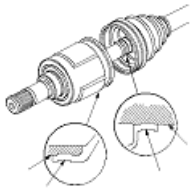


6. Pack the inboard joint with the joint grease included in the new inboard boot set.
   Grease quantity
   Inboard joint: **90−100 g (3.2−3.5 oz)**

7. Fit the inboard joint onto the driveshaft and note these items:
   - Reinstall the inboard joint onto the driveshaft by aligning the marks (A) you made on the inboard joint and the rollers.
   - Hold the driveshaft so the inboard joint is pointing up to prevent it from falling off.

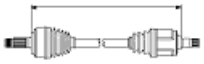


8. Fit the boot ends (A) onto the driveshaft (B) and the inboard joint (C).

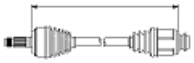


9. Adjust the length (A) of the driveshafts to the figure as shown, then adjust the boots to halfway between full compression and full extension. Bleed excess air from the boots by inserting a flat-tipped screwdriver between the boot and the joint.

Driveshaft type 1



Driveshaft type 2



Model	Left/Right Driveshaft	Driveshaft Type	Specified Length (A)
M/T	Left	1	531−536 mm (20.91−21.10 in.)
	Right	1	787−792 mm (30.98−31.18 in.)
A/T	Left	1	529−534 mm (20.83−21.02 in.)
	Right	2	484−489 mm (19.06−19.25 in.)

10. Install the new boot bands.
    - For the double loop type, go to Step 11 .
    - For the low profile type, go to Step 20 .

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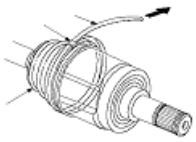
11. Fit the boot ends onto the driveshaft and the inboard joint, then install a new double loop band (A) onto the boot (B). NOTE: Pass the end of the new double loop band through the clip (C) twice in the direction of the forward rotation of the driveshaft.
12. Pull up the slack in the band by hand.



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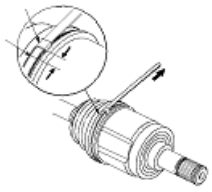
13. Mark a position (A) on the band 10−14 mm (0.4−0.6 in.) from the clip (B).



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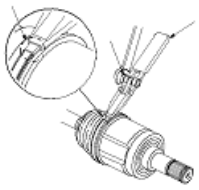
14. Thread the free end of the band through the nose section of the commercially available boot band tool KD-3191 or equivalent (A), and into the slot on the winding mandrel (B).
15. Using a wrench on the winding mandrel of the boot band tool, tighten the band until the marked spot (C) on the band meets the edge of the clip.



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16. Lift up the boot band tool to bend the free end of the band 90 degrees to the clip. Center-punch the clip, then fold over the remaining tail onto the clip.

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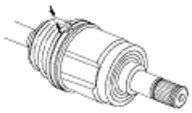
17. Unwind the boot band tool, and cut off the excess free end of the band to leave a 5−10 mm (0.2−0.4 in.) tail protruding from the clip.



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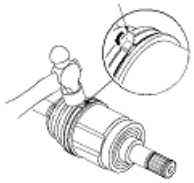
18. Bend the band end (A) by tapping it down with a hammer.
    NOTE:
    - Make sure the band and the clip do not interfere with anything on the vehicle and the band does not move.
    - Clean any grease remaining on the surrounding surfaces.
19. Repeat Step 11 through 18 for the band on the other end of the boot.



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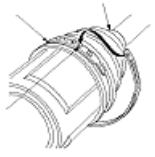
20. Install a new low profile band (A) onto the boot (B), then hook the tab (C) of the band.



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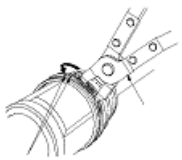
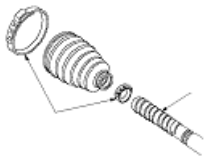
21. Close the hook portion of the band with a commercially available boot band pincers (A), then hook the tabs (B) of the band.
22. Install the boot band on the other end of the boot, and repeat Step 20 through 21.



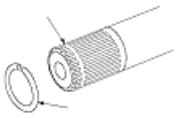
Outboard Joint Side



1. Wrap the splines with vinyl tape (A) to prevent damaging the outboard boot.
2. Install the new ear clamp bands (B) and the outboard boot, then remove the vinyl tape. Be careful not to damage the outboard boot.

---

3. Install a new stop ring (A) into the driveshaft groove (B).



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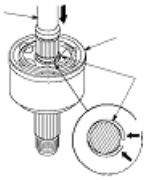
4. Pack about 35 g (1.2 oz) grease included in the new outboard boot set into the driveshaft hole in the outboard joint.
   NOTE: If you are installing a new outboard joint, the grease is already installed.

---

5. Insert the driveshaft (A) into the outboard joint (B) until the stop ring (C) is close to the joint.



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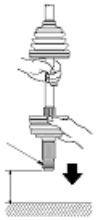
6. To completely seat the outboard joint, pick up the driveshaft and joint, and tap or hit them from a height of about 10 cm (4 in.) onto a hard surface.
   NOTE: Do not use a hammer as excessive force may damage the driveshaft. Be careful not to damage the threaded section (A) of the outboard joint.



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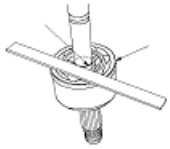
7. Check the alignment of the paint mark (A) you made with the outboard joint rim (B).



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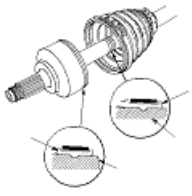
8. Pack the outboard joint (A) with the remaining joint grease included in the new outboard boot set.
   Total grease quantity
   Outboard joint:
   M/T model: 95−105 g (3.4−3.7 oz)
   A/T model: 90−100 g (3.2−3.5 oz)

---

9. Fit the boot ends (A) onto the driveshaft (B) and the outboard joint (C). Bleed any excess air from the boot by inserting a flat-tipped screwdriver between the boot and the joint.



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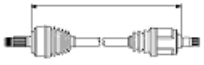
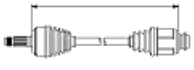
10. Inspect the length (A) of the driveshafts to the figure as shown, then adjust the boots to halfway between full compression and full extension.

Model	Left/Right Driveshaft	Driveshaft Type	Specified Length (A)
M/T	Left	1	531−536 mm (20.91−21.10 in.)
	Right	1	787−792 mm (30.98−31.18 in.)
A/T	Left	1	529−534 mm (20.83−21.02 in.)
	Right	2	484−489 mm (19.06−19.25 in.)

Driveshaft type 1

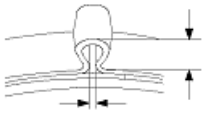


Driveshaft type 2



11. Close the ear portion (A) of the band with commercially available boot band pliers Kent-Moore J-35910 or equivalent (B).

12. Check the clearance between the closed ear portion of the band. If the clearance is not within the standard, close the ear portion of the band tighter.



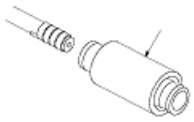
13. Repeat Step 11 and 12 for the band on the other end of the boot.

Driveshaft Dynamic Damper Replacement

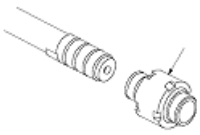
1. Remove the inboard joint.
2. Remove the dynamic damper band.
3. Remove the dynamic damper (A).
4. Install the new dynamic damper.
   NOTE: Be careful not to swap the dynamic dampers. Check the type of dynamic damper by its shape.

Model	Left/Right Driveshaft	Dynamic Damper (A) Type
M/T	Left	———
	Right	1
A/T	Left	2
	Right	2

Dynamic damper type 1



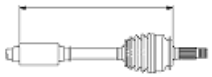
Dynamic damper type 2



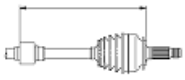
5. Adjust the specified distance (A) between the outboard joint side and the dynamic damper edge.
   NOTE: Check the type of dynamic damper by its shape.

Model	Left/Right Driveshaft	Dynamic Damper Type	Specified Distance (A)
M/T	Left	———	———
	Right	1	287–292 mm (11.30–11.50 in.)
A/T	Left	2	250.5–255.5 mm (9.86–10.06 in.)
	Right	2	

Dynamic damper type 1

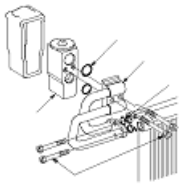


Dynamic damper type 2



6. Install the dynamic damper band.
7. Install the inboard joint.

A/C Evaporator Expansion Valve Replacement

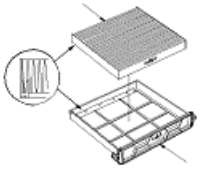


1. Remove the evaporator core.
2. Remove the bolts, O-rings (A) and the expansion valve (B) from the pipe (C).
3. Install the expansion valve in the reverse order of removal, and note these items:
   - Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
   - Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
   - Do not spill the refrigerant oil on the vehicle; it may damage the paint; if the refrigerant oil contacts the paint, wash it off immediately.
   - Make sure that there is no air leakage.
   - Charge the system.

Dust and Pollen Filter Replacement

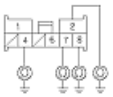
1. Open the glove box. Remove the glove box stop on each side, then let the glove box hang down.
2. Pull out the dust and pollen filter assembly (A) from the blower unit.

3. Remove the filter (A) from the housing (B), and replace the filter.
4. Install the filter in the reverse order of removal. Make sure that there is no air leaking out of the blower unit.



Blower Motor Circuit Troubleshooting

1. Turn the ignition switch to ON (II) and the heater fan switch ON.



Does the blower motor run in each speed?
YES - Go to Step 2 .
NO - Go to Step 16 .

2. Turn the heater fan switch OFF.
3. Make sure the ignition switch is ON (II).

Does the blower motor run?
YES - Go to Step 4 .
NO - Go to Step 9 .

4. Turn the ignition switch to LOCK (0).
5. Disconnect the blower motor 2P connector.
6. Disconnect the blower resistor 4P connector.
7. Disconnect the heater fan switch 8P connector.
8. Check for continuity between the heater fan switch 8P connector No. 2, No. 4, No. 7, and No. 8 terminals and body ground individually.

Is there continuity?
YES - Repair short to body ground in the wires between the blower motor, the blower resistor and the heater fan switch.■
NO - Replace the heater fan switch. ■

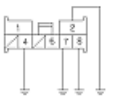
9. Turn the ignition switch to LOCK (0).
10. Disconnect the blower resistor 4P connector.
11. Test the blower resistor.

Is the blower resistor OK?
YES - Go to Step 12 .
NO - Replace the blower resistor.■

12. Reconnect the blower resistor 4P connector.
13. Disconnect the heater fan switch 8P connector.
14. Turn the ignition switch to ON (II).

---

15. Ground each of the heater fan switch 8P connector terminals individually in the following order: No. 4, No. 7, No. 8, and No. 2.



Does the blower motor run at progressively higher speeds?
YES - Replace the heater fan switch. ■
NO - Repair any open or cause of excessive resistance in the appropriate wires between the blower resistor and the heater fan switch.■

16. Turn the heater fan switch OFF and the ignition switch to LOCK (0).
17. Check the No. 57 (30 A) and the No. 10 (7.5 A) fuses in the under-dash fuse/relay box.

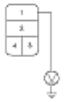
Are the fuses OK?
YES - Go to Step 18 .
NO - Replace the fuses, and recheck. If the fuses blow again, check for a short in the No. 57 (30 A) and No. 10 (7.5 A) fuses circuit.■

18. Remove the blower motor relay from the under-dash fuse/relay box, and test it.

Is the relay OK?
YES - Go to Step 19 .
NO - Replace the blower motor relay .■

---

19. Measure the voltage between the blower motor relay 4P socket No. 1 terminal and body ground.

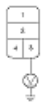


Is there battery voltage?
YES - Go to Step 20 .
NO - Replace the under-dash fuse/relay box.■

20. Turn the ignition switch to ON (II).

---

21. Measure the voltage between the blower motor relay 4P socket No. 3 terminal and body ground.



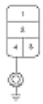
Is there battery voltage?

YES - Go to Step 22 .
NO - Replace the under-dash fuse/relay box.■

22. Turn the ignition switch to LOCK (0).

---

23. Check for continuity between the blower motor relay 4P socket No. 4 terminal and body ground.



Is there continuity?
YES - Go to Step 24 .
NO - Check for an open in the wire between the blower motor relay and body ground. If the wire is OK, check for poor ground at G501. ■

---

24. Connect the blower motor 2P connector No. 2 terminal to body ground with a jumper wire.
25. Turn the ignition switch to ON (II).

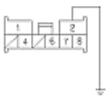
Does the blower motor run?
YES - Go to Step 26 .
NO - Go to Step 34 .

26. Turn the ignition switch to LOCK (0).
27. Disconnect the jumper wire.
28. Disconnect the heater fan switch 8P connector.
29. Test the heater fan switch.

Is the heater fan switch OK?
YES - Go to Step 30 .
NO - Replace the heater fan switch. ■

---

30. Connect the heater fan switch 8P connector No. 2 terminal to body ground with a jumper wire.
31. Turn the ignition switch to ON (II).

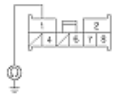


Does the blower motor run?
YES - Go to Step 32 .
NO - Repair open in the wire between the blower motor and the heater fan switch.■

32. Turn the ignition switch to LOCK (0).

---

33. Check for continuity between the heater fan switch 8P connector No. 1 terminal and body ground.



Is there continuity?
YES - Replace the heater fan switch. ■
NO - Check for an open in the wire between the heater fan switch and body ground. If the wire is OK, check for poor ground at G502. ■

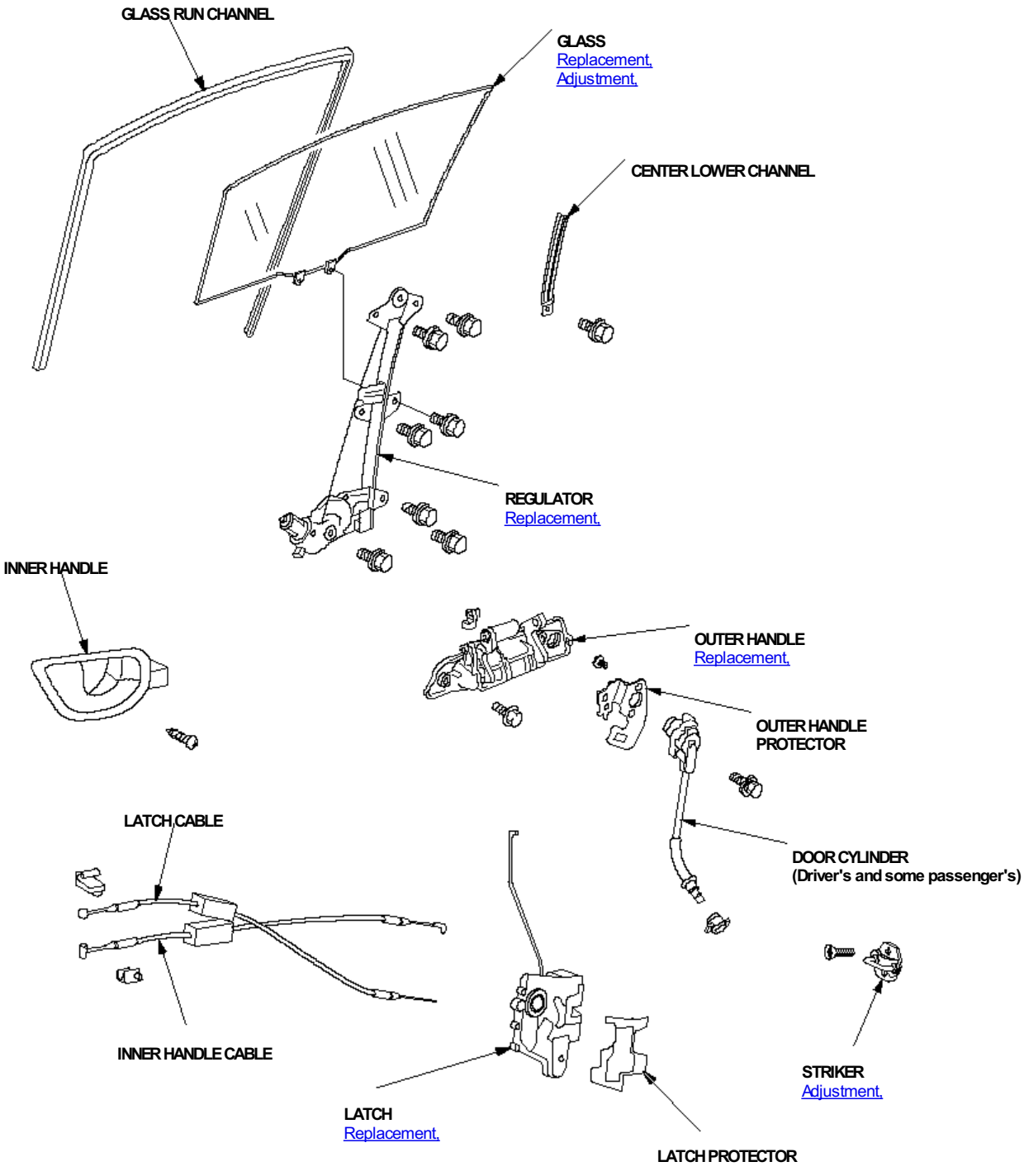
34. Disconnect the jumper wire.
35. Disconnect the blower motor 2P connector.

---

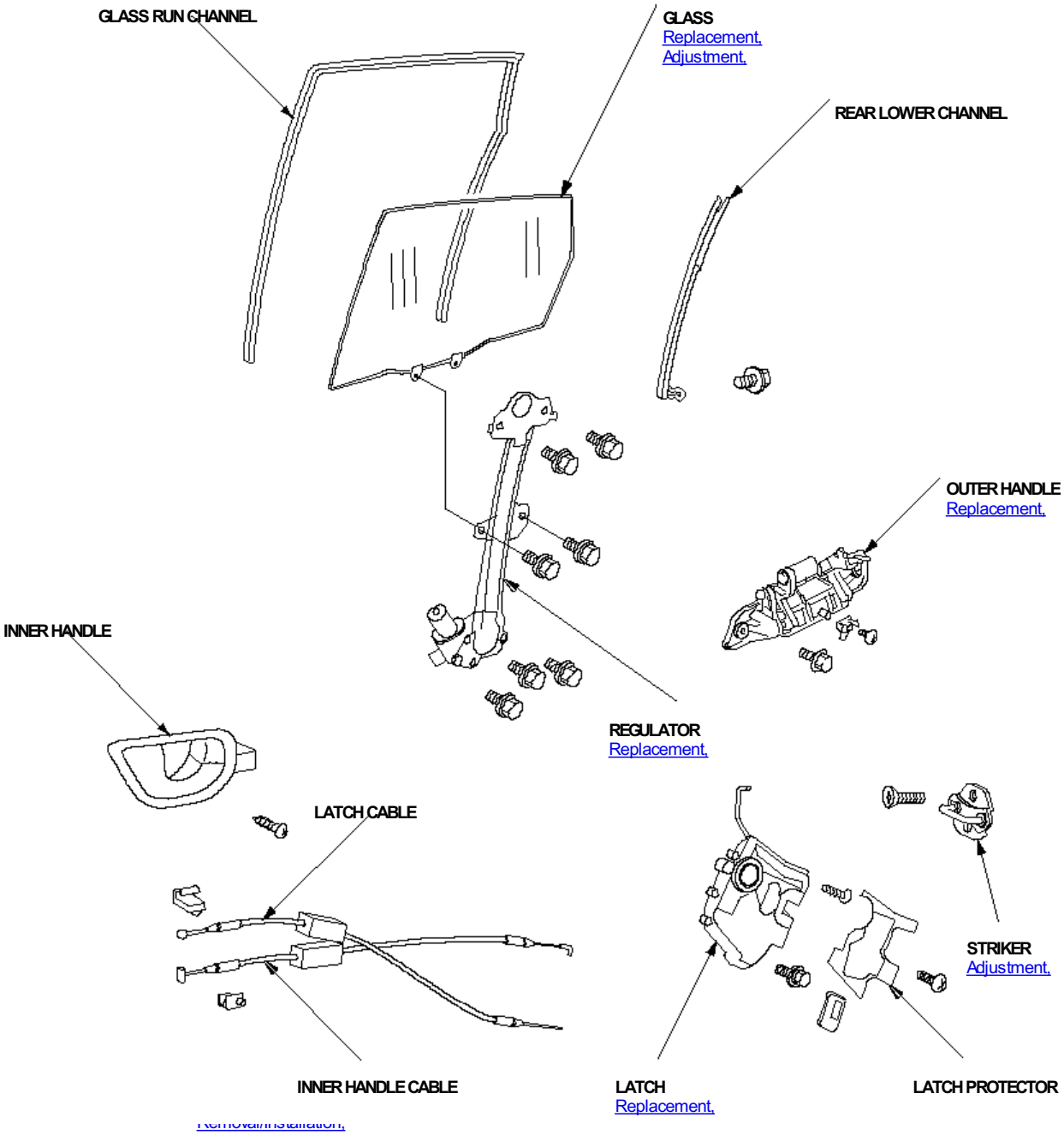
36. Measure the voltage between the blower motor 2P connector No. 1 terminal and body ground.

Is there battery voltage?
YES - Replace the blower motor.■
NO - Check for an open in the wire between the blower motor relay and blower motor.■

Front Door Component Location Index



Rear Door Component Location Index



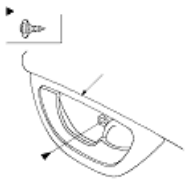
Removal/Installation,

Rear Door Panel Removal/Installation

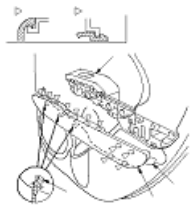
NOTE:

- RHD model is shown; LHD model is symmetrical.
- Take care not to scratch the door and related parts.
- When removing components, use the trim tools or equivalent.

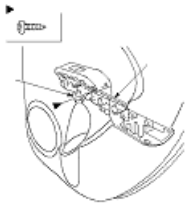
1. Remove the screw securing the inner handle (A).



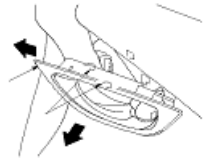
2. Remove the grip cover (A).
   -1. Using a flat-tip screwdriver wrapped with protective tape, pry out the front bottom edge of the cover while pushing up the hooks (B).
   -2. From front to rear, pry out along the edge of the cover to release the hooks (C, D) from the power window switch panel (E).
   -3. Release the rear hook (F), while pulling the cover forward.



3. Disconnect the power window switch connector (A). Remove the screw from the grip base (B).

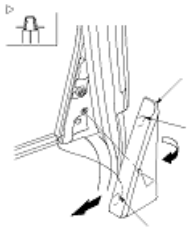


4. Pull the inner handle (A) forward and out half-way to release the hooks (B).

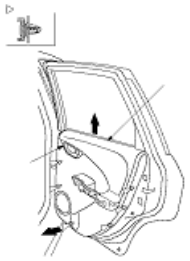


5. Apply protective tape (A) to the door panel (B) as shown.

6. Pull out the rear edge on the quarter inner trim (A) to detach the clip, then remove it by releasing the hooks (B).



7. Remove the door panel (A) with as little bending as possible to avoid creasing or breaking it.
   -1. Start at the bottom edge of the door panel, release the clips with a commercially available trim pad remover.
   -2. Detach the upper clips.
   -3. Starting at the rear, pull the door panel upward.
   NOTE: Do not pull the door panel up too far, or the door panel will be damaged by the inner handle (B).



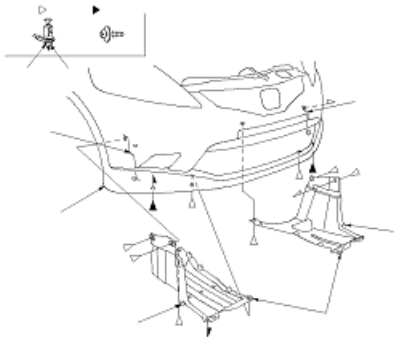
8. Remove the door panel (A) while pulling the inner handle (B) out through the hole in the door panel.

9. Install the door panel in the reverse order of removal, and note these items:
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Make sure the connector is plugged in properly.

Splash Shield Replacement

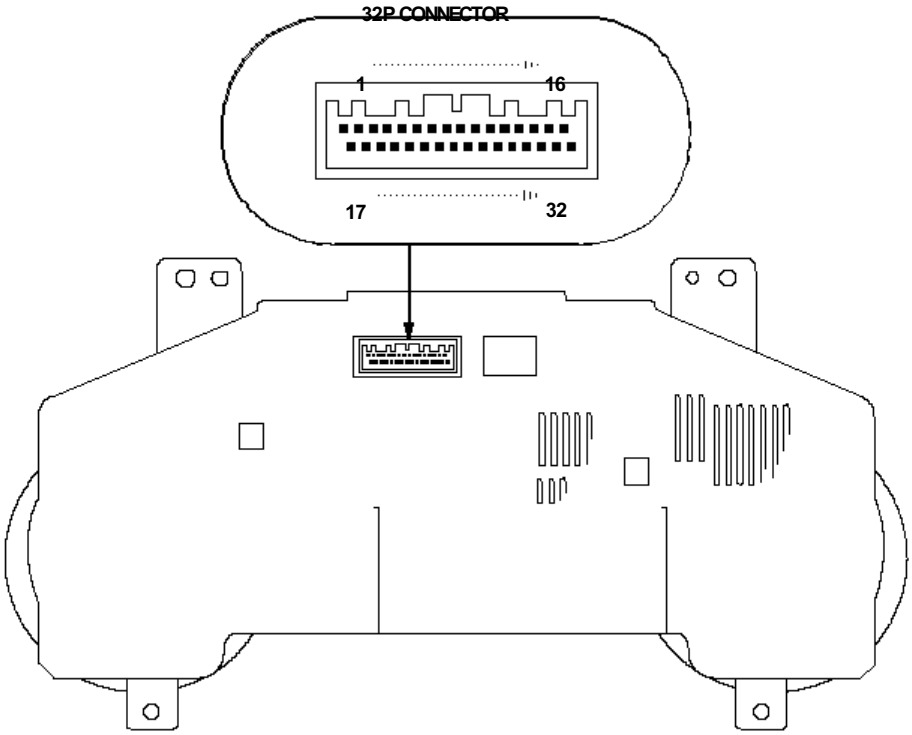
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the body.



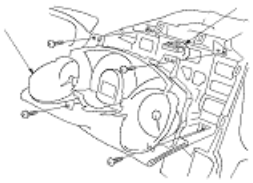
1. Remove the splash shield (A).
   -1. From the wheel arch on both sides, remove the clips (B) securing the front splash shield and the front inner fender (C) to the body, and remove the clips (D) securing the front splash shield to the body.
   -2. From under the front bumper (E), remove the clips (F) and the screws (G).
   -3. From under the body, remove the clips (H).
   -4. Release the hooks (I) of the front splash shield from the front inner fender, then pull the splash shield out.
   NOTE: To remove the clips, pry the inner pin up at the edge near the line (J) on its head.

2. Install the splash shield in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips and the hooks into place securely.



RHD model is shown, LHD model is similar.

Gauge Control Module Replacement



NOTE: Before replacing the gauge control module, retrieve the ODO value and the maintenance minder information from the gauge control module with the HDS.

1. Remove the instrument panel.
2. Remove the four screws from the gauge control module (A).
3. Disconnect the 32P connector (B) from the gauge control module.
4. Install the gauge control module in the reverse order of removal.
5. Write the ODO value and maintenance minder information to the new gauge control module.

Rewriting the ODO Data and Transferring the Maintenance Minder Data to a New Gauge Control Module

NOTE:

- Obtain a new gauge control module before starting the rewriting process.
- Rewriting is not possible on a gauge control module that will not communicate with the HDS.
- Make sure that the HDS shows the correct VIN for the vehicle you are working on.
- Once you have started this procedure, you must complete it before removing the HDS from the DLC.
- Connect a battery jumper box (not a battery charger) to insure that correct battery voltage will be maintained.

Rewriting and Transferring

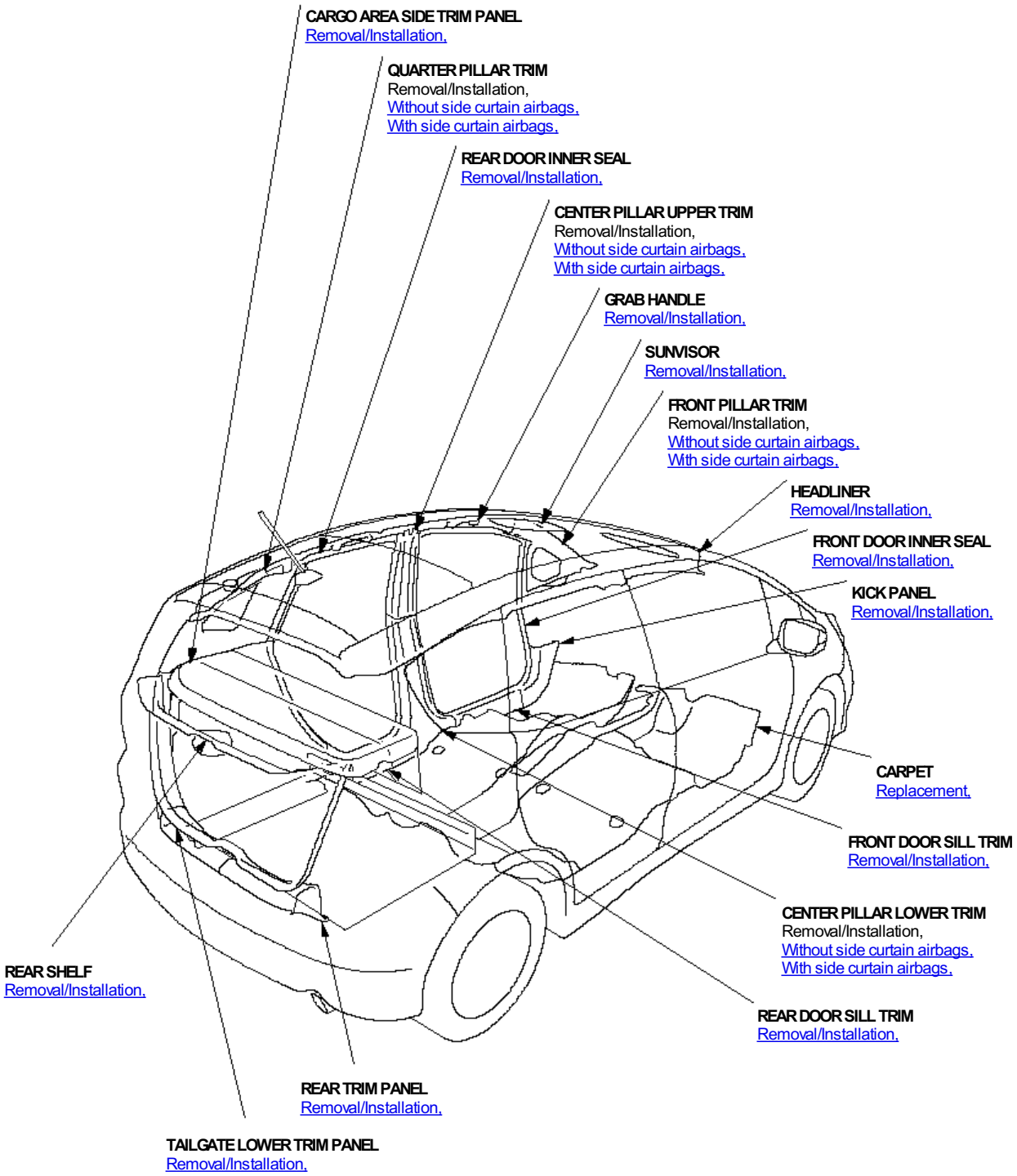
1. Before replacing the gauge control module, connect the HDS.
2. Select GAUGES from the BODY ELECTRICAL system select menu with the HDS.
3. Select Gauge Control Module Replacement (ODO Rewrite) from the ADJUSTMENT menu, and follow the instructions on the display to retrieve the ODO value and the Maintenance Minder Information.
4. Replace the gauge control module.
5. Follow the instructions on the display to write the new ODO value and Maintenance Minder Data to the new gauge control module. If the data transfer fails, refer to the instructions below to release the locked ODO value.

Release Locked odometer mileage to the original gauge control module.

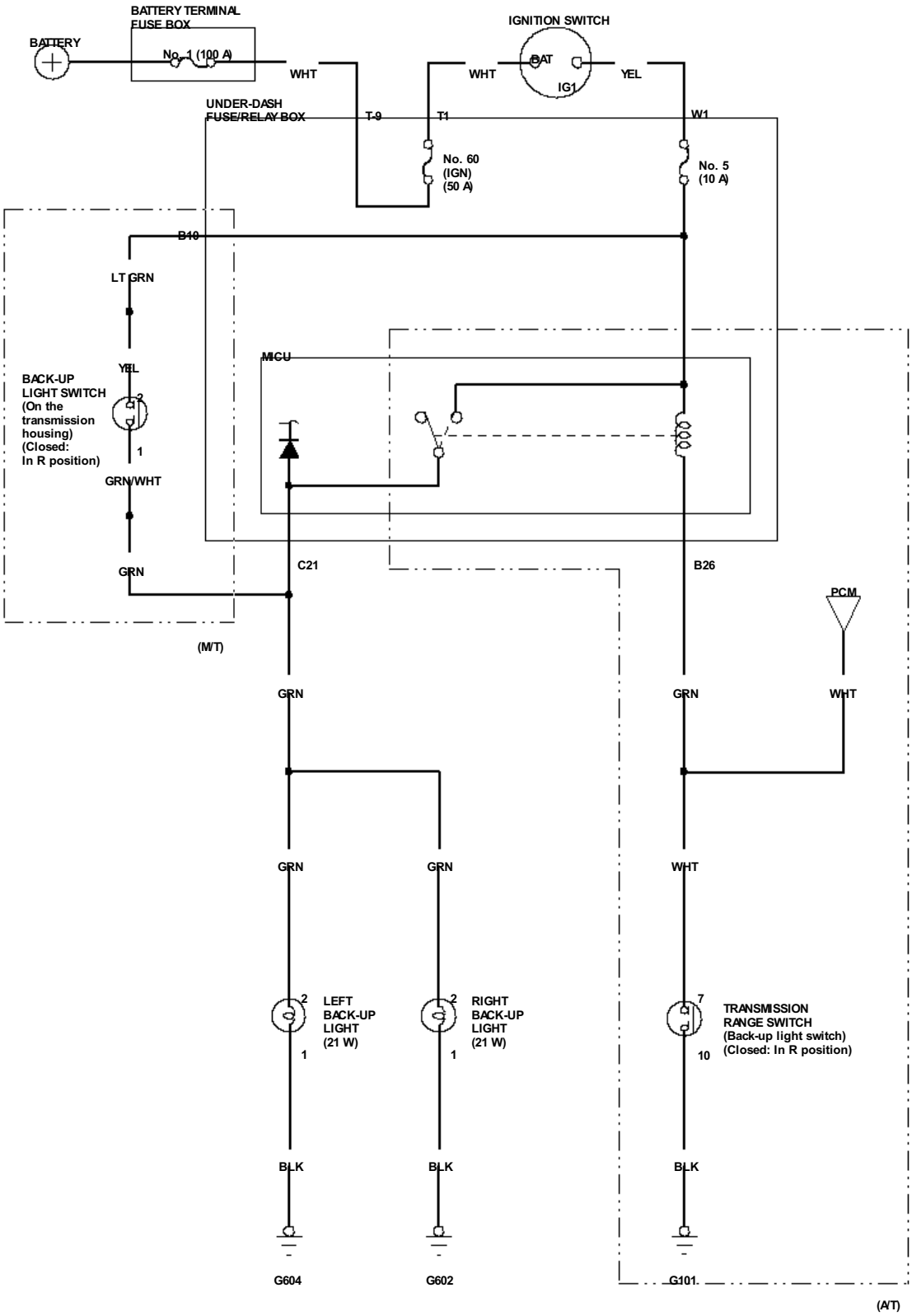
If, after you attempt to transfer mileage, the odometer display has dashes (---), is garbled, or shows an incorrect value, the original gauge control module needs to be unlocked and restored to its original state:

1. Confirm that you have the latest HDS version of software.
2. Make sure that the HDS shows the correct VIN for the vehicle you are working on.
3. With the ignition switch in LOCK (0), reconnect the original gauge control module.
4. Completely re-boot the HDS.
5. Clear any stored DTCs.
6. Navigate to Body Electric/Gauges/Adjustment/Instrument Panel Replacement.
7. Select 3. Releasing Locked ODO Value.
8. Follow the prompts and the odometer mileage will be restored.
9. Start over and make sure the screen prompts are followed.

Interior Trim Component Location Index



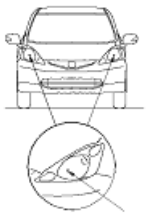
Back-up Lights Circuit Diagram



Headlight Adjustment

⚠CAUTION

Headlights become very hot during use; do not touch them or any attaching hardware immediately after they have been turned off.



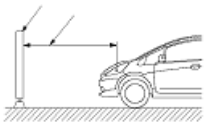
Before adjusting the headlights:

- Park the vehicle on a level surface.
- Make sure the tire pressures are correct.
- The driver or someone who weighs the same should sit in the driver's seat.

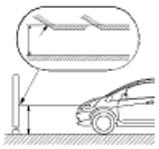
1. Clean the outer lens so that you can see the center (A) of the headlights.

2. Park the vehicle in front of a wall or a screen (A).

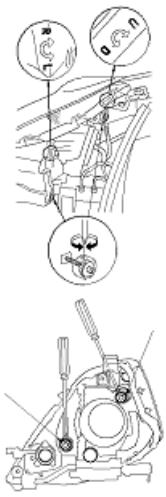
3. Turn the low beams on.



4. Determine if the headlights are aimed properly.
   Vertical adjustment:
   Measure the height of the headlights (A).
   Adjust the cut line (B) to the light's height.



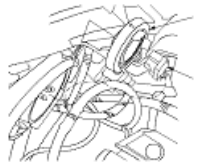
5. If necessary, open the hood and adjust the headlights to local requirements by turning the adjuster.



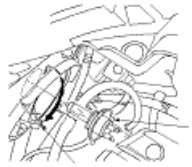
Exterior Light Bulb Replacement

Headlight

1. Disconnect the 3P connector (A), then remove the rubber cap (B) from the headlight.



2. Pull the retaining spring (A) away from the bulb (B), then remove the bulb.
3. Install the bulb in the reverse order of removal.



Front Position Light

1. Disconnect the 2P connector (A) from the front position light.
   Front Position Light: 5 W

2. Turn the bulb socket (B) 45 ° counterclockwise to remove the bulb (C) from the headlight housing.
3. Install a new bulb in the reverse order of removal.

Front Turn Signal Light

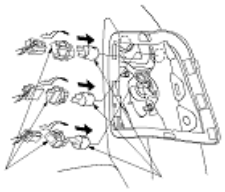
1. Disconnect the 2P connector (A) from the front turn signal light.
   Front Turn Signal Light: 21 W

2. Turn the bulb socket (B) 45 ° counterclockwise to remove the bulb (C) from the headlight housing.
3. Install a new bulb in the reverse order of removal.

Taillights

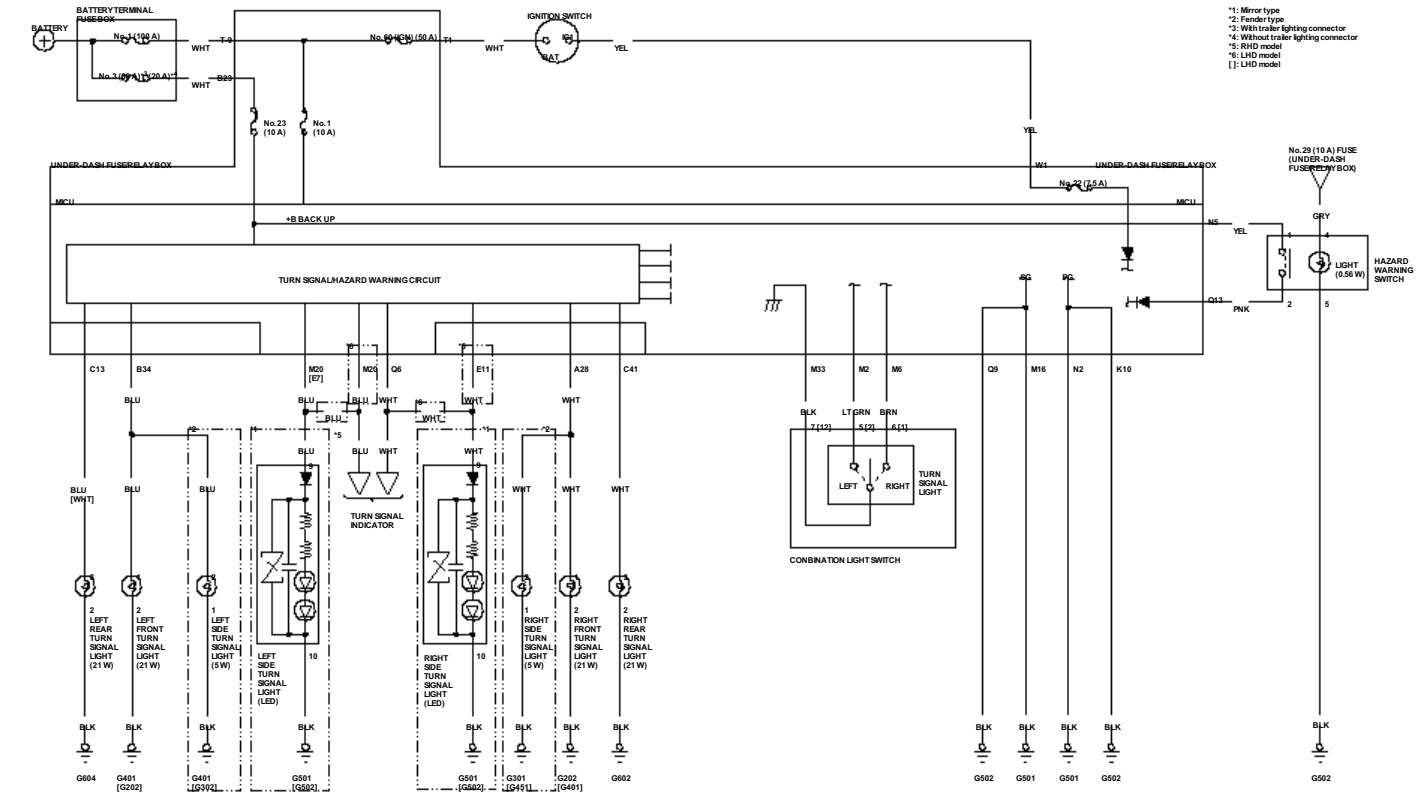
1. Open the tailgate and remove the maintenance lid (A).

2. Disconnect the connectors from the lights.
   Brake Light/Taillight: 21/5 W
   Rear Turn Signal Light: 21 W
   Back-up Light: 21 W

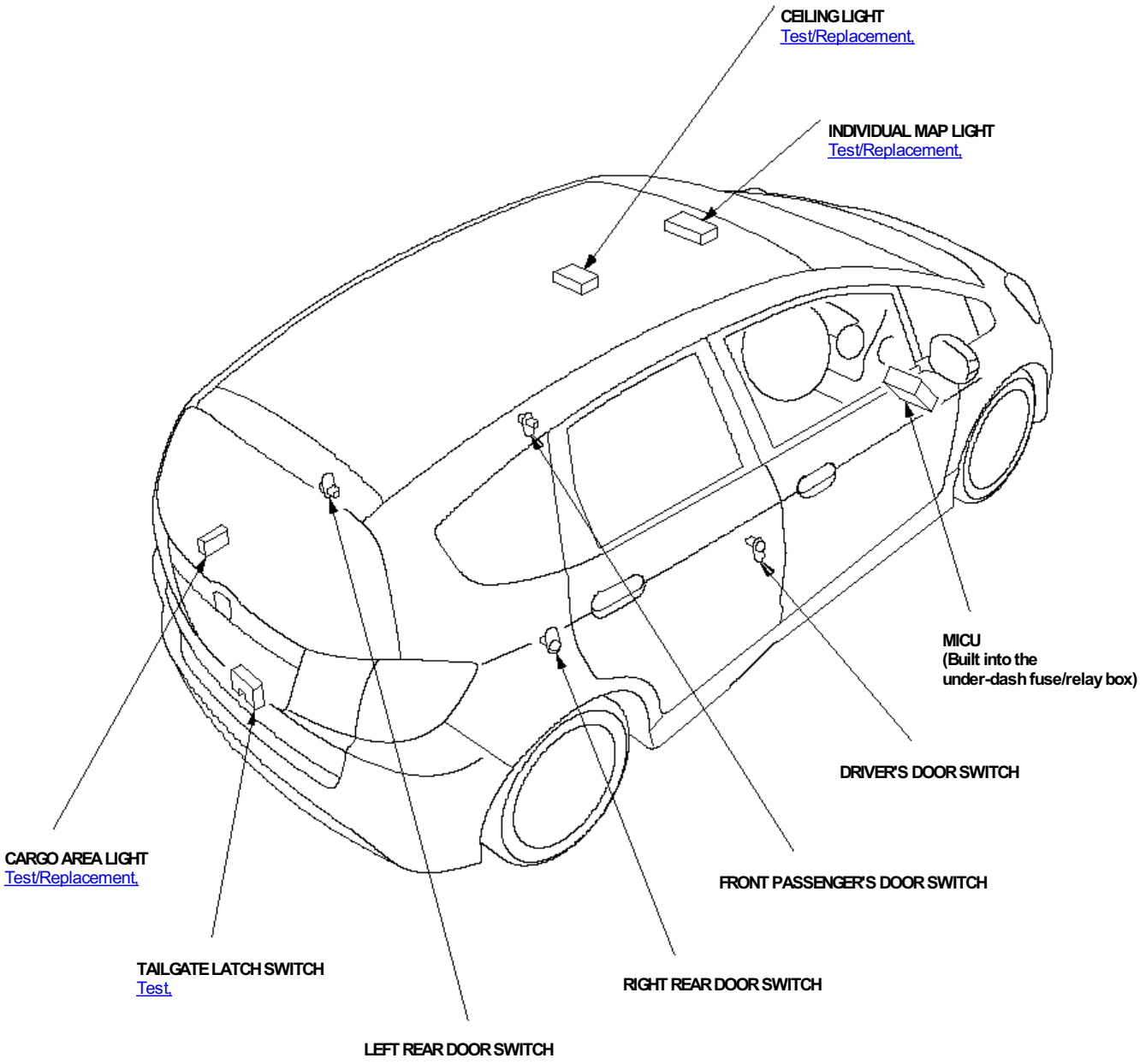


3. Turn the bulb socket (A) 45 ° counterclockwise to remove the bulb (B).
4. Install new bulb(s) in the reverse order of removal.

Turn Signal/Hazard Warning Lights Circuit Diagram

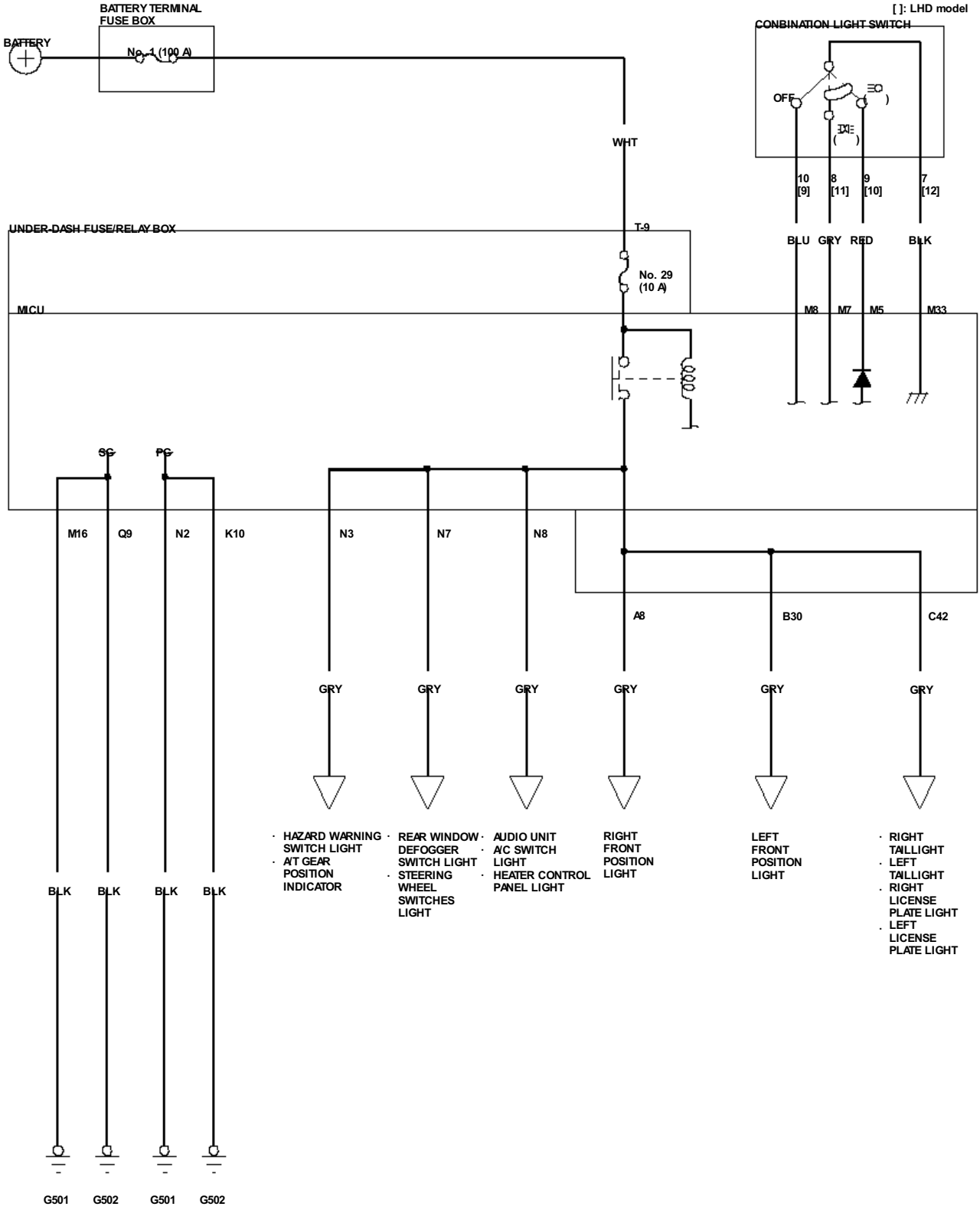


Interior Lights Component Location Index



RHD model is shown, LHD model is similar.

Dash Lights Circuit Diagram

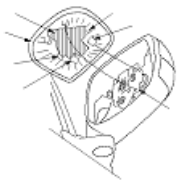


Mirror Holder Replacement

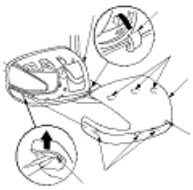
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the power mirror and related parts.
- RHD model is shown; LHD model is symmetrical.

1. Carefully push on the top edge of the mirror holder (A) by hand.
2. Put a shop towel in the opening between the lower edge of the mirror holder and the mirror housing to prevent scratches, and detach the bottom hooks (B) with a flat-tip screwdriver wrapped with protective tape.



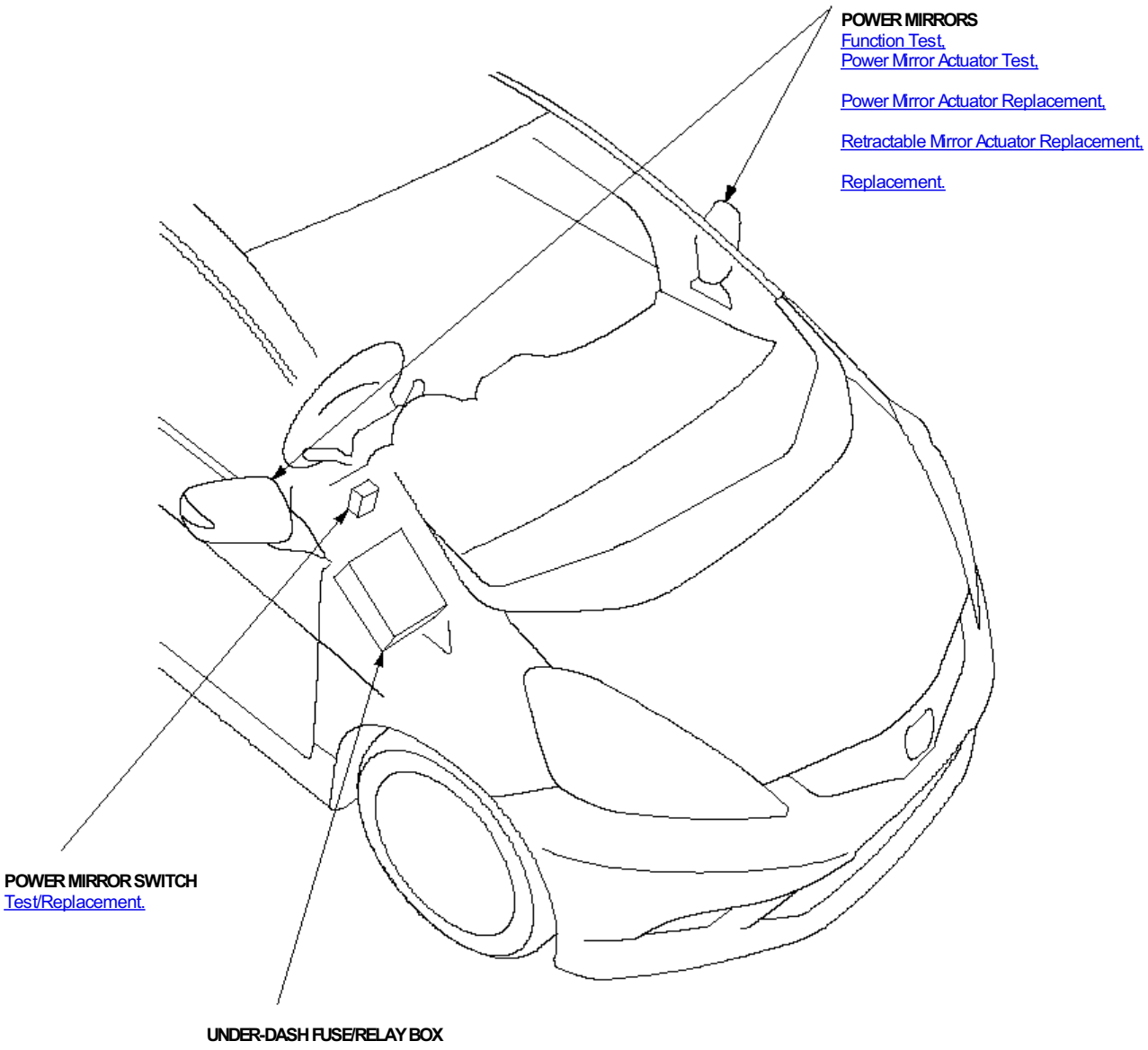
3. Carefully pull out the bottom edge of the mirror holder (A) to separate the adhesive (B), and then release the side clips (C).
4. Separate the mirror holder from the actuator (D) by releasing the hooks (E).



5. If necessary, remove the skull cap (A).
   -1. Remove the tabs (B) from inside the mirror housing (C).
   -2. Release the hook (D), then remove the skull cap.

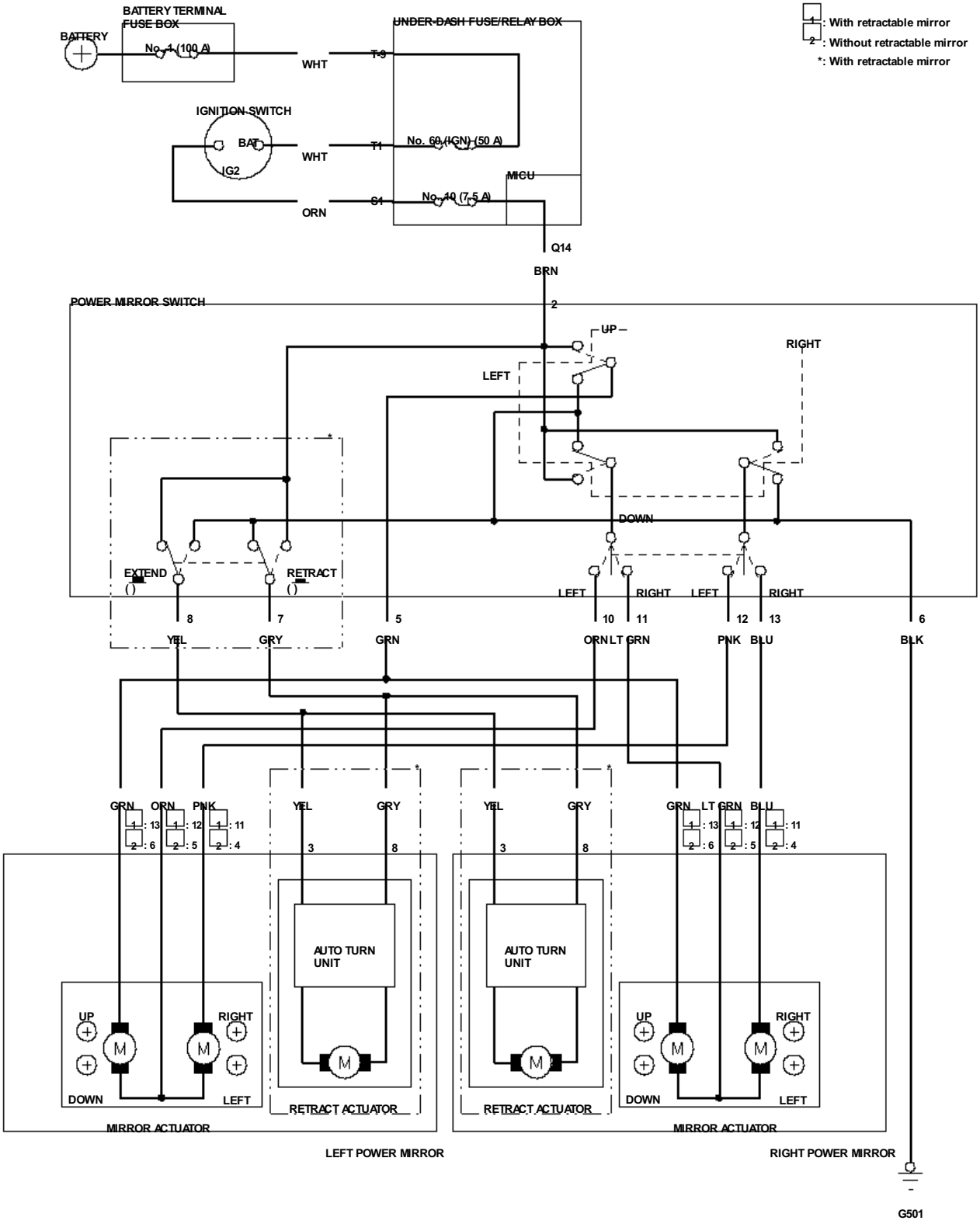
6. Before reinstalling the mirror holder to the inner holder (A) of the actuator, check the actuator rods (B) and the actuator boots (C):
   - If a rod is out of the actuator hole, insert it securely.
   - Each rod should be covered with a boot. If not, adjust the boot into the proper position.
7. Reattach the hooks of the mirror holder to the actuator, then position the mirror holder on the actuator. Carefully push on the hook portions of the mirror holder until the mirror holder locks into place.
8. Check the actuator operation.

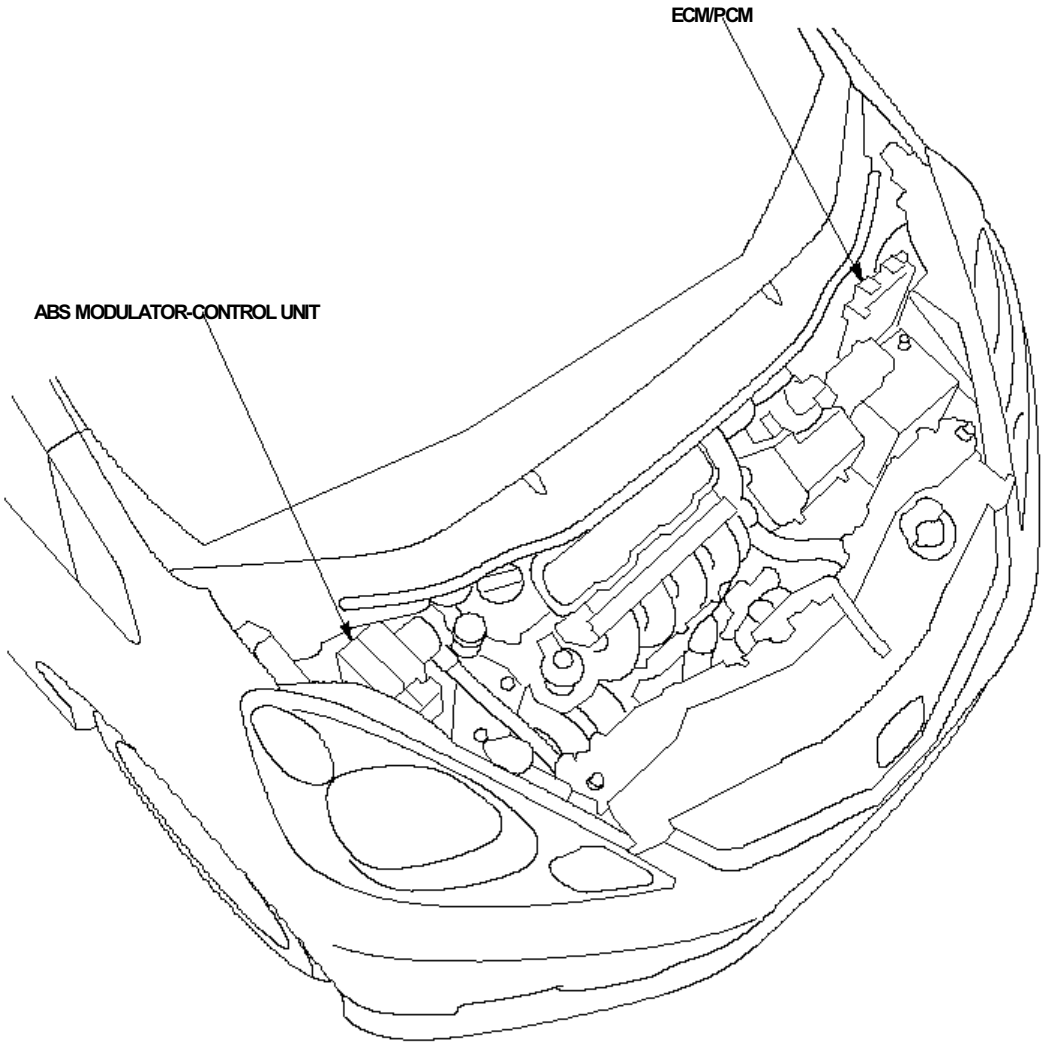
Power Mirrors Component Location Index



RHD model is shown, LHD model is similar.

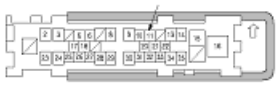
Power Mirrors Circuit Diagram





RHD model is shown, LHD model is similar.
RHD model is shown, LHD model is similar.

MICS (MICU) Input Test



1. Turn the ignition switch to LOCK (0).
2. RHD model: Remove the fuse lid panel , and remove the driver's dashboard lower cover.
   LHD model: Remove the fuse lid panel.
3. Disconnect under-dash fuse/relay box connectors A, B, K, M, N, P, and Q.
   NOTE: All connector views are shown from wire side of female terminals.
4. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to Step 5 .
5. With the connectors still disconnected, make these input tests at the connectors.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to Step 6 .

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
N2	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
K10	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • An open in the wire
Q9	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • An open in the wire
M16	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
M14	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
Q2	BLU	Under all conditions	Check for continuity between the Q2 terminal and the data link connector (16P) connector No. 7 terminal: There should be continuity.	An open in the wire
			Check for continuity to ground: There should be no continuity.	A short to ground in the wire
Q2	BLU	Immobilizer-keyless control unit 7P connector disconnected	Check for continuity between the Q2 terminal and the immobilizer-keyless control unit 7P connector No. 5 terminal: There should be continuity.	An open in the wire
			Check for continuity to ground: There should be no continuity.	A short to ground in the wire
Q2	BLU	Audio unit connector A (24P) disconnected	Check for continuity between the Q2 terminal and audio unit connector A (24P) No. 3 terminal: There should be continuity.	An open in the wire
			Check for continuity to ground: There should be no continuity.	A short to ground in the wire
Q2	BLU	SRS unit connector A (39P) disconnected	Check for continuity between the Q2 terminal and SRS unit connector A (39P) No. 18 terminal: There should be continuity.	An open in the wire
			Check for continuity to ground: There should be no continuity.	A short to ground in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
Q2	BLU	ABS modulator-control unit 25P connector disconnected	Check for continuity between the Q2 terminal and the ABS modulator-control unit 25P connector No. 10 terminal: There should be continuity.	An open in the wire
			Check for continuity to ground: There should be no continuity.	A short to ground in the wire
Q2	BLU	EPS control unit connector C(16P) disconnected	Check for continuity between the Q2 terminal and EPS control unit connector C (16P) No. 16 terminal: There should be continuity.	An open in the wire
			Check for continuity to ground: There should be no continuity.	A short to ground in the wire
Q3	GRN [LT GRN]	Immobilizer-keyless control unit 7P connector disconnected	Check for continuity between the Q3 terminal and the immobilizer-keyless control unit 7P connector No. 4 terminal: There should be continuity.	An open in the wire
			Check for continuity to ground: There should be no continuity.	A short to ground in the wire
Q3	GRN [LT GRN]	Gauge control module 32P connector disconnected	Check for continuity between the Q3 terminal and the gauge control module 32P connector No. 18 terminal: There should be continuity.	An open in the wire
			Check for continuity to ground: There should be no continuity.	A short to ground in the wire

[ ]: LHD model

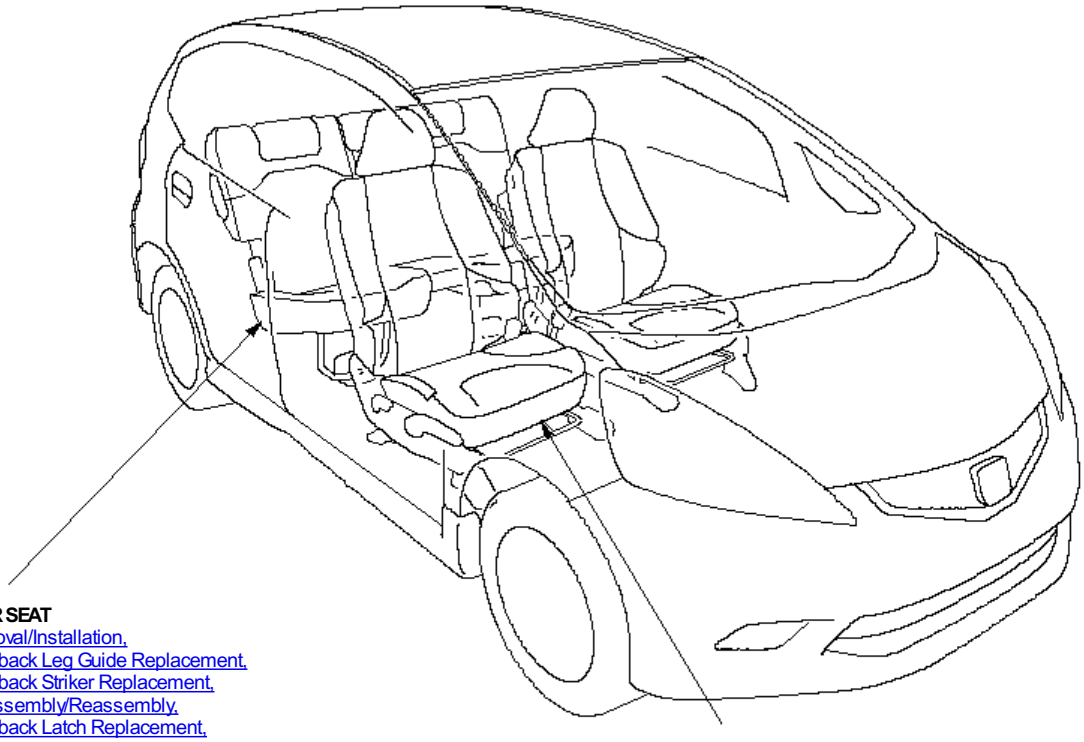
6. Reconnect the connectors to the under-dash fuse/relay box, and make these input tests at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to Step 7 .

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
N1	PNK	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 1 (10 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
M18	PUR	Ignition switch ACC (I)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 14 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
K8	RED	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 20 (15 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
Q8	LT BLU	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 22 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
P2	PUR	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 6 (10 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
A32	PUR	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 11 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire
B11	PUR	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 11 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open in the wire

7. If multiple failures are found on more than one control unit, replace the under-dash fuse/relay box (includes the MICU). If input failures are related to a particular control unit, replace the control unit.

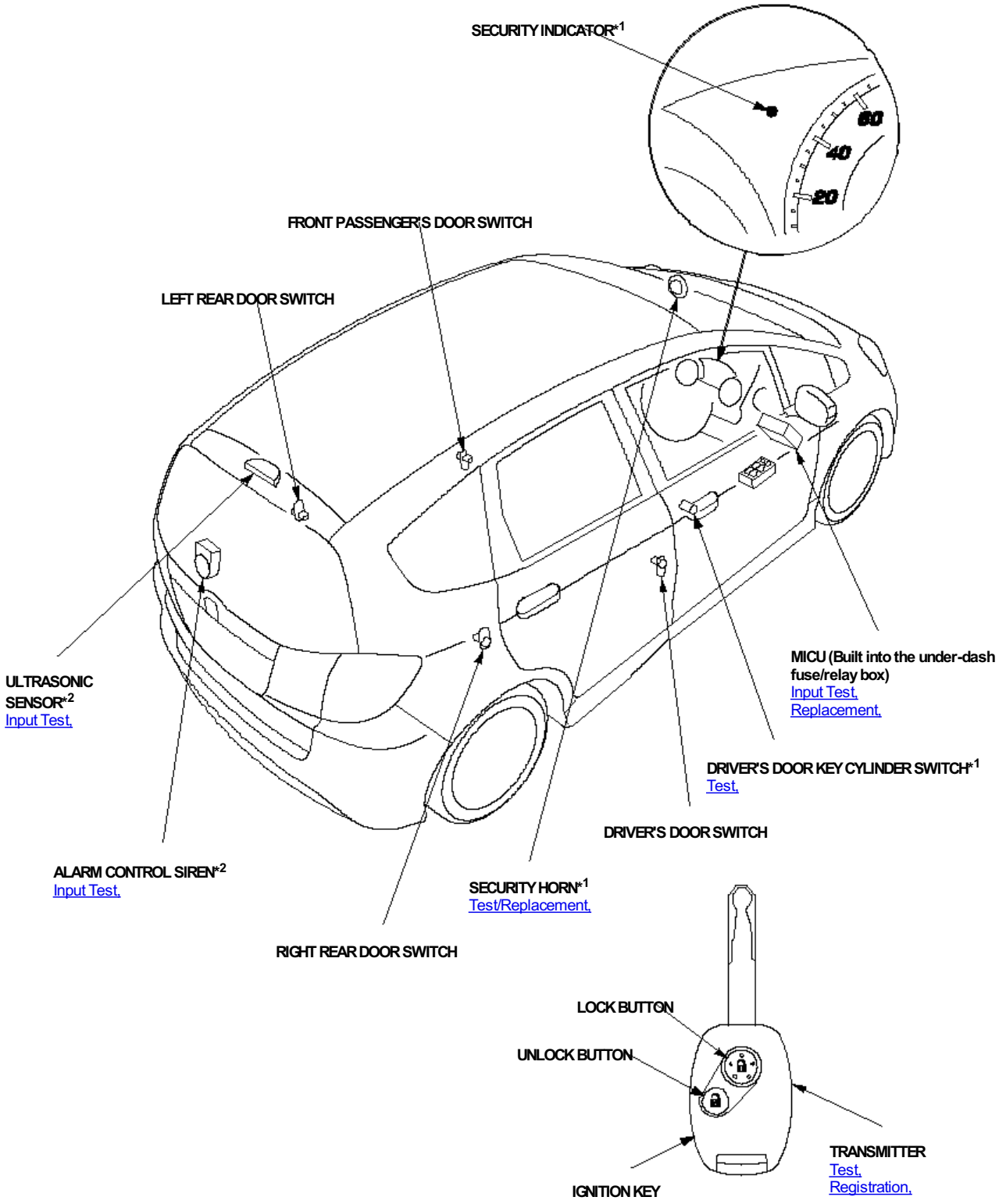
Seats Component Location Index



REAR SEAT
Removal/Installation,
Seat-back Leg Guide Replacement,
Seat-back Striker Replacement,
Disassembly/Reassembly,
Seat-back Latch Replacement,
Seat-back Cover/Pad Replacement,
Seat-back Hinge Replacement,
Cushion Cover/Pad Replacement,
Control Cable Replacement,
Cushion Leg Replacement,

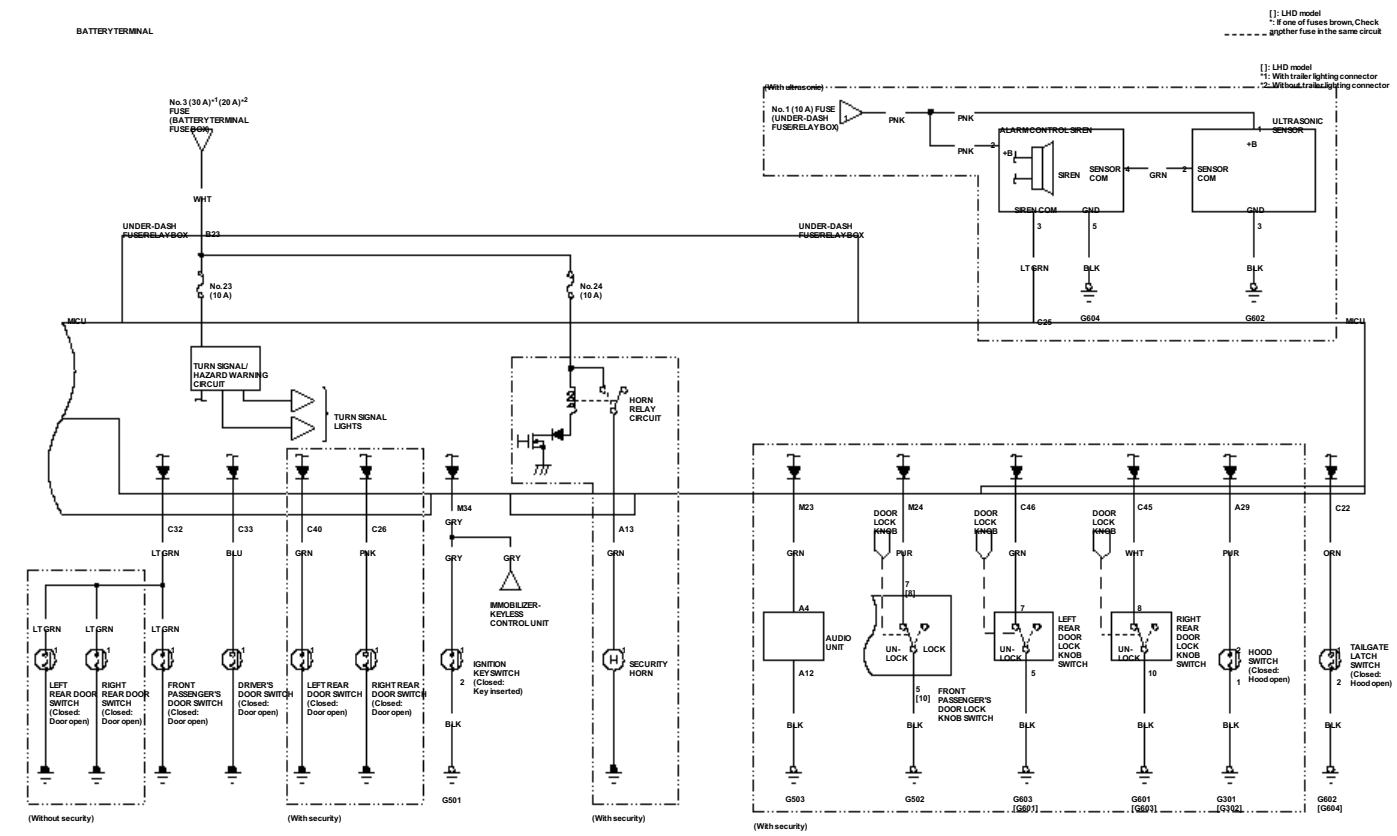
FRONT SEAT
Removal/Installation,
Armrest Replacement,
Frame Replacement,
Seat-back Cover/Pad Replacement,
Recline Cover Removal/Installation,
Cushion Cover/Pad Replacement,

Keyless/Power Door Locks/Security System Component Location Index

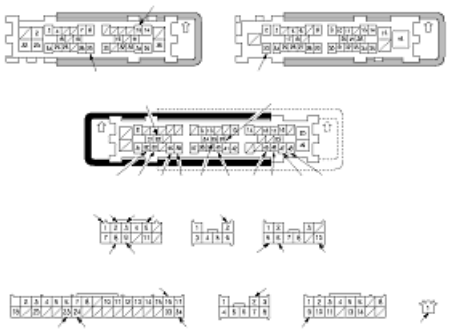


***1: With security**
***2: With ultrasonic**
RHD model is shown, LHD model is similar.

Keyless/Power Door Locks/Security System Circuit Diagram



Keyless/Power Door Locks/Security System (MICU) Input Test



NOTE:

- Before testing, make sure the turn signal/hazard warning lights work properly.
- Before testing, check the No. 1 (10 A), No. 20 (15 A), No. 22 (7.5 A), No. 27 (30 A), No. 35 (10 A), No. 36 (15 A), No. 49 (15 A), No. 50 (15 A), and No. 60 (50 A) fuses in the under-dash fuse/relay box.
- There are two pairs of fuses in the same circuit (No. 35 and No. 49 fuses, No. 36 and No. 50 fuses). If one fuse is brown, make sure to check another fuse in the same circuit. If necessary, replace the damaged fuse(s).

1. Turn the ignition switch to LOCK (0).

2. RHD model: Remove the fuse lid panel , and remove the driver's dashboard lower cover.
   LHD model: Remove the fuse lid panel.

3. Disconnect under-dash fuse/relay box connectors A, B, C, E, F, K, M, N, Q, and W.
   NOTE:
   - All connector views are shown from wire side of female terminals.
   - The illustration shows the RHD model and the black portion shows the lock lever. The lock lever for LHD model is shown as the dashed lines.

4. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose, or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to Step 5 .

5. With the connectors still disconnected, make these input tests at the connectors.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the MICU must be faulty; replace the under-dash fuse/relay box.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
K10	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • An open in the wire
Q9	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • An open in the wire
M16	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
N2	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
F1 F2	YEL PNK	Connect the battery positive terminal to F1 (F2) terminal, and F2 (F1) terminal to body ground	Check actuator operation: The driver's door lock actuator should unlock (or lock).	• Faulty driver's door lock actuator • An open in the wire
K5 K6	LT BLU YEL	Connect the battery positive terminal to K5 (K6) terminal, and K6 (K5) terminal to body ground	Check actuator operation: The front passenger's door lock actuator should lock (or unlock).	• Faulty front passenger's door lock actuator • An open in the wire
C35 C36	PNK YEL	Connect the battery positive terminal to C35 (C36) terminal, and C36 (C35) terminal to body ground	Check actuator operation: The right [left] rear door lock actuator and the fuel lid lock actuator should lock (or unlock).	• Faulty right [left] rear door lock actuator • Faulty fuel lid lock actuator • An open in the wire
C47 C48	LT BLU YEL	Connect the battery positive terminal to C47 (C48) terminal, and C48 (C47) terminal to body ground	Check actuator operation: The left [right] rear door lock actuator and the tailgate lock actuator should lock (or unlock).	• Faulty left [right] rear door lock actuator • Faulty tailgate lock actuator • An open in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
A13 *1	GRN	Under all conditions	Connect A13 terminal and B23 terminal with a jumper wire: The horn should sound	• Faulty security horn • An open in the wire
C25 *2	LT GRN	Disconnect the alarm control siren 6P connector	Check for continuity between C25 and No. 3 terminal of alarm control siren 6P connector: There should be continuity.	An open in the wire
M23 *1	GRN	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G503) • Faulty audio unit • An open in the wire
B23	WHT	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 3 (30 A *3 /20 A *4) fuse in the battery terminal fuse box • An open in the wire
W1	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 1 (100 A) fuse in the battery terminal fuse box • Blown No. 60 (IGN) (50 A) fuse in the under-dash fuse/relay box • Faulty ignition switch • An open in the wire

[ ]: LHD model

*1:With security
*2:With ultrasonic
*3:With trailer lighting connector
*4:Without trailer lighting connector

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
C33	BLU	Driver's door open	Check for continuity to ground: There should be continuity.	• Faulty driver's door switch • An open in the wire
		Driver's door closed	Check for continuity to ground: There should be no continuity.	• Faulty driver's door switch • A short to ground in the wire
C32	LT GRN	Front passenger's door open	Check for continuity to ground: There should be continuity.	• Faulty front passenger's door switch • An open in the wire
		Front passenger's door closed	Check for continuity to ground: There should be no continuity.	• Faulty front passenger's door switch • A short to ground in the wire
C32 *2	LT GRN	Left rear door or right rear door open	Check for continuity to ground: There should be continuity.	• Faulty left rear door switch • Faulty right rear door switch • An open in the wire
		Left rear door, and right rear door closed	Check for continuity to ground: There should be no continuity.	• Faulty left rear door switch • Faulty right rear door switch • A short to ground in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
C26 *1	PNK	Right rear door open	Check for continuity to ground: There should be continuity.	• Faulty right rear door switch • An open in the wire
		Right rear door closed	Check for continuity to ground: There should be no continuity.	• Faulty right rear door switch • A short to ground in the wire
C40 *1	GRN	Left rear door open	Check for continuity to ground: There should be continuity.	• Faulty left rear door switch • An open in the wire
		Left rear door closed	Check for continuity to ground: There should be no continuity.	• Faulty left rear door switch • A short to ground in the wire
C22	ORN	Tailgate open	Check for continuity to ground: There should be continuity.	• Faulty tailgate latch switch • An open in the wire
		Tailgate closed	Check for continuity to ground: There should be no continuity.	• Faulty tailgate latch switch • A short to ground in the wire
A29 *1	PUR	Hood open	Check for continuity to ground: There should be continuity.	• Faulty hood switch • An open in the wire
		Hood closed	Check for continuity to ground: There should be no continuity.	• Faulty hood switch • A short to ground in the wire

*1:With security
*2:Without security

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
E9	RED	Driver's door lock knob switch in LOCK	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • Faulty driver's door lock knob switch • An open in the wire
		Driver's door lock knob switch in UNLOCK	Check for continuity to ground: There should be no continuity.	• Faulty driver's door switch lock knob switch • A short to ground in the wire
E2	BRN	Driver's door lock knob switch in UNLOCK	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • Faulty driver's door lock knob switch • An open in the wire
		Driver's door lock knob switch in LOCK	Check for continuity to ground: There should be no continuity.	• Faulty driver's door lock knob switch • A short to ground in the wire
M24 *	PUR	Front passenger's door lock knob switch in UNLOCK	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • Faulty front passenger's door lock knob switch • An open in the wire
		Front passenger's door lock knob switch in LOCK	Check for continuity to ground: There should be no continuity.	• Faulty front passenger's door lock knob switch • A short to ground in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
C45 *	WHT	Right rear door lock knob switch in UNLOCK	Check for continuity to ground: There should be continuity.	• Poor ground (G601) [G603] • Faulty right rear door lock knob switch • An open in the wire
		Right rear door lock knob switch in LOCK	Check for continuity to ground: There should be no continuity.	• Faulty right rear door lock knob switch • A short to ground in the wire
C46 *	GRN	Left rear door lock knob switch in UNLOCK	Check for continuity to ground: There should be continuity.	• Poor ground (G603) [G601] • Faulty left rear door lock knob switch • An open in the wire
		Left rear door lock knob switch in LOCK	Check for continuity to ground: There should be no continuity.	• Faulty left rear door lock knob switch • A short to ground in the wire

[ ]: LHD model

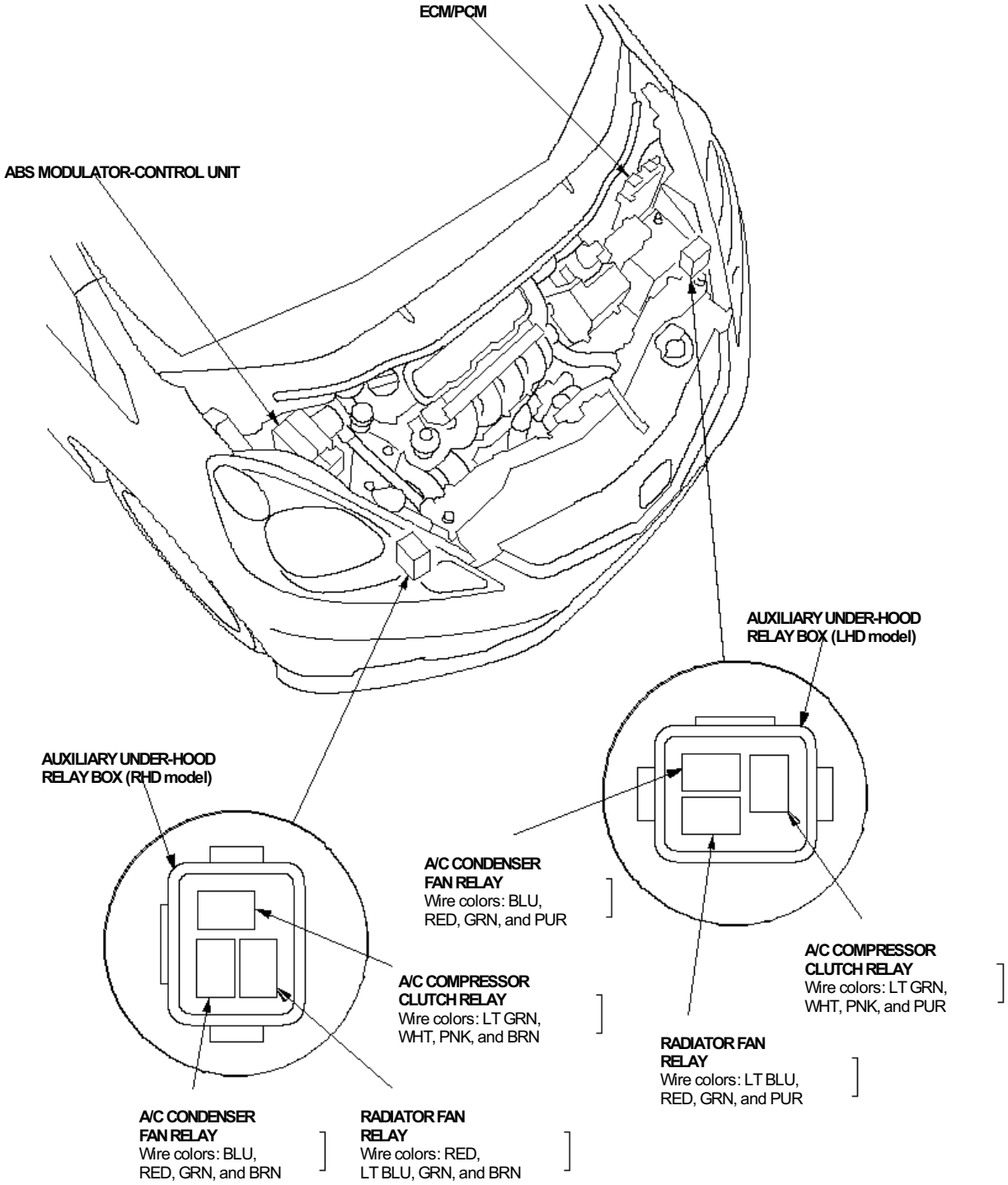
*: With security

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
M34	GRY	Ignition key inserted into the ignition switch	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • Faulty ignition key switch • An open in the wire
		Ignition switch LOCK (0), and the ignition key removed from the ignition switch	Check for continuity to ground: There should be no continuity.	• Faulty ignition key switch • A short to ground in the wire
E3 *1	PUR	Driver's door key cylinder switch in LOCK	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • Faulty driver's door key cylinder switch • An open in the wire
		Driver's door key cylinder switch in neutral or UNLOCK	Check for continuity to ground: There should be no continuity.	• Faulty driver's door key cylinder switch • A short to ground in the wire
E4 *1	GRN	Driver's door key cylinder switch in UNLOCK	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • Faulty driver's door key cylinder switch • An open in the wire
		Driver's door key cylinder switch in neutral or LOCK	Check for continuity to ground: There should be no continuity.	• Faulty driver's door key cylinder switch • A short to ground in the wire
E8 *2	LT BLU	Driver's door lock switch in LOCK	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • Faulty door lock switch • An open in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
		Driver's door lock switch in neutral or UNLOCK	Check for continuity to ground: There should be no continuity.	• Faulty door lock switch • A short to ground in the wire
E1 *2	GRY	Driver's door lock switch in UNLOCK	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • Faulty door lock switch • An open in the wire
		Driver's door lock switch in neutral or LOCK	Check for continuity to ground: There should be no continuity.	• Faulty door lock switch • A short to ground in the wire

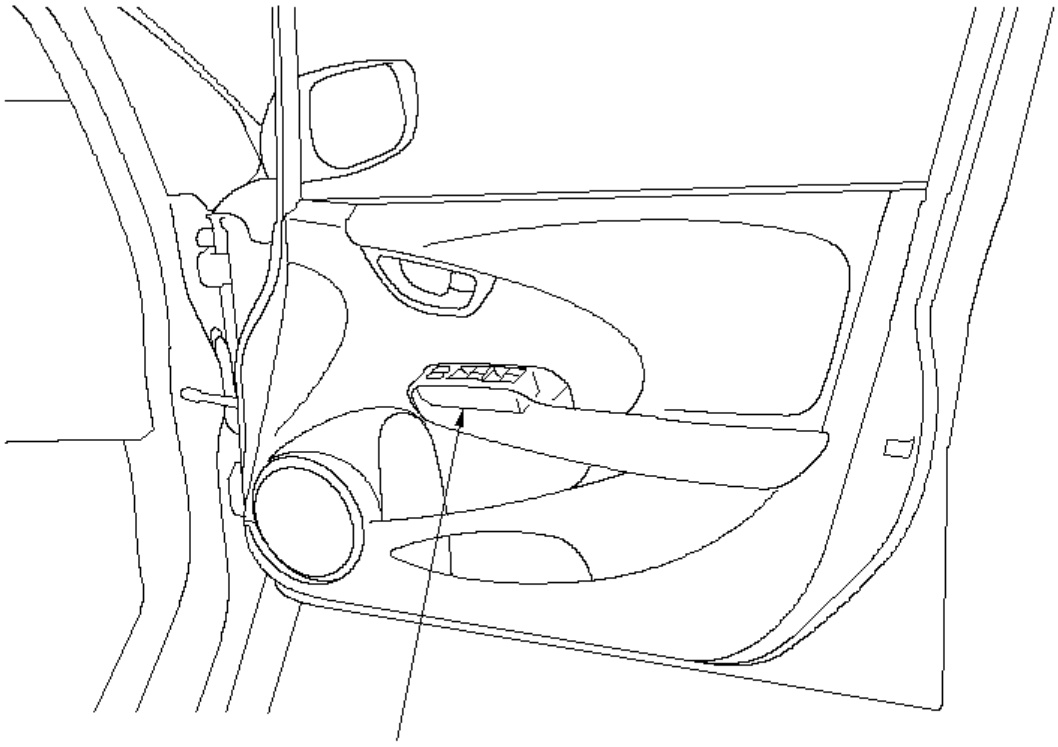
*1:With security
*2:With driver's door lock switch

Relay and Control Unit Locations - Engine Compartment



RHD model is shown, LHD model is similar.

Relay and Control Unit Locations - Door

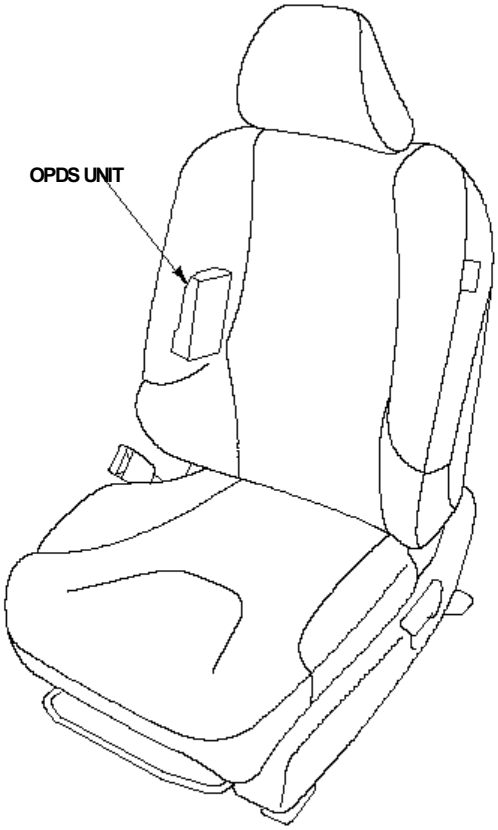


POWER WINDOW MASTER SWITCH
(Has built-in control unit)

RHD model is shown, LHD model is symmetrical.

Relay and Control Unit Locations - Seat

Front Passenger's



RHD model is shown, LHD model is symmetrical.

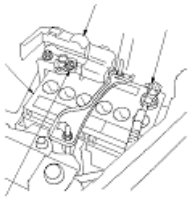
Battery Terminal Disconnection/Reconnection

Disconnection

NOTE: Some system store data in memory is lost when the battery is disconnected. Do the following procedures before disconnecting the battery.

1. Make sure you have the anti-theft code(s) for the audio and/or the navigation system (if equipped), then write down the audio presets.
   NOTE: For some models, it maybe necessary to write down the audio presets (AM and FM), because the audio unit does not retain the presets after the battery is disconnected.
2. Make sure the ignition switch is in LOCK (0).
3. Disconnect and isolate the negative cable from the battery.
   NOTE: Always disconnect the negative cable from the battery first.
4. Disconnect the positive cable from the battery.

Reconnection



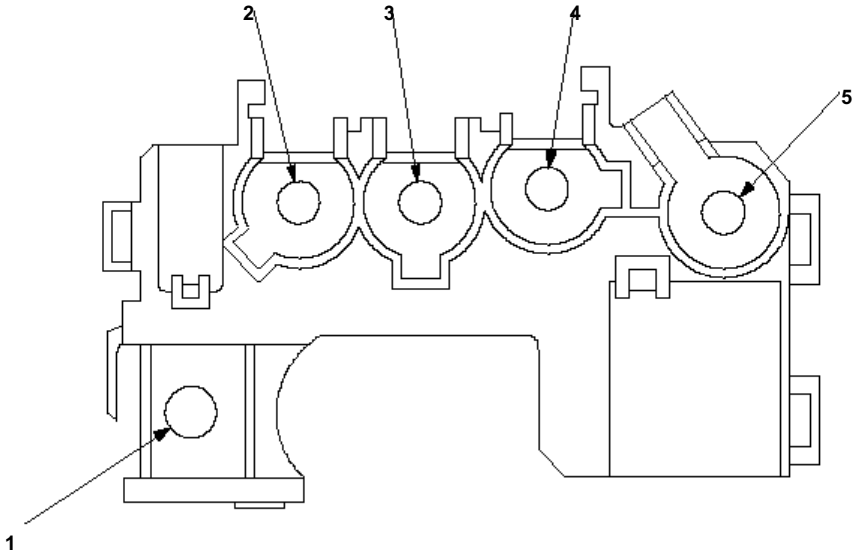
NOTE: Some system store data in memory is lost when the battery is disconnected. Do the following procedures to restore the system back to normal operation.

1. Clean the battery terminals.
2. Test the battery.
3. Reconnect the positive cable (A) to the battery (B) first, then reconnect the negative cable (C) to the battery.
   NOTE: Always connect the positive cable to the battery first.
4. Apply multipurpose grease to the terminals to prevent corrosion.
5. Install the terminal cover (D).
6. Enter the anti-theft code(s) for the audio system and/or the navigation system (if equipped).
7. Enter the audio presets (if applicable).
8. Set the clock (for vehicles without navigation).

Battery Terminal Fuse Box Connector Locations

Battery Terminal Fuse Box

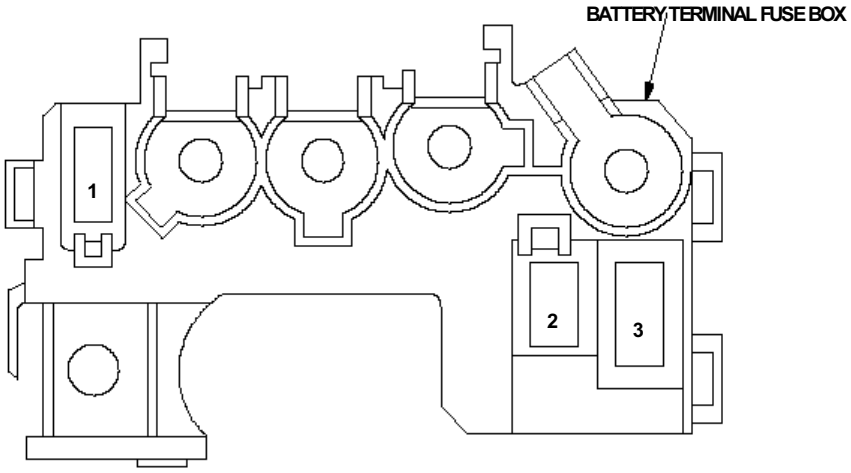
Socket	Ref	Terminal	Connects to
T-1	1	———	Battery terminal, Starter
T-2	2	———	Engine wire harness
T-3	3	———	Left engine compartment wire harness
T-4	4	———	Left engine compartment wire harness
T-5	5	———	Left engine compartment wire harness



Battery Terminal Fuse Box

Fuse Number	Amps	Component(s) or Circuit(s) Protected
1	100 A	Alternator, Under-dash fuse/relay box fuses (No. 1, No. 2, No. 3, No. 9, No. 17 (via power window relay), No. 18 (via power window relay), No. 19 (via power window relay), No. 25, No. 26, No. 27, No. 28, No. 29, No. 30, No. 32 (via lighting relay 1), No. 33, No. 34 (via lighting relay 1), No. 37, No. 39, No. 40, No. 41, No. 42, No. 43, No. 45, No. 46, No. 47, No. 48 (via lighting relay 2), No. 51 (via lighting relay 2), No. 52, No. 53, No. 57, No. 58, No. 59, and No. 60), Lighting relay 1, Lighting relay 2, Power window relay)
2	60 A	EPS control unit
3	30 A *1 20 A *2	No. 23, and No. 24 fuses in the under-dash fuse/relay box

*1: With trailer lighting connector
*2: Without trailer lighting connector

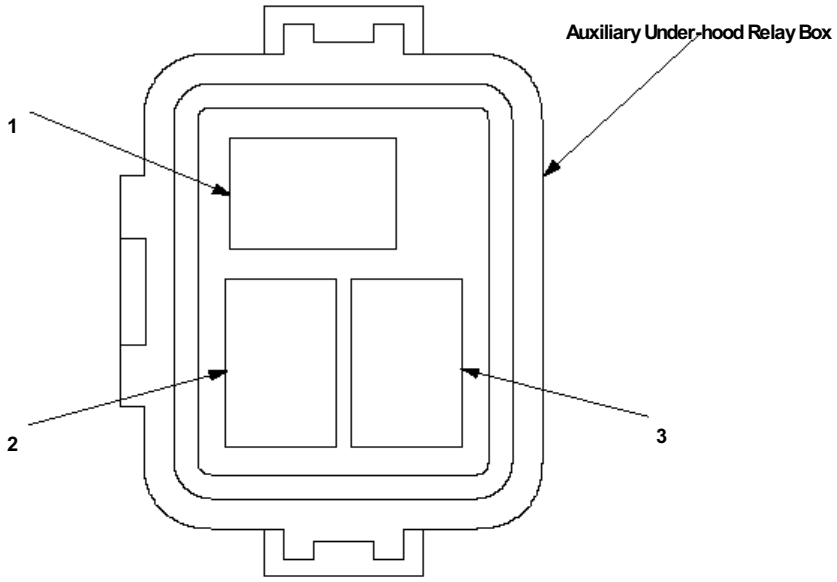


Auxiliary Under-hood Relay Box

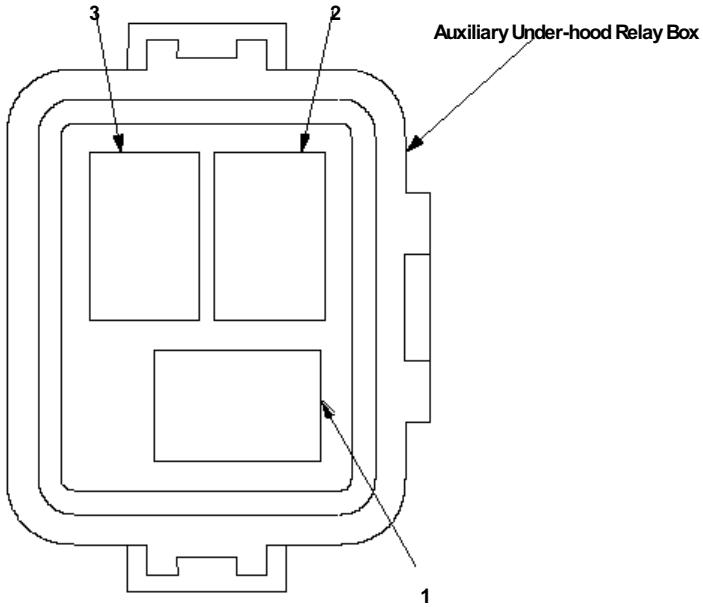
Socket	Ref	Terminal	Connects to
A/C compressor clutch relay	1	4	Right [Left] engine compartment wire harness
A/C condenser fan relay	2	4	Right [Left] engine compartment wire harness
Radiator fan relay	3	4	Right [Left] engine compartment wire harness

[ ]: LHD model

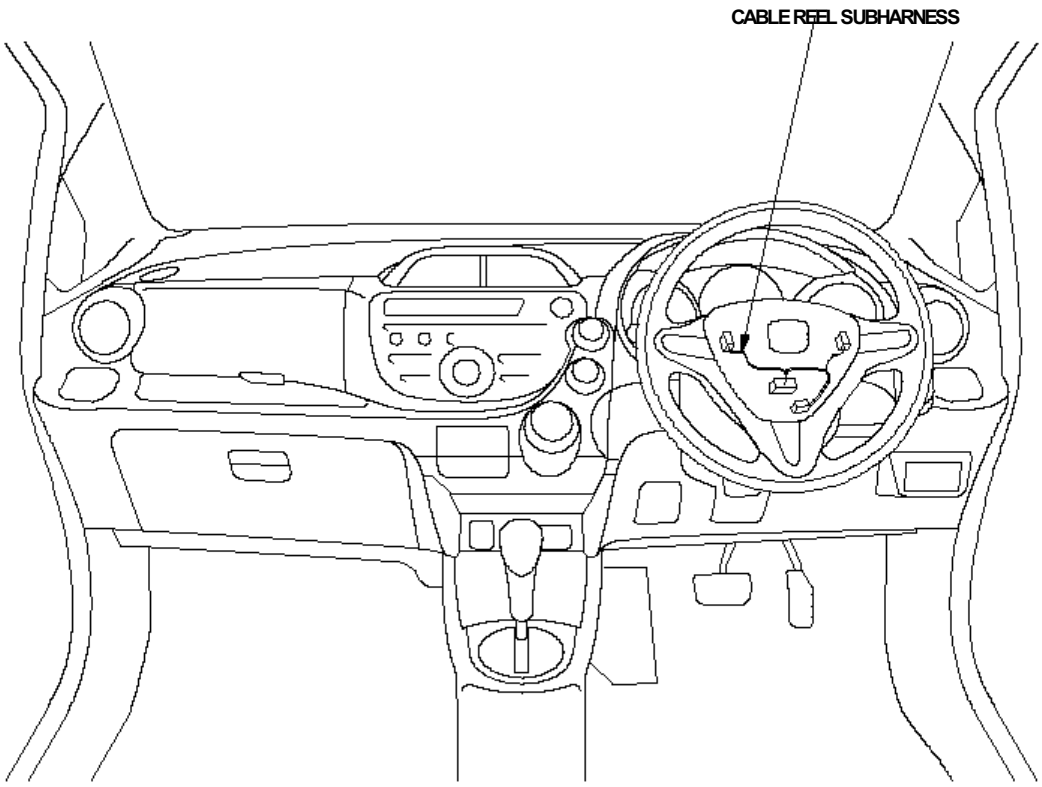
RHD model



LHD model

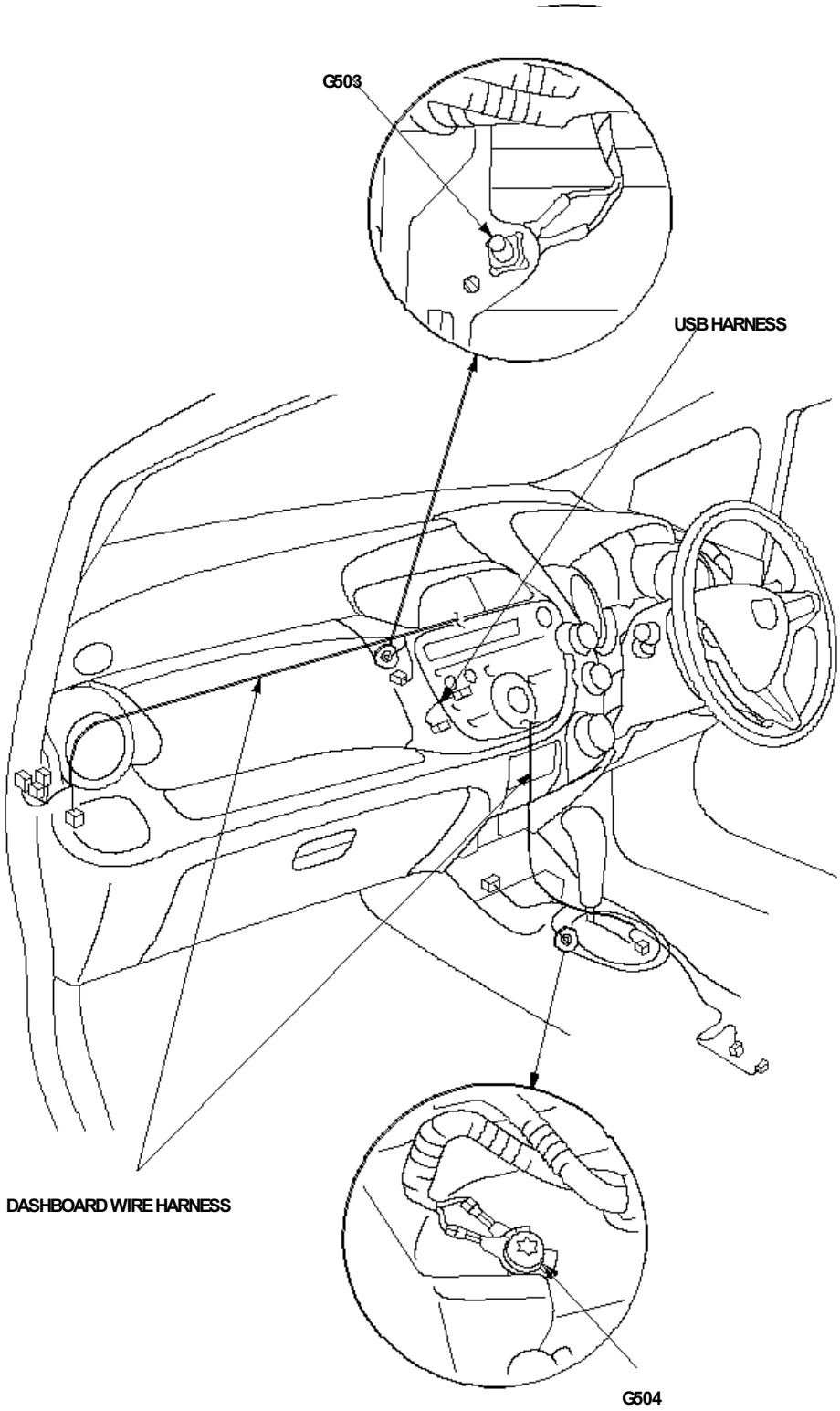


Cable Reel Subharness Locations



RHD model is shown, LHD model is similar.

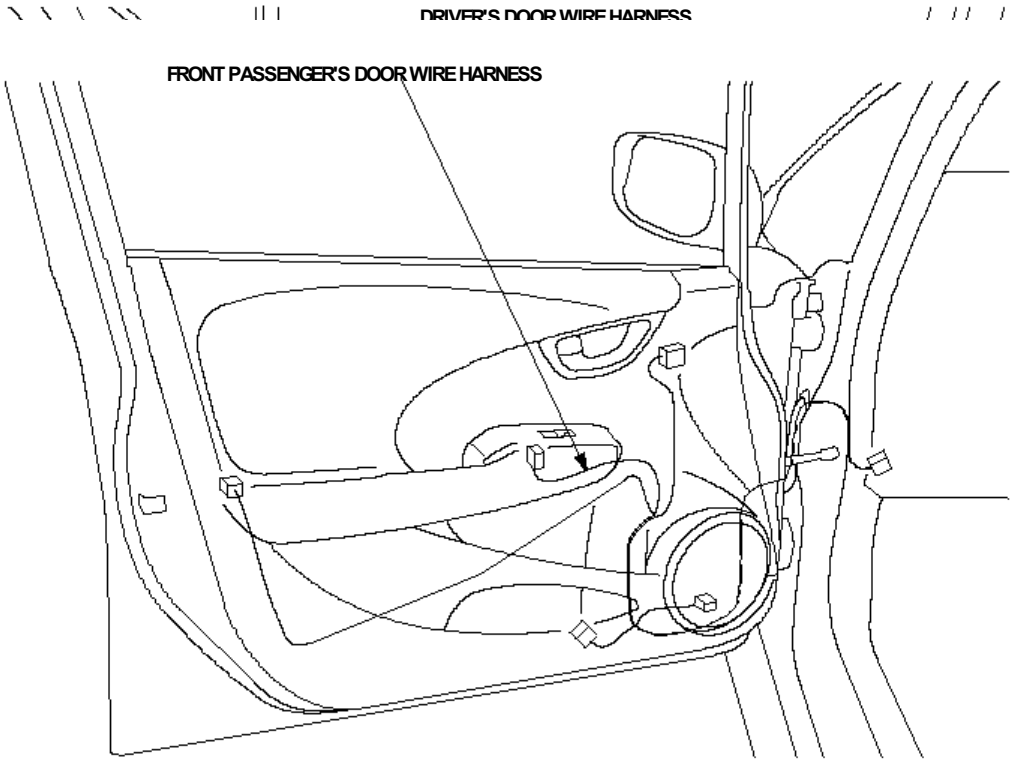
Dashboard Wire Harness, Blower Resistor Subharness, and USB Harness Locations



RHD model is shown, LHD model is symmetrical.

Driver's and Front Passenger's Door Wire Harnesses Locations

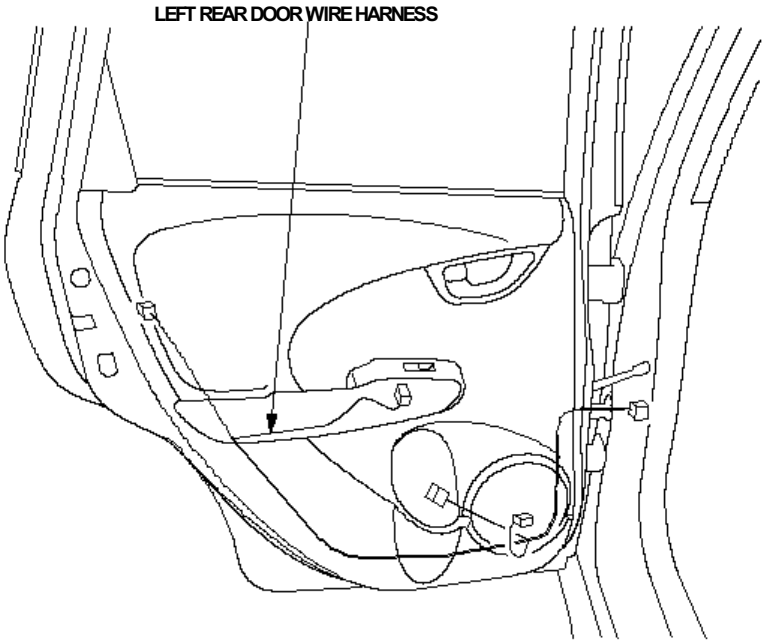
Driver's Door



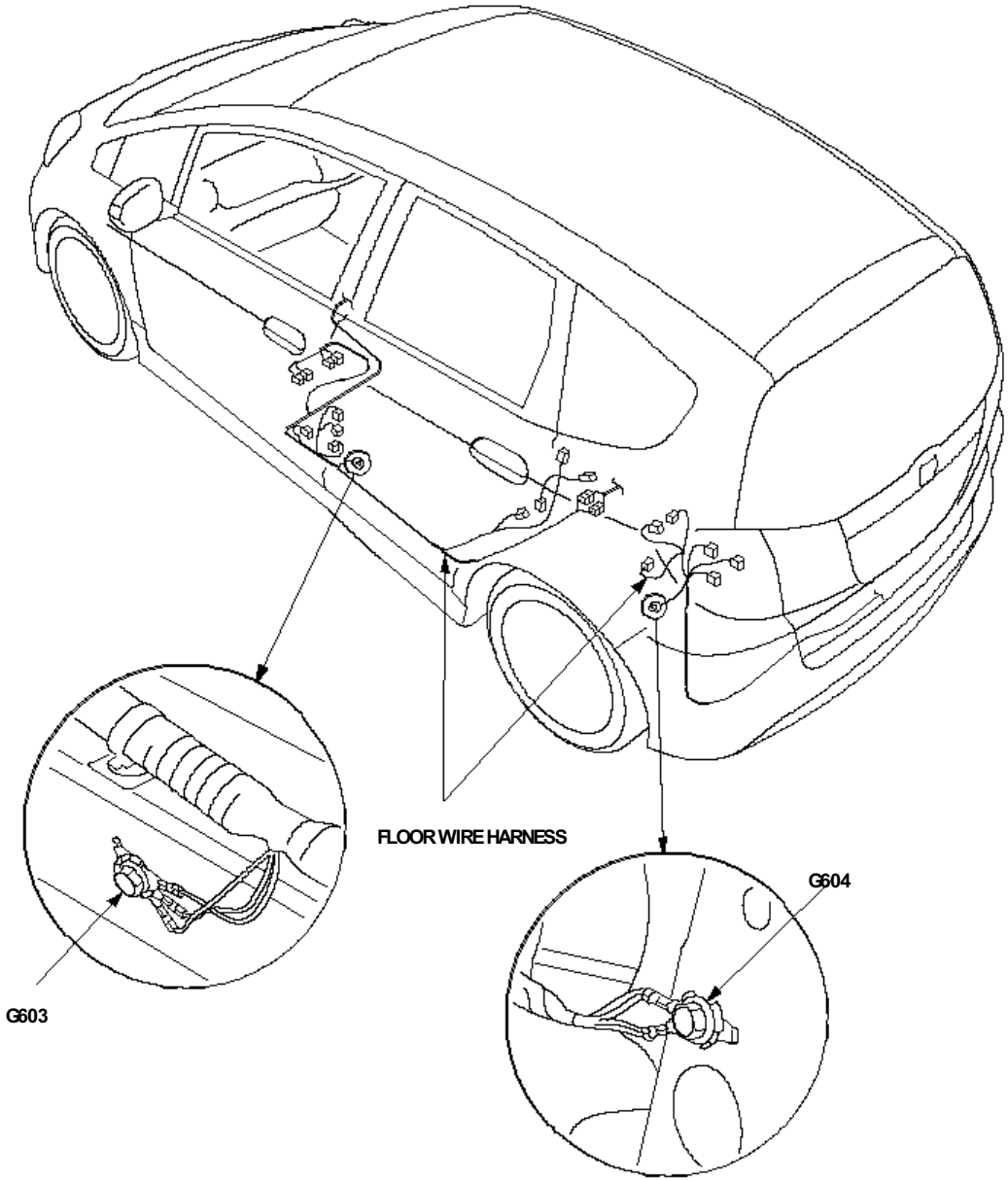
RHD model is shown, LHD model is symmetrical.

Left and Right Rear Door Wire Harnesses Locations

Rear

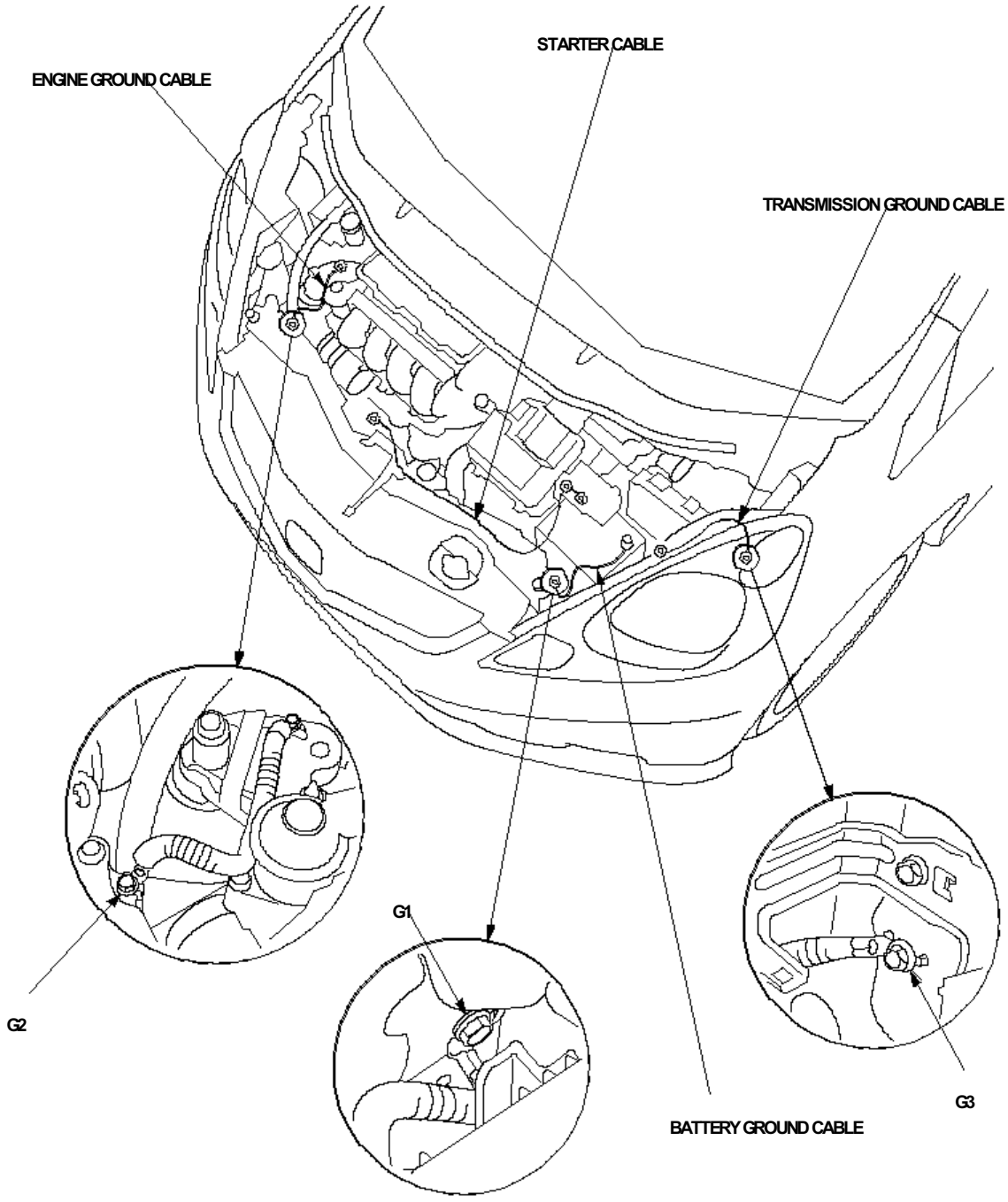


Floor Wire Harness Locations



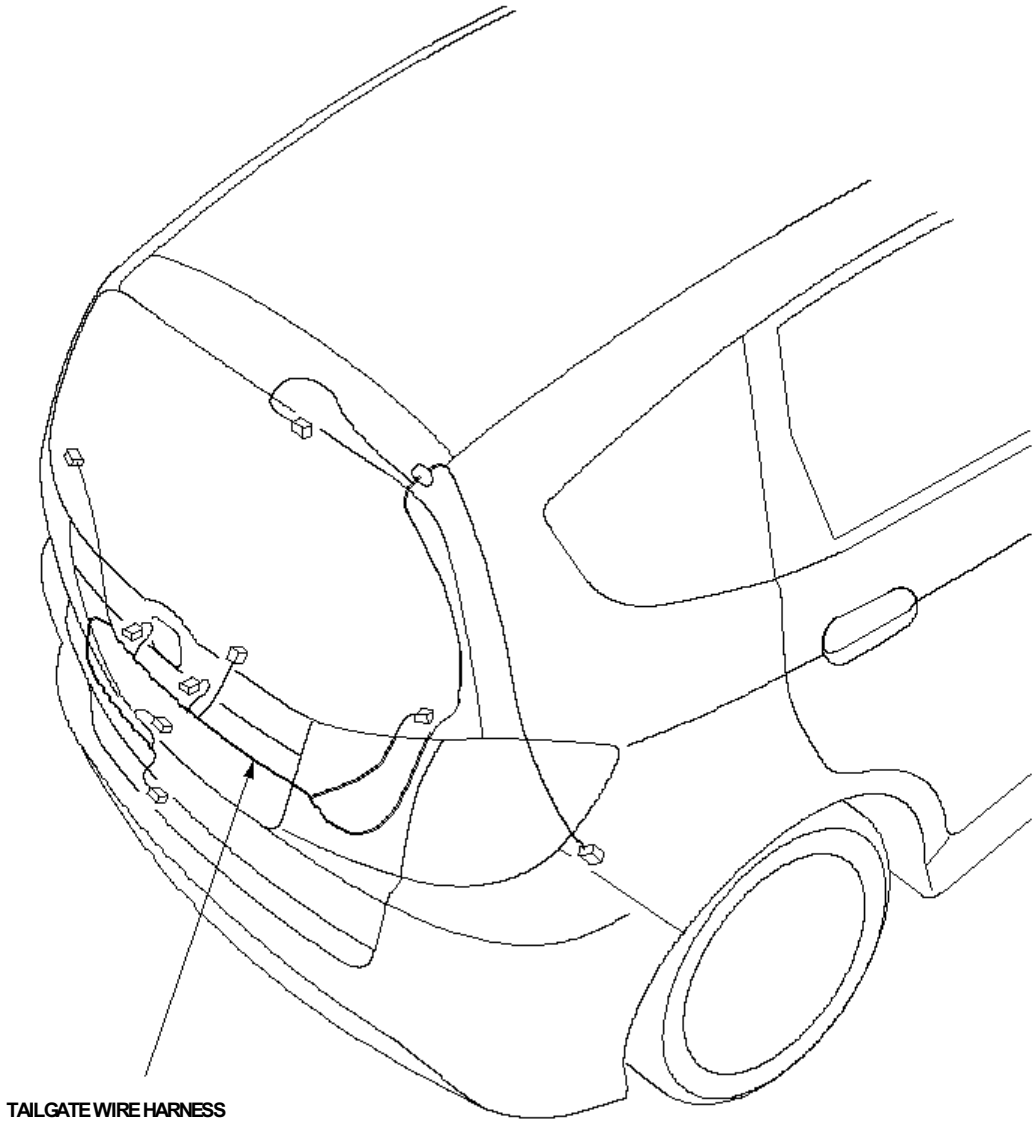
RHD model is shown. Ground locations for LHD model are similar.
Harness routing for LHD model is symmetrical.

Starter Cable, Battery Ground Cable, Engine Ground Cable, and Transmission Ground Cable Locations



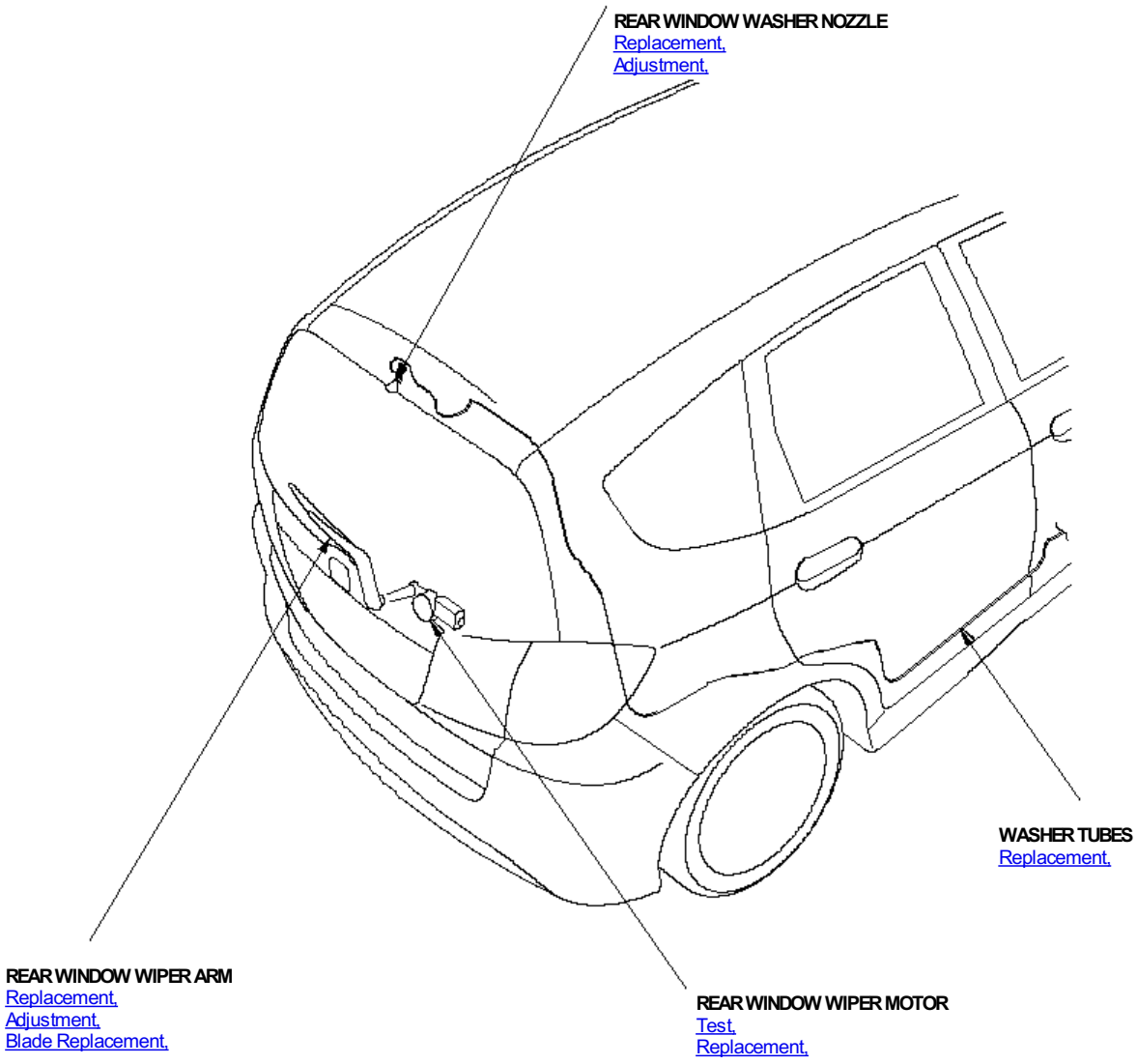
RHD model is shown, LHD model is similar.

Tailgate Wire Harness Locations

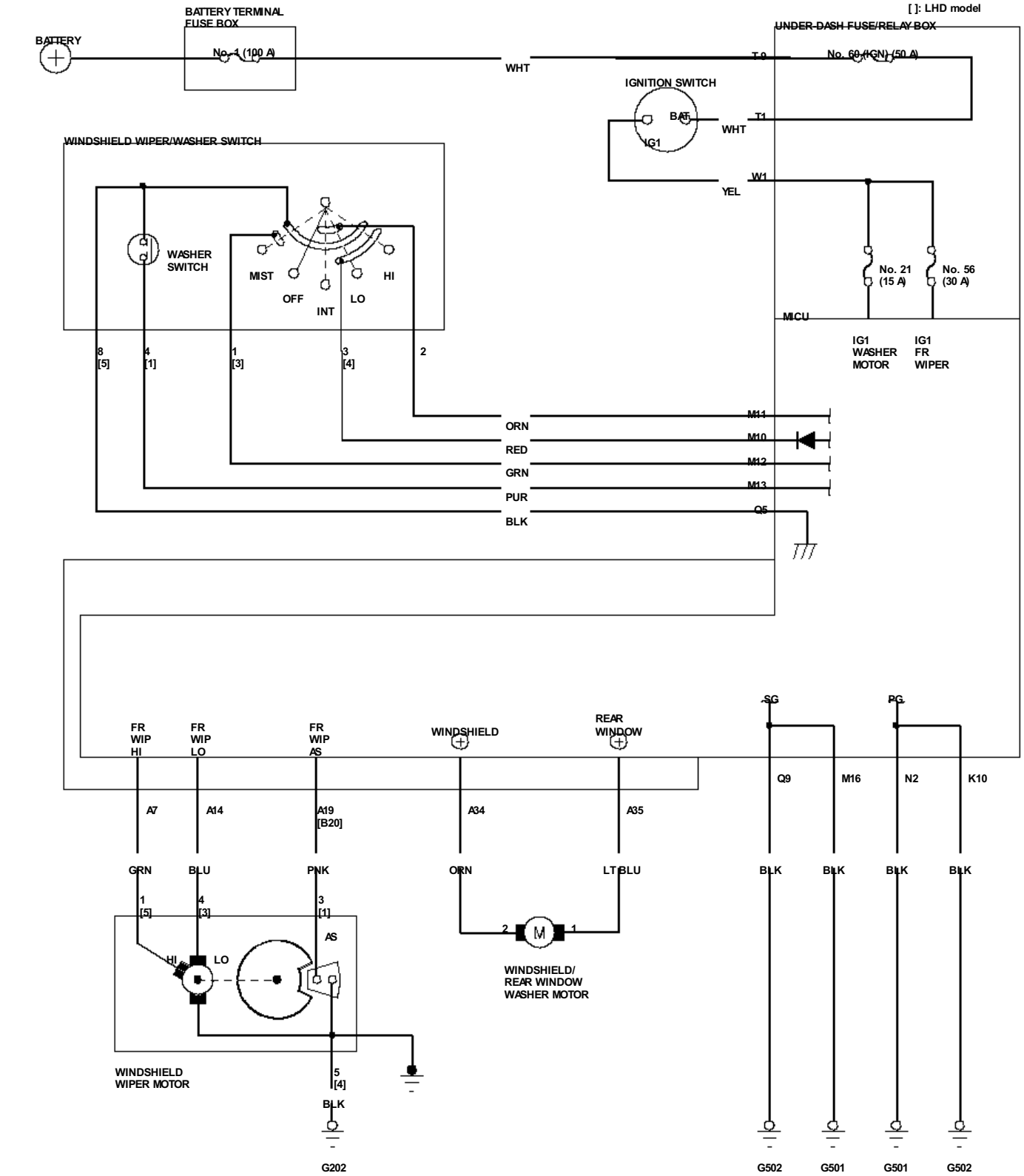


RHD model is shown, LHD model is symmetrical.

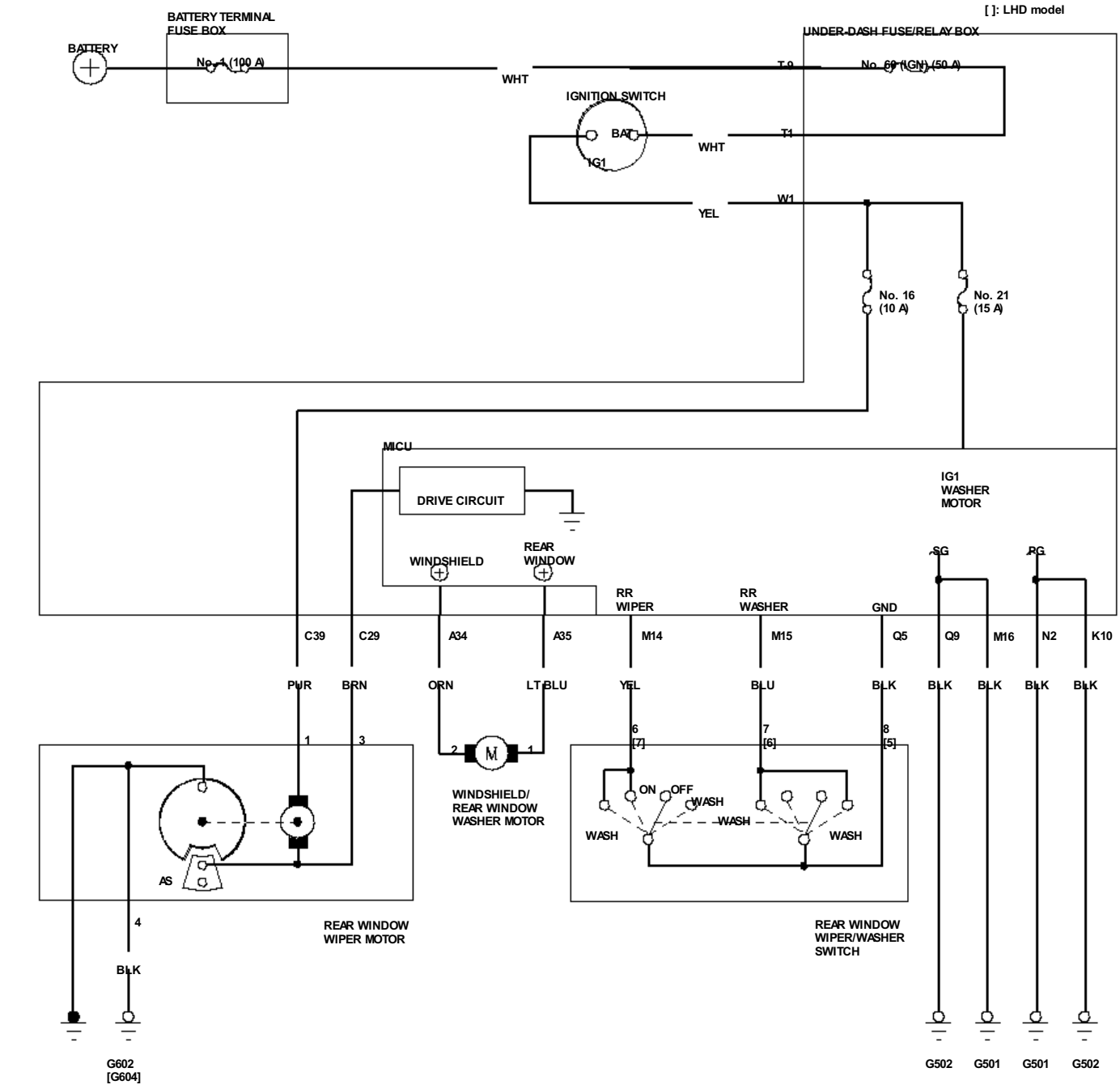
Wipers/Washers Component Location Index



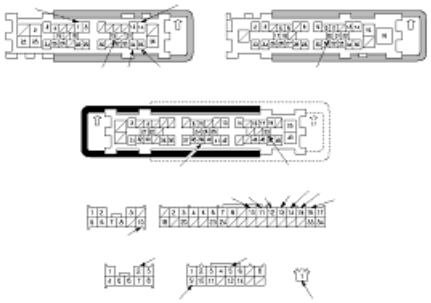
Wipers/Washers Circuit Diagram - Windshield



Wipers/Washers Circuit Diagram - Rear Window



Wipers/Washers (MICU) Input Test



NOTE:

- Before performing the input tests, check the No. 16 (10 A), No. 21 (15 A), and No. 56 (30 A) fuse in the under-dash fuse/relay box.
- If there is malfunction of the rear windshield wiper operation, and no DTCs are detected, check the rear windshield wiper motor and an open in the ground circuit of the rear windshield wiper.

1. Turn the ignition switch to LOCK (0).
2. RHD model: Remove the fuse lid panel, and remove the driver's dashboard lower cover.
   LHD model: Remove the fuse lid panel.
3. Disconnect under-dash fuse/relay box connectors A, B, C, K, M, N, Q, and W.
   NOTE:
   - All connector views are shown from wire side of female terminals.
   - The illustration shows the RHD model and the black portion shows the lock lever. The lock lever for LHD model is shown as the dashed lines.
4. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to Step 5 .
5. With the connectors still disconnected, make these input tests at the connectors.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the MICU must be faulty; replace the under-dash fuse/relay box.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
K10	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • An open in the wire
M16	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
N2	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G501) • An open in the wire
Q9	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G502) • An open in the wire
W1	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 60 (IGN) (50 A) fuse in the under-dash fuse/relay box • Faulty ignition switch • An open in the wire
A7	GRN	Under all conditions	Connect the A7 terminal to the battery power: The windshield wiper motor should run at high speed.	• Poor ground (G202) • Faulty windshield wiper motor • An open in the wire
A14	BLU	Under all conditions	Connect the A14 terminal to the battery power: The windshield wiper motor should run at low speed.	
A34	ORN	Under all conditions	Connect the A34 terminal to battery power and A35 terminal to body ground:The windshield/rear window washer motor should run.	• Faulty windshield/rear window washer motor • An open in the wire
A35	LT BLU	Under all conditions	Connect the A35 terminal to battery power and A34 terminal to body ground:The windshield/rear window washer motor should run.	• Faulty windshield/rear window washer motor • An open in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
A19[B20]	PNK	The motor stops at auto-stop position.	Check for continuity to ground: There should be continuity.	• Faulty windshield wiper motor • Poor ground (G202) • An open in the wire
		Connect the A14 terminal to the battery power momentarily, and stop the motor operation before the motor reaches the auto-stop position.	Check for continuity to ground: There should be no continuity.	Faulty windshield wiper motor

[ ]: LHD model

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
C39·C29	PUR·BRN	Connect battery power to C39 terminal, then connect C29 terminal to body ground momentarily.	Check rear window wiper motor operation: The rear window wiper motor should run, and the park position.	• Faulty rear window wiper motor • An open in the wire • Poor ground (G602) [G604]
M10·Q5	RED·BLK	Windshield wiper/washer switch (LO or HI) ON	Check for continuity between M10 and Q5 terminals: There should be continuity.	• Faulty windshield wiper/washer switch • An open in the wire
		Windshield wiper/washer switch OFF	Check for continuity between M10 and Q5 terminals: There should be no continuity.	Faulty windshield wiper/washer switch
M11·Q5	ORN·BLK	Windshield wiper/washer switch (INT or LO) ON	Check for continuity between M11 and Q5 terminals: There should be continuity.	• Faulty windshield wiper/washer switch • An open in the wire
		Windshield wiper/washer switch OFF	Check for continuity between M11 and Q5 terminals: There should be no continuity.	Faulty windshield wiper/washer switch
M12·Q5	GRN·BLK	Windshield wiper/washer switch (MIST) ON	Check for continuity between M12 and Q5 terminals: There should be continuity.	• Faulty windshield wiper/washer switch • An open in the wire
		Windshield wiper/washer switch OFF	Check for continuity between M12 and Q5 terminals: There should be no continuity.	Faulty windshield wiper/washer switch
M13·Q5	PUR·BLK	Windshield wash switch ON	Check for continuity between M13 and Q5 terminals: There should be continuity.	• Faulty windshield wiper/washer switch • An open in the wire
		Windshield wash switch OFF	Check for continuity between M13 and Q5 terminals: There should be no continuity.	Faulty windshield wiper/washer switch
M14·Q5	YEL·BLK	Rear window wiper/washer switch (RR WIPER) ON	Check for continuity between M14 and Q5 terminals: There should be continuity.	• Faulty Rear window wiper/washer switch • An open in the wire

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
		Rear window wiper/washer switch OFF	Check for continuity between M14 and Q5 terminals:There should be no continuity.	Faulty Rear window wiper/washer switch
M15-Q5	BLU BLK	Rear window wiper/washer switch (RR WASH) ON	Check for continuity between M15 and Q5 terminals:There should be continuity.	• Faulty Rear window wiper/washer switch • An open in the wire
		Rear window wiper/washer switch OFF	Check for continuity between M15 and Q5 terminals:There should be no continuity.	Faulty Rear window wiper/washer switch

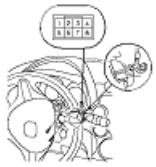
[ ]: LHD model

Wiper/Washer Switch Test/Replacement

1. Remove the steering column covers.
2. Disconnect the dashboard wire harness 8P connector (A) from the wiper/washer switch (B).
3. Remove the two screws, then slide out the wiper/washer switch.
4. Inspect the connector terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to Step 5 .

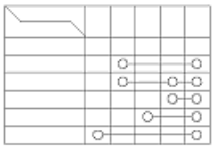
RHD model

LHD model

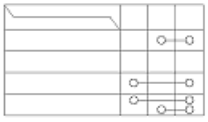


5. Check for continuity between the terminals in each switch position according to the table.
6. If the continuity is not as specified, replace the switch.
7. Install the switch in the reverse order of removal.

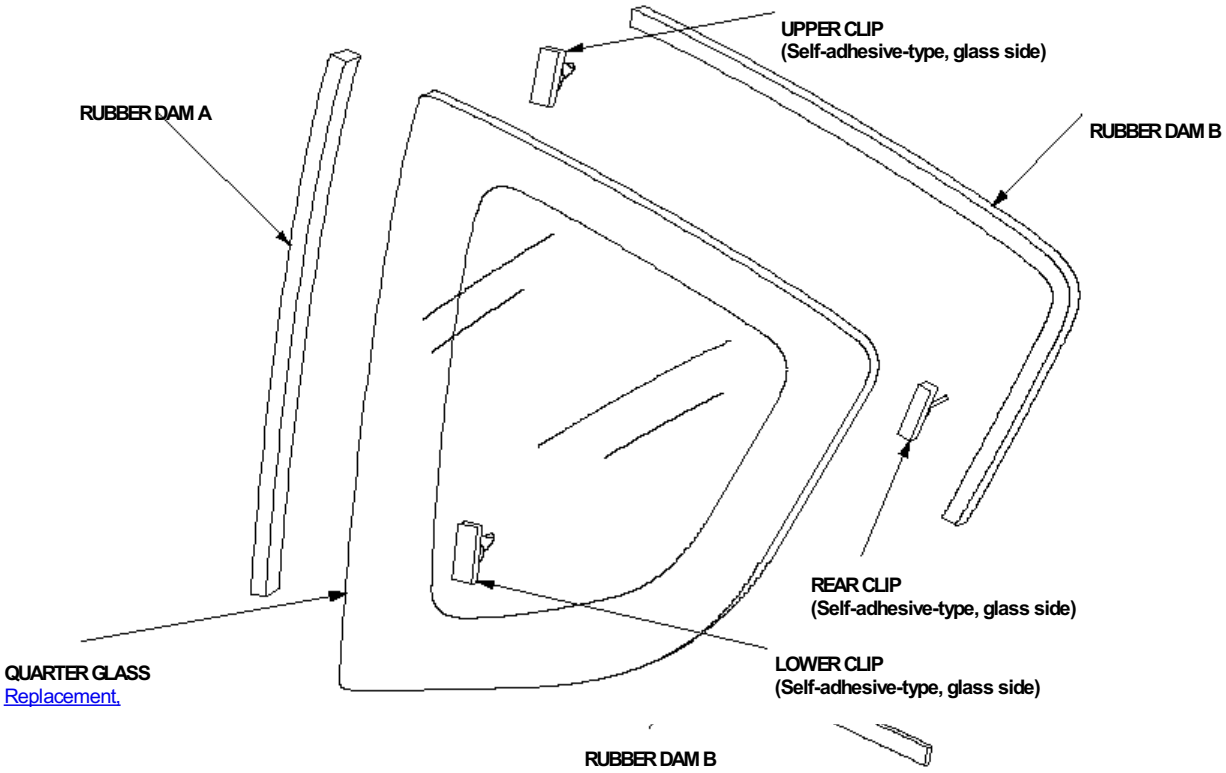
Windshield



Rear window



Glass Component Location Index

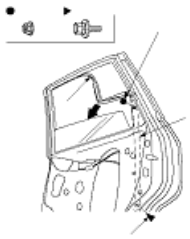


Rear Door Glass and Regulator Replacement

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the door and related parts.
- RHD model is shown; LHD model is symmetrical.

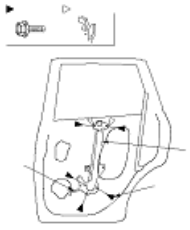
1. Remove the these items:
   - Rear door glass outer weatherstrip
   - Rear door sash trim
   - Rear door panel
2. Detach the harness clip, then disconnect the power door lock actuator connector.
3. Remove the plastic cover, as needed.
4. Carefully raise the glass (A) until you can see the bolts, then remove them. Remove the glass from the regulator (B), and carefully lower the glass.
   NOTE: Take care not to drop the glass inside the door.



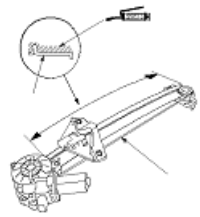
5. Pull the glass run channel (A) away as needed. Loosen the nut, and remove the bolt securing the rear lower channel (B).

6. Release the rear lower channel (A) from the glass (B).
   -1. Pull the channel forward, then remove the nut portion (C) from the door.
   -2. Twist the channel to pass it through the gap between the door panel and the rear sash.
   -3. Pull the channel up to remove it.

7. Carefully remove the glass (A) out through the window slot. Take care not to drop the glass inside the door.



8. Disconnect and detach the connector (A) from the regulator (B).
9. Remove the bolts, pull the regulator up to release the hooks, then remove the regulator through the hole in the door.



10. Apply multipurpose grease to all the sliding surfaces of the regulator (A) where shown.
11. Install the glass and regulator in the reverse order of removal, and note these items:
    - Raise and lower the glass to see if it moves freely without binding.
    - Make sure that there is no clearance between the glass and glass run channel when the glass is closed.
    - Adjust the position of the glass as necessary.
    - Do the power window control unit reset procedure.
    - When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.
    - Check for water leaks.
    - Test-drive and check for wind noise and rattles.
    - Make sure the power door locks, windows operate properly.

Windshield Replacement

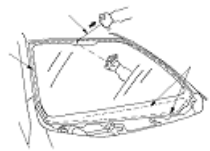
NOTE:

- Put on gloves to protect your hands.
- Wear eye protection while cutting the glass adhesive with a piano wire.
- Use seat covers to avoid damaging the seat.
- When replacing a broken windshield, a commercially available windshield cutter can be efficiently used for cutting the adhesive. For details, follow the instructions of the manufacturer of the tool.
- RHD model is shown; LHD model is symmetrical.

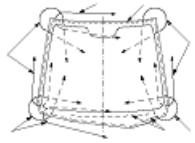
1. Remove these items:
   - Cowl covers
   - Rearview mirror
   - Front pillar trim, both sides:
     - Without side curtain airbags
     - With side curtain airbags
   - Roof moldings, both sides
2. Remove the molding (A) from the edge of the windshield (B). If necessary, cut the molding with a utility knife.
3. If the old windshield is to be reinstalled, make alignment marks across the glass and body with a grease pencil.
4. Pull down the front portion of the headliner. Take care not to bend the headliner excessively, or you may crease or break it.
5. Apply protective tape along the edge of the dashboard and body. Using an awl, make a hole through the rubber dam and adhesive from inside the vehicle at the corner portion of the windshield. Push a piece of piano wire through the hole, and wrap each end around a piece of wood.

---

6. With a helper on the outside, pull the piano wire (A) back and forth in a sawing motion. Hold the piano wire as close to the windshield (B) as possible to prevent damage to the body and dashboard.
   Carefully cut through the rubber dam and adhesive (C) around the entire windshield.
7. Carefully remove the windshield.
8. With a utility knife, scrape the old adhesive smooth to a thickness of about 2 mm (0.08 in.) on the bonding surface around the entire windshield opening flange:
   - Do not scrape down to the painted surface of the body; damaged paint will interfere with proper bonding.
   - Remove the rubber dams and upper clips from the body.
9. Clean the body bonding surface with a sponge dampened in isopropyl alcohol. After cleaning, keep oil, grease and water from getting on the clean surface.
10. If the old windshield is to be reinstalled, use a putty knife to scrape off all of the old adhesive, the upper clips and the rubber dams from the windshield. Clean the inside face and the edge of the windshield with isopropyl alcohol where new adhesive is to be applied. Make sure the bonding surface is kept free of water, oil and grease.



Cutting positions



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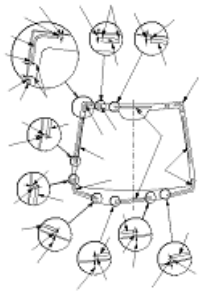
11. Attach the rubber dam A, rubber dam B, rubber dam C, rubber dam D, and the upper clips (E) with adhesive tape to the inside face of the windshield (F) as shown:
    - Be sure the rubber dam and upper clips line up with the alignment marks (G).
    - Be careful not to touch the windshield where adhesive will be applied.

    Rubber dam adhesive tape:
    Thickness 0.16 mm (0.006 in.)
    Width 3 mm (0.118 in.)
    Upper clip adhesive tape:
    Thickness 0.4 mm (0.02 in.)
    Width 13 mm (0.512 in.)



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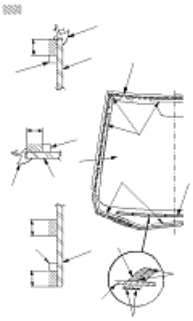
12. Attach the molding (A) with adhesive tape (B) to the edge of the windshield (C):
    - Be sure each corner of the molding lines up with the ones of the windshield.
    - Be careful not to touch the windshield where adhesive will be applied.

    Molding adhesive tape:
    Thickness 0.8 mm (0.03 in.)
    Width 4 mm (0.16 in.)

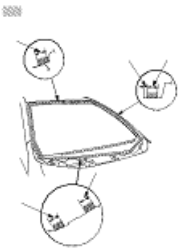
---

13. Set the windshield (A) in the opening, and center it.
    Make alignment marks (B) across the windshield and body with a grease pencil at the four points shown. Make sure the upper clips (C) contact with the edge of the body holes. Be careful not to touch the windshield where adhesive will be applied.
14. Remove the windshield.

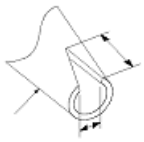
15. With a sponge, apply a light coat of glass primer to the windshield (A) along the edge of the molding (B) and the rubber dams (C) as shown, then lightly wipe it off with gauze or cheesecloth:
    - With the printed dots (D) on the windshield as a guide, apply glass primer to the bottom (E) of the windshield.
    - Apply glass primer to the molding.
    - Do not apply body primer to the windshield, and do not get body and glass primer sponges mixed up.
    - Never touch the primed surfaces with your hands. If you do, the adhesive may not bond to the windshield properly, causing a leak after the windshield is installed.
    - Keep water, dust, and abrasive materials away from the primed surface.



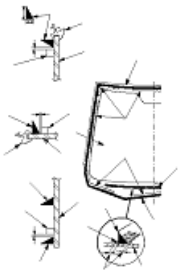
16. With a sponge, carefully apply a light coat of body primer to any exposed paint or metal around the flange where new adhesive will be applied. Let the body primer dry for at least 10 minutes:
    - Do not apply body primer to any remaining original adhesive on the flange.
    - Be careful not to mix up the body and glass primer sponges.
    - Never touch the primed surfaces with your hands.
    - Mask off the dashboard before painting the flange.



17. Cut a “V" in the end of the nozzle (A) on the adhesive cartridge as shown.



18. Pack adhesive into the cartridge without air pockets to ensure continuous delivery. Put the cartridge in a caulking gun, and run a bead of adhesive (A) to the windshield (B) along the edge of the molding (C) and rubber dams (D) as shown. Apply the adhesive within 30 minutes after applying the glass primer. Make a slightly thicker bead at each corner.
    - Apply glass primer to the bottom (E) of the windshield.
    - Apply glass primer to the molding.



19. Use suction cups to hold the windshield over the opening, align it with the alignment marks made in step 13, and set it down on the adhesive. Lightly push on the windshield until its edges are fully seated on the adhesive all the way around.
    NOTE: Do not open or close any of the doors for about an hour until the adhesive is dry.

20. Scrape or wipe the excess adhesive off with a putty knife or towel. To remove adhesive from a painted surface or the windshield, wipe with a soft shop towel dampened with isopropyl alcohol.

21. After the adhesive has dried, spray water over the windshield and check for leaks. Mark leaking areas, and let the windshield dry, then seal with sealant:
    - Let the vehicle stand for at least 4 hours after windshield installation. If the vehicle has to be used within the first 4 hours, it must be driven slowly.
    - Keep the windshield dry for the first hour after installation.

22. Reinstall all remaining removed parts. Install the rearview mirror after the adhesive has dried thoroughly. Advise the customer not to do the following things for 2 to 3 days:
    - Slam the doors with all the windows rolled up.
    - Twist the body excessively (such as when going in and out of driveways at an angle or driving over rough, uneven roads).

DTC Troubleshooting: B1150

DTC B1150:
Communication Circuit Error (BUS-OFF)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

Are DTCs B1000 and B1011 also indicated with DTC B1150?
YES - Go to DTC B1000 troubleshooting.■
NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: B1170

DTC B1170:
Gauge Control Module Lost Communication with ABS Modulator-Control Unit (ABS Message)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1170 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.■
5. Check for ABS system DTCs with the HDS.

   Are any DTCs indicated?
   YES - Go to the indicated DTCs, then recheck.■
   NO - Go to Step 6 .
6. Turn the ignition switch to LOCK (0).
7. Disconnect the gauge control module 32P connector.
8. Disconnect the ABS modulator-control unit 25P connector.
9. Connect the gauge control module 32P connector No. 29 and No. 30 terminals and body ground with jumper wires.

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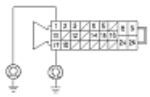
10. Check for continuity between the ABS modulator-control unit 25P connector No. 1 and No. 17 terminals and body ground individually.



    Is there continuity?
    YES - Substitute a known-good ABS modulator-control unit, and recheck. If the indication goes away, replace the original ABS modulator-control unit. If the DTC is still present, replace the gauge control module. ■
    NO - Repair an open in the wire.■

DTC Troubleshooting: B1900

DTC B1900:
Communication Bus Line Error (BUS-OFF)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

Are DTCs B1000 and B1011 also indicated with DTC B1900?
YES - Go to DTC B1000 troubleshooting.■
NO - Intermittent failure, the system is OK at this time.■

DTC Troubleshooting: B1000

DTC B1000:
Communication Circuit Error (BUS-OFF)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Are DTCs B1000 and B1011 all indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure. The communication bus line is OK at this time. Check for any worn or shorted wires.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the appropriate connector at each control unit in the table.

Unit	Connector
MICU	Under-dash fuse/relay box connector Q (16P)
Gauge control module	32P connector
Immobilizer-keyless control unit	7P connector

7. Turn the ignition switch to ON (II).
8. Clear the DTCs with the HDS.
9. Turn the ignition switch to LOCK (0), and then back to ON (II).
10. Wait for 6 seconds.
11. Check for DTCs with the HDS.

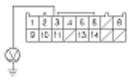
    Are DTCs B1000 and B1011 all indicated?
    YES - Faulty MICU, replace the under-dash fuse/relay box. ■
    NO - Go to Step 12 .
12. Turn the ignition switch to LOCK (0).
13. Check for continuity between under-dash fuse/relay box connector Q (16P) No. 3 terminal and body ground.

    Is there continuity?
    YES - Repair a short to ground in the wire between the under-dash fuse/relay box connector and the affected control unit.■
    NO - Go to Step 14 .
14. Turn the ignition switch to ON (II).

---

15. Measure the voltage between under-dash fuse/relay box connector Q (16P) No. 3 terminal and body ground.

    Is there voltage?
    YES - Repair a short to power in the wire between the under-dash fuse/relay box connector and the affected control unit.■
    NO - Go to Step 16 .



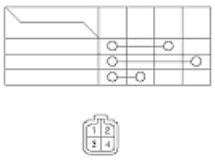
16. Turn the ignition switch to LOCK (0).
17. Reconnect under-dash fuse/relay box connector Q (16P).
18. Reconnect the gauge control module 32P connector.
19. Turn the ignition switch to ON (II).
20. Clear the DTCs with the HDS.
21. Turn the ignition switch to LOCK (0), and then back to ON (II).
22. Wait for 6 seconds or more.
23. Check for DTCs with the HDS.

    Are DTCs B1000 and B1011 all indicated?
    YES - Replace the gauge control module. ■
    NO - Replace the immobilizer-keyless control unit. ■

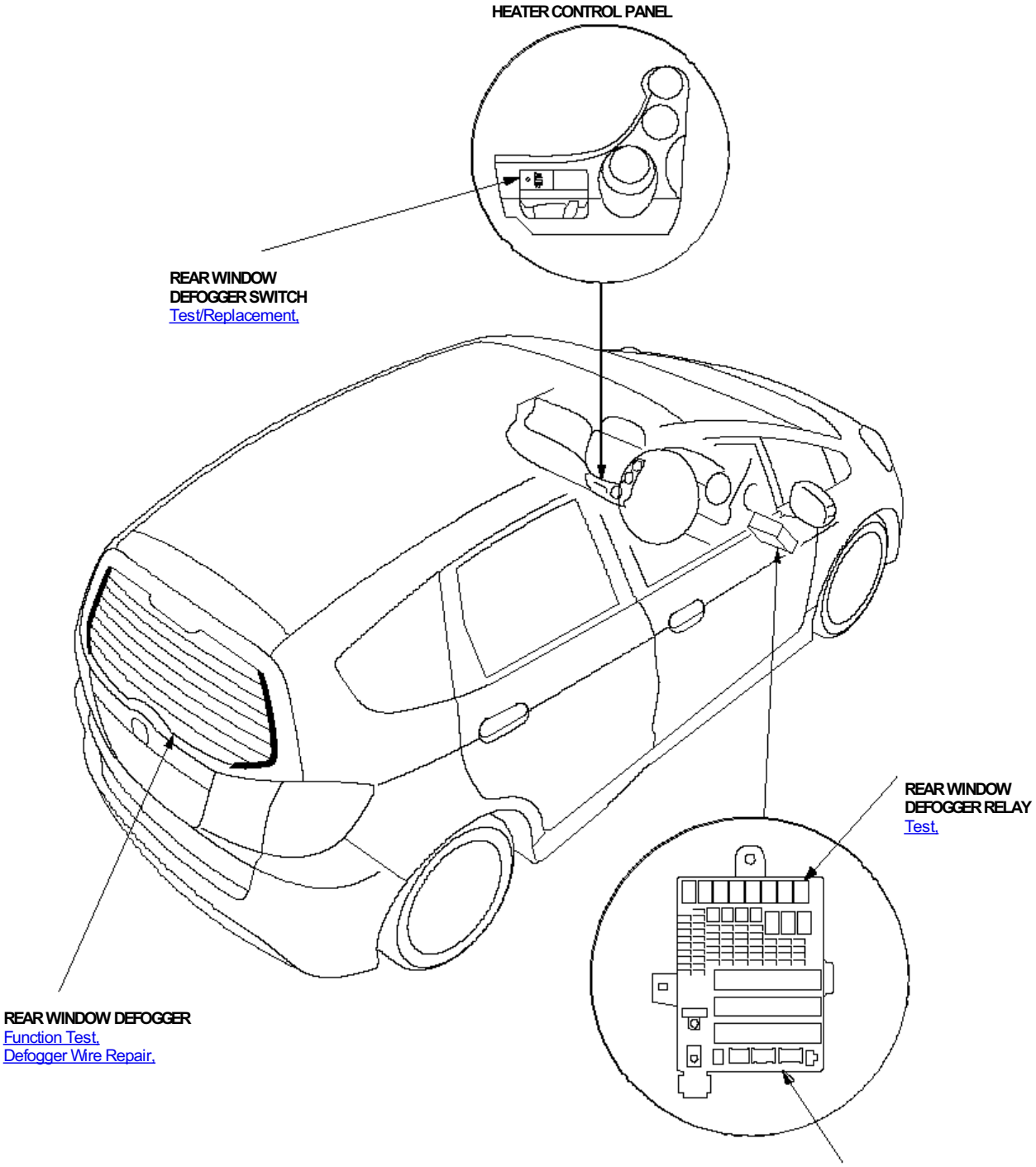
Blower Resistor Test

1. Disconnect the 4P connector (A) from the blower resistor.

2. Measure the resistance between the following terminals of the blower resistor and compare them with the values in the table.
3. If the resistance is not within the specifications, replace the blower resistor.

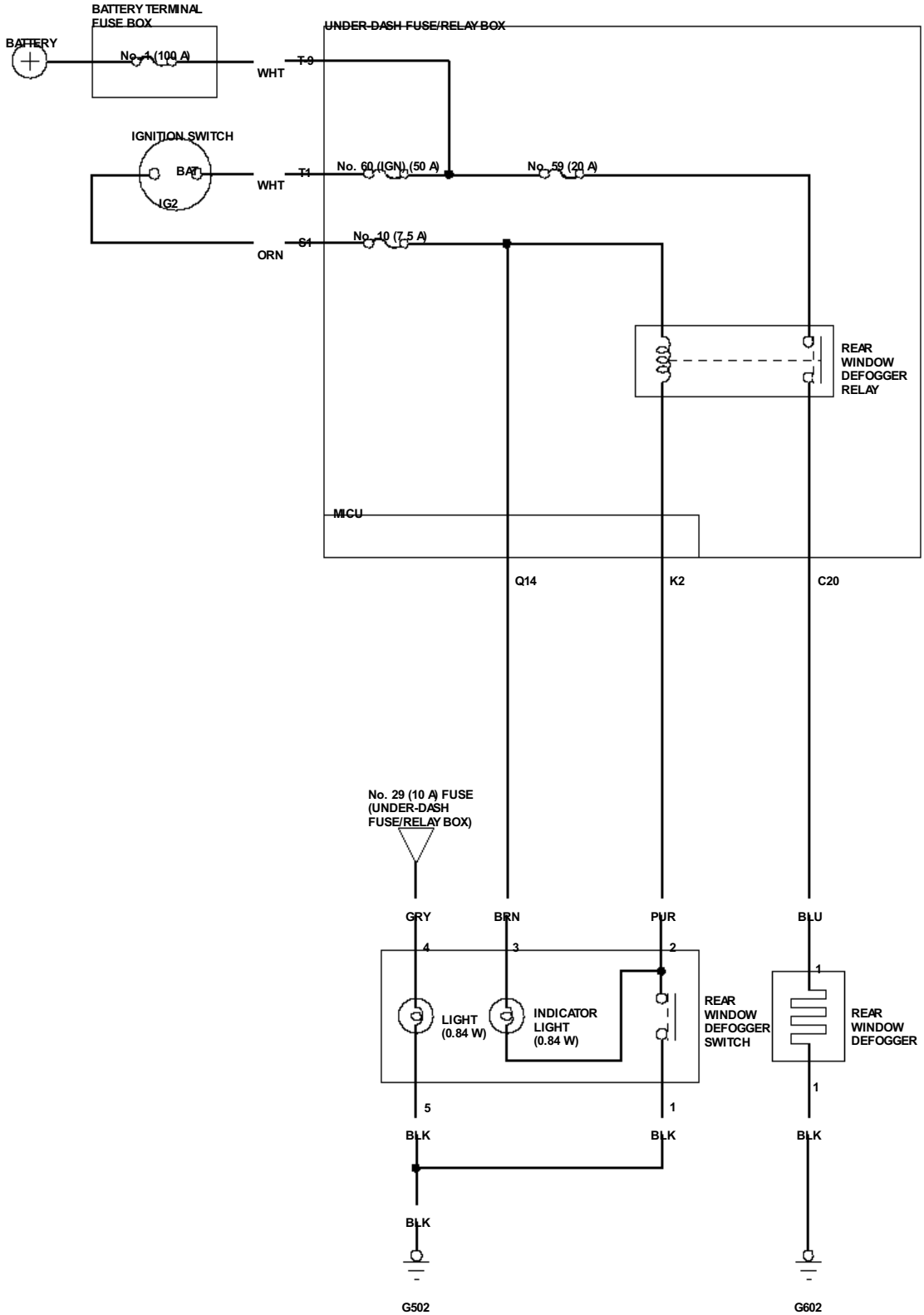


Rear Window Defogger Component Location Index



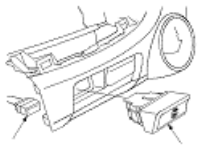
RHD model is shown, LHD model is similar.

Rear Window Defogger Circuit Diagram

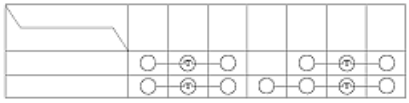


Rear Window Defogger Switch Test/Replacement

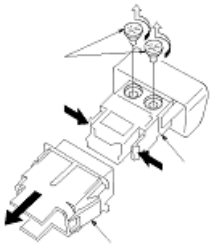
1. Remove the heater control panel.
2. Disconnect the 5P connector (A), and remove the rear window defogger switch (B).



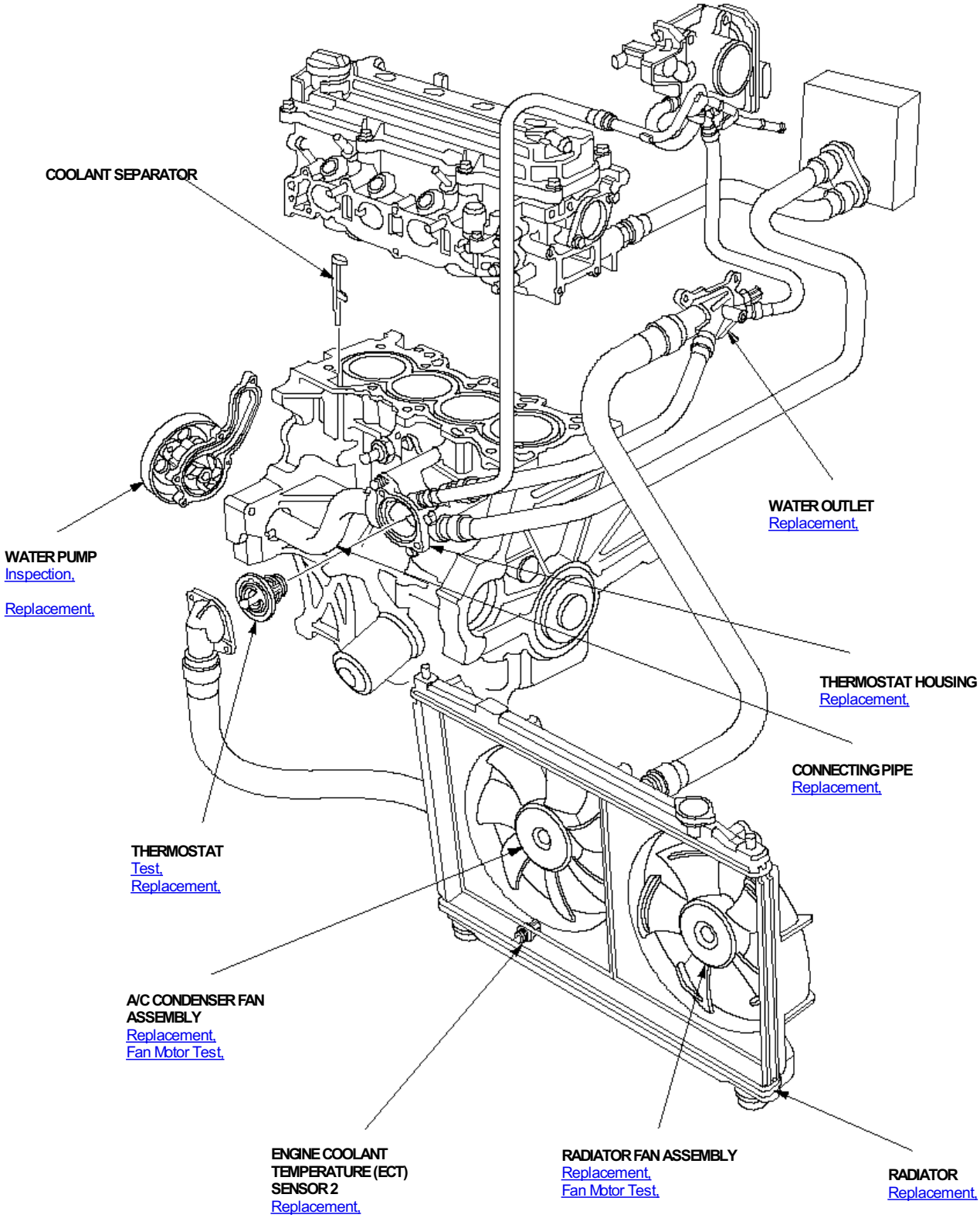
3. Check for continuity between the terminals in each switch position according to the table.



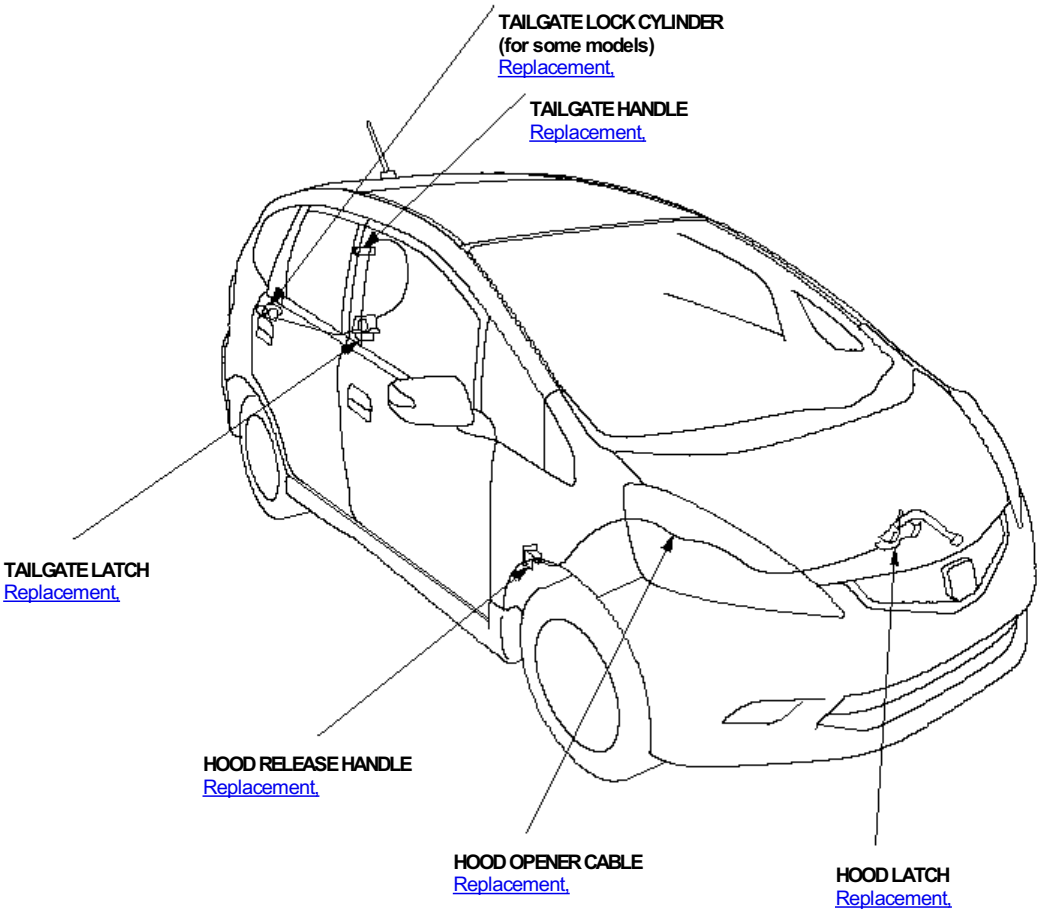
4. If the continuity is not as specified, remove the cover (A), and replace the switch (B) or bulb (C).



Cooling System Component Location Index



Openers Component Location Index



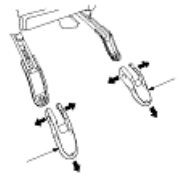
Front Seat Removal/Installation - Without Seat Heater

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:

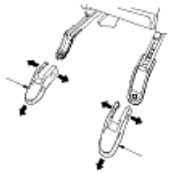
- Put on gloves to protect your hands.
- When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.
- Take care not to scratch the body or tear the seat covers.
- When removing components, use the trim tools or equivalent.

1. Tilt the steering wheel all the way up, and telescope it all the way in.
2. Slide the front seat all the way forward, then remove the rear inner seat track end covers (A) and rear outer seat track end covers (B) from the rear of both seat tracks.

Passenger's seat

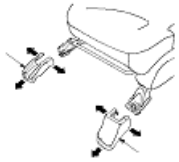


Driver's seat

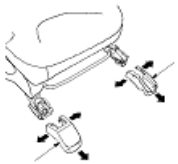


3. Slide the front seat rearward fully, then remove the front inner seat track end covers (A) and front outer seat track end covers (B) from the front of driver's seat tracks.
4. Slide the seat about half way to the rear so you can access the seat mounting bolts. If you remove the manual height adjustable seat, fully raise the seat.

Passenger's seat



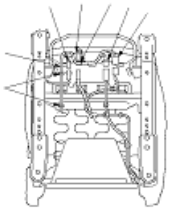
Driver's seat



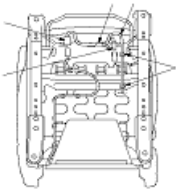
5. Remove the bolts.
6. Do the battery terminal disconnection procedure, then wait at least 3 minutes before removing the seat.

7. Lift up the front seat, then detach the harness clips (A) of the floor wire harness (B), and disconnect the seat belt buckle switch connectors (C) and the side airbag connector (D) (for some models). On passenger's seat, disconnect the sitting switch connector (E) (with front seat belt reminder) and OPDS unit harness connector (F) (for some model).
8. Remove the head restraint.
9. With the help of an assistant, carefully remove the front seat through the front door opening.

Passenger's seat



Driver's seat



10. Install the seat in the reverse order of removal, and note these items:
    - Apply medium strength type liquid thread lock to the seat mounting bolts before reinstallation.
    - Tighten the seat mounting bolts to the specified torque in the sequence shown. Slide the seat all the way back and tighten (1) and (2), then slide it forward and tighten (3) and (4). The driver's seat on RHD model is shown, the passenger's seat on RHD model is symmetrical. The front seats on LHD model are similar.
    - Make sure each connector is plugged in properly.
    - Tighten the bolts by hand first, then tighten them to specification with a torque wrench.
    - Do the battery terminal reconnection procedure.
    - Check for any DTCs that may have been set during repairs, and clear them.

Front Seat Removal/Installation - With Seat Heater

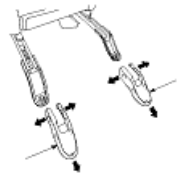
With Seat Heater

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:

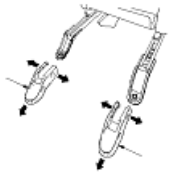
- Put on gloves to protect your hands.
- When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.
- Take care not to scratch the body or tear the seat covers.
- When removing components, use the trim tools or equivalent.

1. Tilt the steering wheel all the way up, and telescope it all the way in.
2. Slide the front seat all the way forward, then remove the rear inner seat track end covers (A) and rear outer seat track end covers (B) from the rear of both seat tracks.

Driver's seat

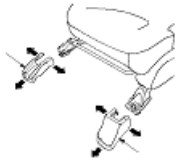


Passenger's seat

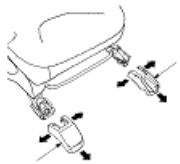


3. Slide the front seat rearward fully, then remove the front inner seat track end covers (A) and front outer seat track end covers (B) from the front of driver's seat tracks.
4. Slide the seat about half way to the rear so you can access the seat mounting bolts. If you remove the manual height adjustable seat, fully raise the seat.

Driver's seat



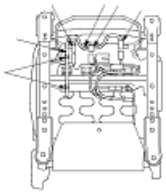
Passenger's seat



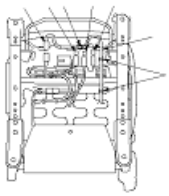
5. Remove the bolts.
6. Do the battery terminal disconnection procedure, then wait at least 3 minutes before removing the seat.

7. Lift up the front seat, then detach the harness clips (A) of the floor wire harness (B), and disconnect the seat belt buckle switch connector (C) and the side airbag connector (D) (for some models) and the seat wire harness connector (E). On passenger's seat, disconnect the sitting switch connector (F) (with front seat belt reminder).
8. Remove the head restraint.
9. With the help of an assistant, carefully remove the front seat through the front door opening.

Driver's seat



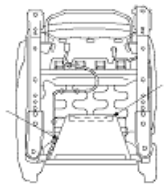
Passenger's seat



10. Install the seat in the reverse order of removal, and note these items:
    - Tighten the seat mounting bolts to the specified torque in the sequence shown. Slide the seat all the way back and tighten (1) and (2), then slide it forward and tighten (3) and (4). The driver's seat on LHD model is shown, the passenger's seat on LHD model is symmetrical. The front seats on RHD model are similar.
    - Make sure each connector is plugged in properly.
    - Tighten the bolts by hand first, then tighten them to specification with a torque wrench.
    - Do the battery terminal reconnection procedure.
    - Check for any DTCs that may have been set during repairs, and clear them.

Front Seat Cushion Cover/Pad Replacement - Without Seat Heater

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:

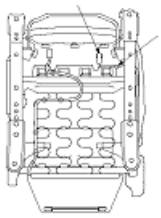


- Put on gloves to protect your hands.
- Take care not to tear the seams or damage the seat covers.
- Do not repair any tear or frayed spots of the seat cover.
- When removing components, use the trim tools or equivalent.
- RHD model is shown; LHD model is similar.

1. Remove the front seat.
2. Remove the front seat outer cover.
3. From under the seat cushion, release the hook (A) from the seat cushion frame spring. Pull the cushion cover (B) back.

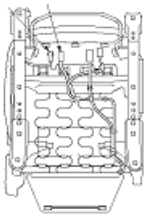
4. From under driver's seat cushion, detach the wire harness clips (A) and seat belt buckle switch connector (B), then pull it to out side of the seat.

Driver's seat

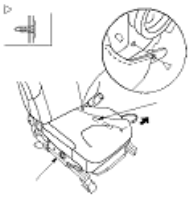


5. From under passenger's seat cushion, detach the seat belt setting switch connector (A) and seat belt buckle switch connector (B) (with seat belt reminder system).

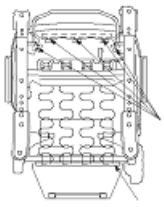
Passenger's seat



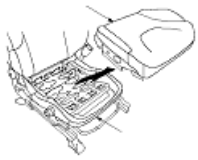
6. Remove the clip, then release the hook strips (A, B) from the seat cushion frame.



7. From under seat cushion, release the hook strips (A, B) from the seat cushion frame.

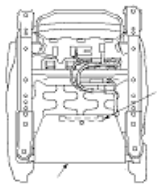


8. Remove the seat cushion cover/pad (A) from the seat frame (B).
9. Install the cover in the reverse order of removal, and note these items:
   - To prevent wrinkles when installing a seat cushion cover, make sure the material is stretched evenly over the pad before securing the hook strips.
   - Check if the clip is damaged or stress-whitened, and if necessary, replace is with new ones.



Front Seat Cushion Cover/Pad Replacement - With Seat Heater

With Seat Heater



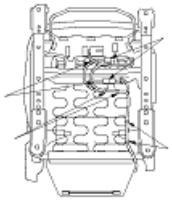
SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:

- Put on gloves to protect your hands.
- Take care not to tear the seams or damage the seat covers.
- Do not repair any tear or frayed spots of the seat cover.
- When removing components, use the trim tools or equivalent.
- LHD model is shown; RHD model is similar.

1. Remove the front seat.
2. Remove the front seat outer cover.
3. From under the seat cushion, release the hook (A) from the seat cushion frame spring. Pull the cushion cover (B) back.

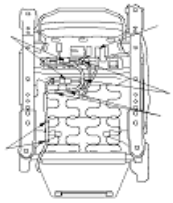
4. From under driver's seat cushion, detach the wire ties (A) and wire harness clips (B) and disconnect the seat heater harness connectors (C), then pull it to out side of the seat.

Driver's seat

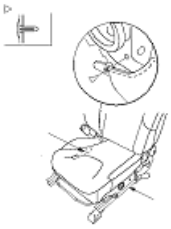


5. From under passenger's seat cushion, detach the wire ties (A) and wire harness clips (B) seat belt setting switch connector (C) and disconnect the seat heater harness connectors (D).

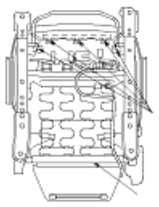
Passenger's seat



6. Remove the clip, then release the hook strips (A, B) from the seat cushion frame.



7. From under seat cushion, release the hook strips (A, B) from the seat cushion frame.

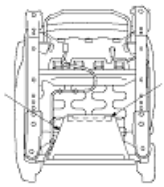


8. Remove the seat cushion cover/pad (A) from the seat frame (B).

9. Install the cover in the reverse order of removal, and note these items:
   - To prevent wrinkles when installing a seat cushion cover, make sure the material is stretched evenly over the pad before securing the hook strips.
   - If the clips are damaged or stress-whitened, replace them with new ones.

Front Seat-back Cover/Pad Replacement - Without Seat Heater

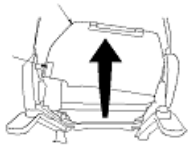
SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:



- Do not repair any tears or frayed spots of the seat-back cover. If necessary, replace the seat-back cover.
- Take care not to tear the seams or damage the seat covers.
- Passenger's seat: Do not touch the OPDS sensor in the seat-back pad, and keep it away from oil.
- Put on gloves to protect your hands.
- When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.
- When removing components, use the trim tools or equivalent.
- RHD model is shown; LHD model is similar.

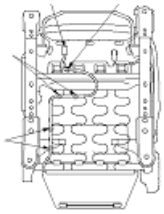
1. Remove the front seat.
2. Driver's seat: Remove the front seat armrest.
3. From under the seat cushion, release the hook (A) from the seat cushion frame spring. Pull the cushion cover back (B).

4. Release the fastener (A) and pull the cushion cover back (B).

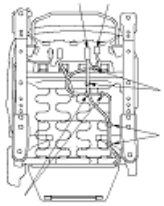


5. From under the seat cushion, remove the wire ties (A) and detach the wire harness clips (B) and connector(s), then pull it to out side of the seat.
   - Driver's seat:
     - For some models: Side airbag connector (C)
   - Passenger's seat:
     - For some models: Side airbag connector (C)
     - For some models: OPDS unit harness connector (D)

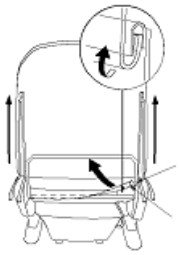
Driver's seat



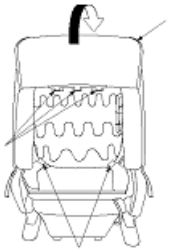
Passenger's seat



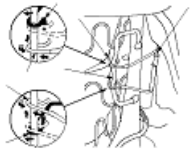
6. From behind the seat-back, release the hook (A), and unzip the seat-cover (B).



7. Pull back the seat-back cover (A), then release the hook strips (B) from the seat-back frame.

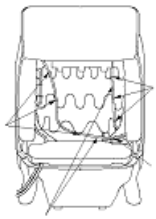


8. Release airbag wire A and airbag wire B from the seat-back frame (C).

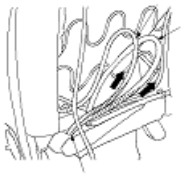


9. Passenger's seat: Remove the OPDS unit cover (A).
   -1. Turn over the seat-back cover and the pad (B) as needed.
   -2. Release the cover from the lower hooks (C).
   -3. Pull the cover upward to release it from the upper hook (D).
10. Passenger's seat: Disconnect the OPDS sensor connectors (E) from the OPDS unit (F).

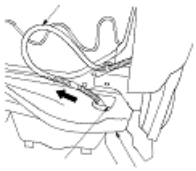
11. Passenger's seat: Remove the wire ties (A), and detach the harness clip (B) fastening the OPDS sensor harnesses(C).



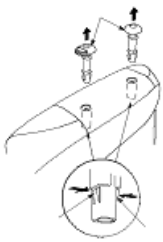
12. Passenger's seat: Pull the side airbag harness (A) and OPDS unit harness (B) out through the harness hole (C) in the seat-back cover.



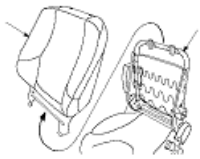
13. Driver's seat: Pull the side airbag harness (A) out through the harness hole (B) in the seat-back cover (C).



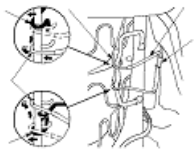
14. Pull out the head restraint guides (A) while pinching the tabs (B) on the end of the guides, and remove them.



15. Remove the seat-back cover/pad (A) from the seat-back frame (B).

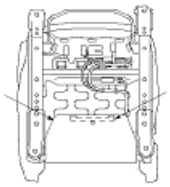


16. Install the cover/pad in the reverse order of removal, and note these items:
    - Reinitialize the OPDS unit.
    - Before installing the seat-back cover/pad, make sure airbag wires (A, B) are installed to the reinforcing cloths (C) correctly, and wire A and wire B are securely assembled.
    - Use only original Honda replacement seat-back cover/pads.
    - Make sure the side airbag harness and the OPDS unit harness (passenger's seat) are routed properly.



Front Seat-back Cover/Pad Replacement - With Seat Heater

With Seat Heater

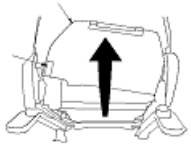


SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:

- Do not repair any tears or frayed spots of the seat-back cover. If necessary, replace the seat-back cover.
- Take care not to tear the seams or damage the seat covers.
- Put on gloves to protect your hands.
- When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.
- When removing components, use the trim tools or equivalent.
- LHD model is shown; RHD model is similar.

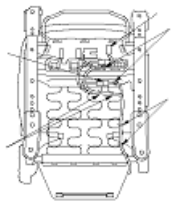
1. Remove the front seat.
2. Driver's seat: Remove the front seat armrest.
3. From under the seat cushion, release the hook (A) from the seat cushion frame spring. Pull the cushion cover back (B).

4. Release the fastener (A) and pull the cushion cover back (B).

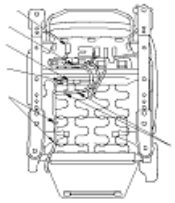


5. From under the seat cushion, remove the wire ties (A) and detach the wire harness clips (B) and connector(s), then pull it to out side of the seat.
   - Driver's seat:
     - For some models: Side airbag connector (C)
     - For some models: Seat heater connector (D)
   - Passenger's seat:
     - For some models: Side airbag connector (C)
     - For some models: Seat heater connector (D)

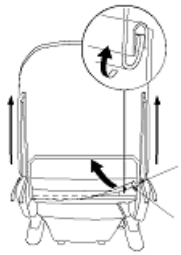
Driver's seat



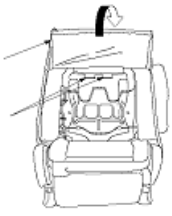
Passenger's seat



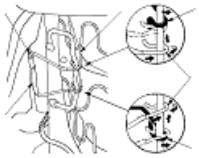
6. From behind the seat-back, release the hook (A), and unzip the seat-cover (B).



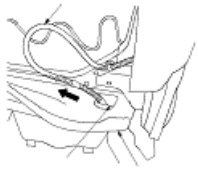
7. Pull back the seat-back cover (A), then release the hook strips (B) from the seat-back frame.



8. Release airbag wire A and airbag wire B from the seat-back frame (C).

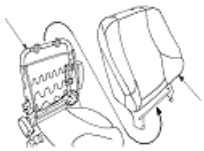


9. Pull the side airbag harness (A) out through the harness hole (B) in the seat-back cover (C).

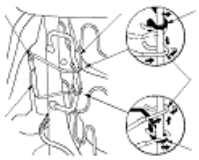


10. Pull out the head restraint guides (A) while pinching the tabs (B) on the end of the guides, and remove them.

11. Remove the seat-back cover/pad (A) from the seat-back frame (B).

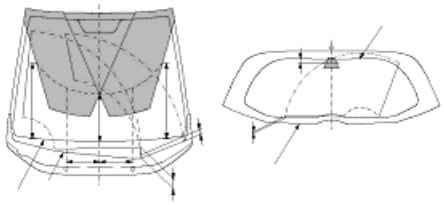


12. Install the cover/pad in the reverse order of removal, and note these items:
    - Before installing the seat-back cover/pad, make sure airbag wires (A, B) are installed to the reinforcing cloths (C) correctly, and wire A and wire B are securely assembled.
    - Use only original Honda replacement seat-back cover/pads.
    - Make sure the side airbag harness are routed properly.



Wiper Arm/Nozzle Adjustment

Wiper arms stop position



1. When the wiper arms stop at the automatic stop position, make sure that they are at the standard position.

Windshield

a: Position at about 76 mm (3.0 in.) from the top of cowl cover (A).
b: Position at about 38 mm (1.5 in.) from the top of cowl cover (A).

Rear window

c: Position at about 10 mm (0.4 in.) from the black ceramic area (D).

Washer nozzle position

2. When you turn on the washers, make sure 50 % or more of the washer fluid lands within the splay area. If the splay area is not within the standard positions, adjust the nozzles.

Windshield

d: Position at about 591 mm (23 in.) from the top of the black ceramic area (B) at the lower windshield.
e: Position at about 386 mm (15 in.) from the top of the black ceramic area (B) at the lower windshield.
f: Position at about 591 mm (23 in.) from the top of the black ceramic area (B) at the lower windshield.
g: Position at about 250 mm (9.8 in.) from the windshield center line (C).
h: Position at about 250 mm (9.8 in.) from the windshield center line (C).

Rear Window

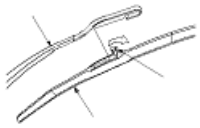
j: Position at about 24.7 mm (1.0 in.) from the top of the black ceramic area (E).

Wiper Blade Replacement

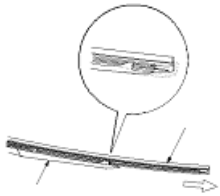
Windshield

NOTE: Always pull up the driver's side wiper blade first.

1. Push the lock (A) of the wiper blade (B), and remove the wiper blade from the wiper arm (C).



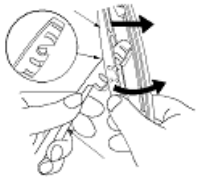
2. Slide the rubber (A) out from the wiper blade (B).



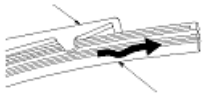
3. Align the groove (A) of the each rail (B) and a new rubber (C), then install a new rubber with the rails into the blade in the reverse order of removal.
4. Install the wiper blades onto the wiper arms in the reverse order of removal.
5. Test the wiper operation. If the blades slip, turn the wiper switch OFF, and reinstall the blades securely.

Rear Window

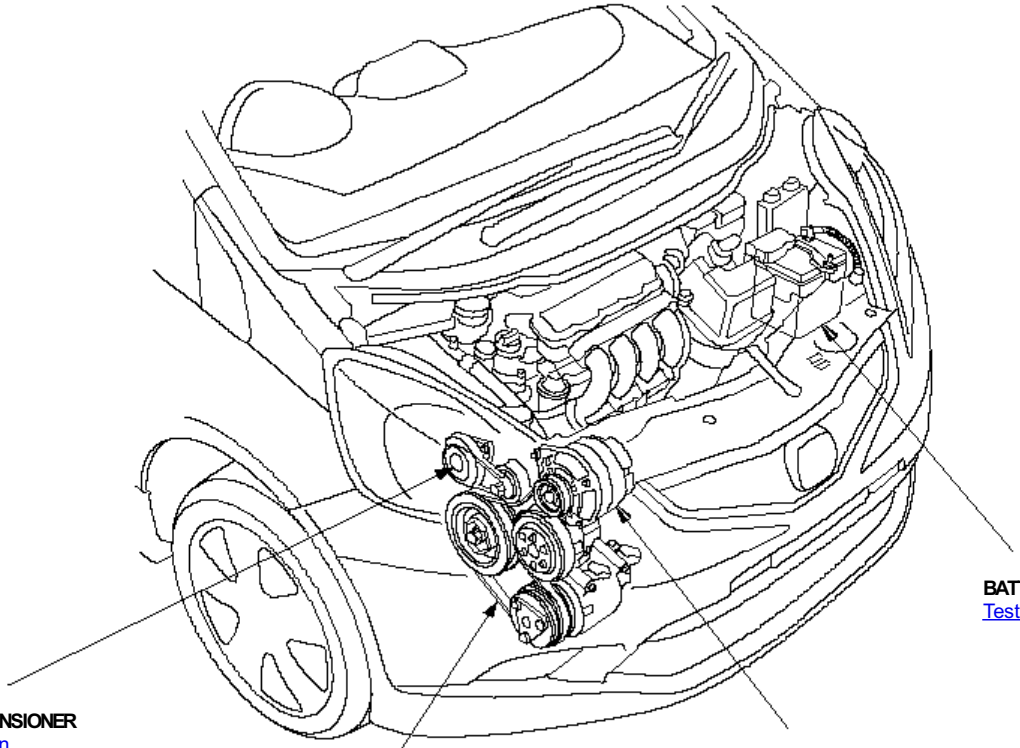
1. Turn the wiper blade (A), and remove the lock from the wiper arm (B).



2. Pull the rubber (A) up, and slide it out from the wiper blade (B).
3. Install a new rubber in the reverse order of removal.
4. Install the wiper blade onto the wiper arm in the reverse order of removal.
5. Test the wiper operation. If the blades slip, turn the wiper switch OFF, and reinstall the blades securely.



Charging System Component Location Index



AUTO-TENSIONER
Inspection,
Replacement,
Tensioner Pulley
Replacement,

DRIVE BELT
Inspection,

ALTERNATOR
Removal and Installation,
Overhaul,

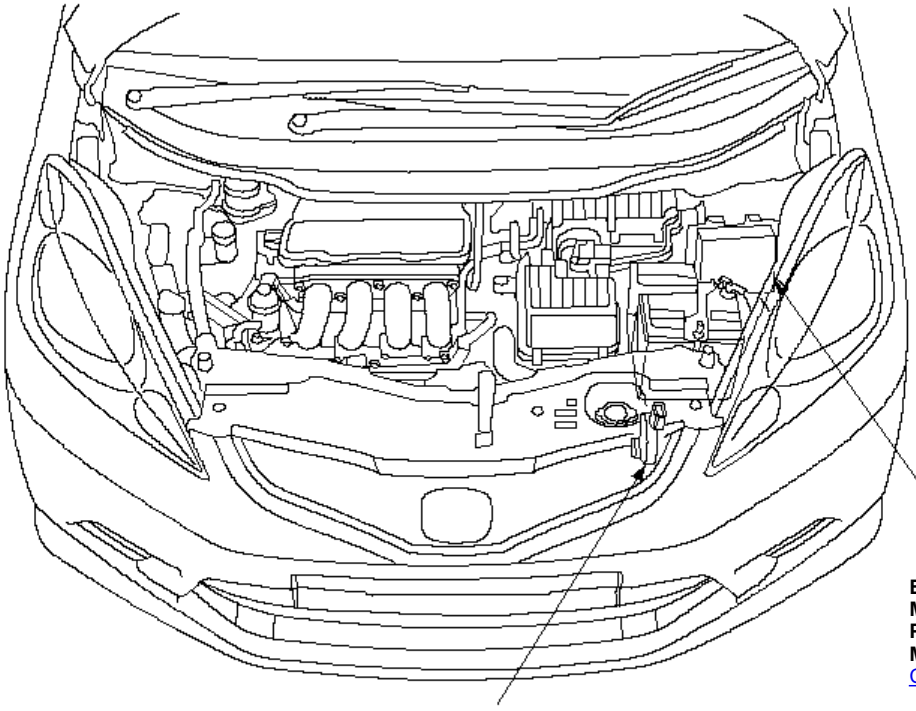
BATTERY
Test,

Drive Belt Removal/Installation

1. Remove the right side splash shield.

2. Move the tensioner (A) with a wrench (B) in the direction shown to relieve tension from the drive belt, then remove the drive belt.
3. Install the new belt in the reverse order of removal.

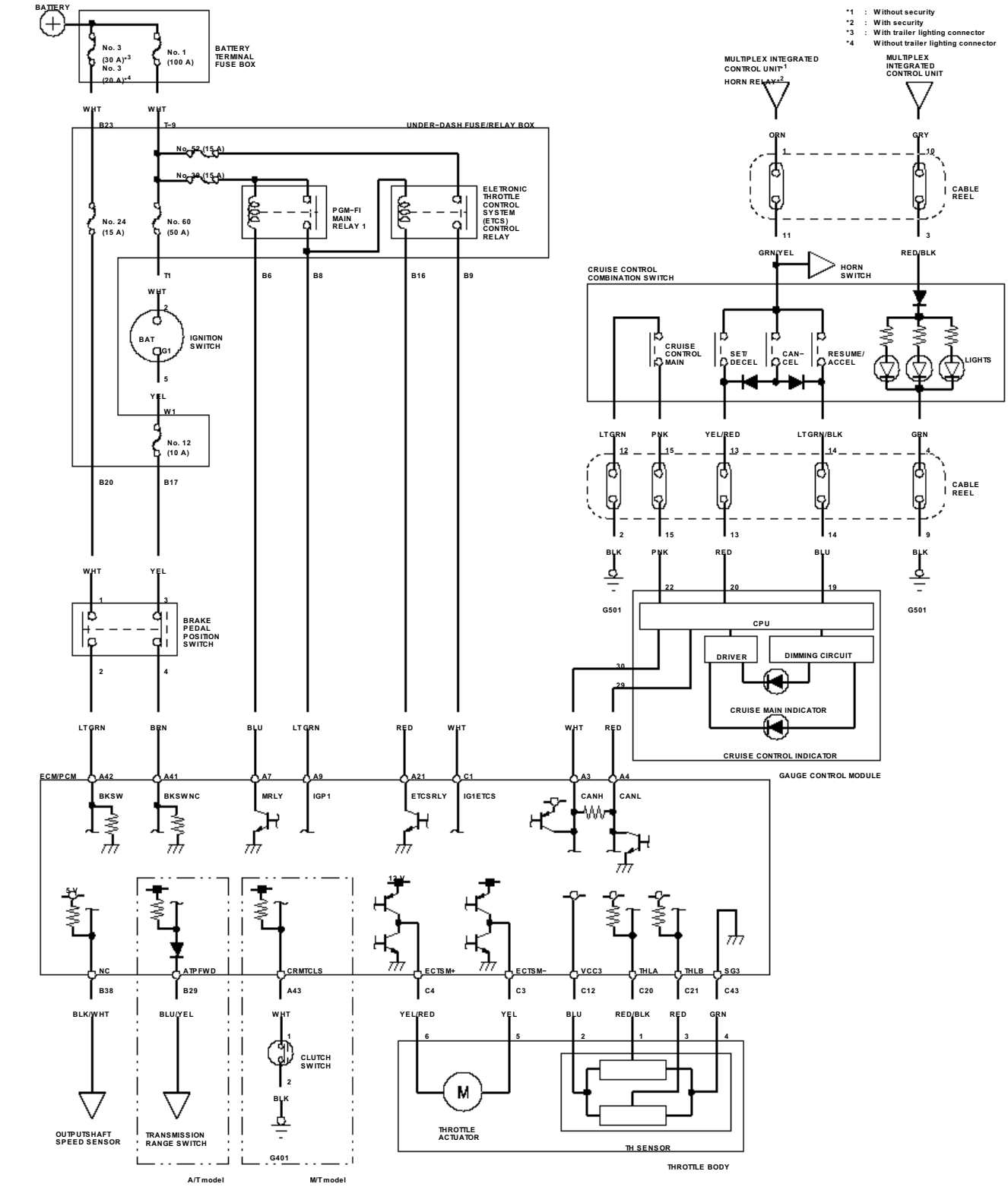
Cruise Control Component Location Index



ENGINE CONTROL MODULE (ECM)/ POWERTRAIN CONTROL MODULE (PCM)
Cruise Control Input Test.

TRANSMISSION RANGE SWITCH (A/T model)
Test.
Replacement.

Cruise Control Circuit Diagram



Cruise control cannot be set

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Check the No. 24 (10 A) fuse in the under-dash fuse/relay box.
3. Do the cruise control combination switch test.
4. Do the cruise control input test.

Also check for

- Poor ground G101 (A/T model) or G401 (M/T model)

Cruise control can be set, but the cruise main indicator does not come on

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Do the gauge control module self-diagnostic function procedure.
3. Do the cruise control input test. Test the cruise control main switch signal input.

Also check for

- Faulty gauge control module

Cruise control can be set, but the cruise control indicator does not come on

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Do the gauge control module self-diagnostic function procedure.
3. Do the cruise control input test. Test the cruise control indicator signal input.

Also check for

- Faulty gauge control module

Vehicle does not decelerate or accelerate accordingly when the set/decel or resume/accel switch is pressed

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Do the cruise control combination switch test.
3. Do the cruise control input test. Test the cruise control set/decel and resume/accel switch signal input.

Also check for

- Open circuit, loose or disconnected terminals: YEL/RED, RED or LT GRN/BLK, BLU wire

Set speed does not cancel when the brake pedal is pressed

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Do the brake pedal position switch test.
3. Do the cruise control input test. Test the brake pedal position switch signal input.

Also check for

- Short to power on the BRN wire
- Faulty brake pedal position switch

Set speed does not cancel when the cruise control main switch is pressed

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Do the cruise control combination switch test.
3. Do the cruise control input test. Test the cruise control main switch signal input.

Also check for

- Short to power on the PNK wire

Set speed does not cancel when the cancel switch is pressed

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Do the cruise control combination switch test.
3. Do the cruise control input test. Test the cruise control cancel switch signal input.

Also check for

- Open circuit, loose or disconnected terminals: YEL/RED, RED or LT GRN/BLK, BLU wire

Set speed will not resume when the resume/accel switch is pressed (with the cruise control main switch turned on, and set speed temporarily canceled by pressing the brake pedal)

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Check the brake pedal position switch adjustment.
3. Do the cruise control combination switch test.
4. Do the cruise control input test. Test the cruise control resume/accel switch signal input. Test the brake pedal position switch signal input.

Also check for

- Faulty brake pedal position switch
- Open circuit, loose or disconnected terminals: LT GRN/BLK, BLU wire

With the ignition switch in ON (II), and the lighting switch turned on, the cruise control combination switch illumination does not come on

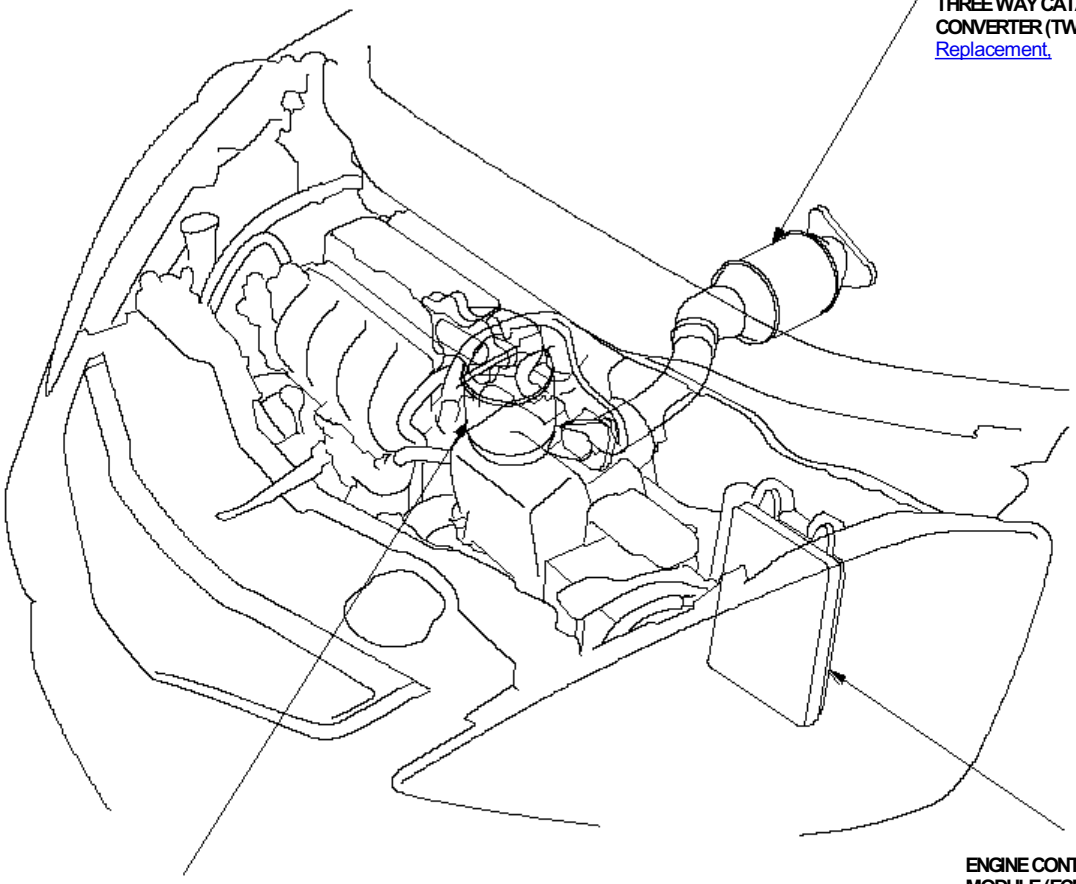
Diagnostic procedure

1. Do the cruise control combination switch test.

Cruise Control Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Cruise control cannot be set	1. Check for PGM-FI DTCs. 2. Check the No. 24 (10 A) fuse in the under-dash fuse/relay box. 3. Do the cruise control combination switch test. 4. Do the cruise control input test.	Poor ground G101 (A/T model) or G401 (M/T model)
Cruise control can be set, but the cruise main indicator does not come on	1. Check for PGM-FI DTCs. 2. Do the gauge control module self-diagnostic function procedure. 3. Do the cruise control input test. Test the cruise control main switch signal input.	Faulty gauge control module
Cruise control can be set, but the cruise control indicator does not come on	1. Check for PGM-FI DTCs. 2. Do the gauge control module self-diagnostic function procedure. 3. Do the cruise control input test. Test the cruise control indicator signal input.	Faulty gauge control module
Vehicle does not decelerate or accelerate accordingly when the set/decel or resume/accel switch is pressed	1. Check for PGM-FI DTCs. 2. Do the cruise control combination switch test. 3. Do the cruise control input test. Test the cruise control set/decel and resume/accel switch signal input.	Open circuit, loose or disconnected terminals: YEL/RED, RED or LT GRN/BLK, BLU wire
Set speed does not cancel when the brake pedal is pressed	1. Check for PGM-FI DTCs. 2. Do the brake pedal position switch test. 3. Do the cruise control input test. Test the brake pedal position switch signal input.	• Short to power on the BRN wire • Faulty brake pedal position switch
Set speed does not cancel (engine rpm stays high) when the clutch pedal is pressed	1. Check for PGM-FI DTCs. 2. Do the clutch pedal position switch test. 3. Do the cruise control input test. Test the clutch pedal position switch signal input.	• Short to ground on the WHT wire • Faulty clutch pedal position switch
Set speed does not cancel when the cruise control main switch is pressed	1. Check for PGM-FI DTCs. 2. Do the cruise control combination switch test. 3. Do the cruise control input test. Test the cruise control main switch signal input.	Short to power on the PNK wire
Set speed does not cancel when the cancel switch is pressed	1. Check for PGM-FI DTCs. 2. Do the cruise control combination switch test. 3. Do the cruise control input test. Test the cruise control cancel switch signal input.	Open circuit, loose or disconnected terminals: YEL/RED, RED or LT GRN/BLK, BLU wire
Set speed will not resume when the resume/accel switch is pressed (with the cruise control main switch turned on, and set speed temporarily canceled by pressing the brake pedal)	1. Check for PGM-FI DTCs. 2. Check the brake pedal position switch adjustment. 3. Do the cruise control combination switch test. 4. Do the cruise control input test. Test the cruise control resume/accel switch signal input. Test the brake pedal position switch signal input.	• Faulty brake pedal position switch • Open circuit, loose or disconnected terminals: LT GRN/BLK, BLU wire
Set speed will not resume when the resume/accel switch is pressed (with the cruise control main switch turned on, and set speed temporarily canceled by pressing the clutch pedal)	1. Check for PGM-FI DTCs. 2. Check the clutch pedal position switch adjustment. 3. Do the cruise control combination switch test. 4. Do the cruise control input test. Test the cruise control resume/accel switch signal input. Test the clutch pedal position switch signal input.	• Faulty clutch pedal position switch • Open circuit, loose or disconnected terminals: LT GRN/BLK, BLU wire
With the ignition switch in ON (II), and the lighting switch turned on, the cruise control combination switch illumination does not come on	Do the cruise control combination switch test.	

Catalytic Converter System Component Location Index



UNDER-FLOOR THREE WAY CATALYTIC CONVERTER (TWC)
Replacement,

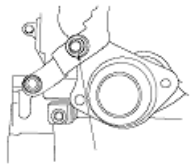
WARM UP THREE WAY CATALYTIC CONVERTER (WU-TWC)
Replacement,

ENGINE CONTROL MODULE (ECM)/ POWERTRAIN CONTROL MODULE (PCM)
General Troubleshooting Information,
Substituting,
Update,
Replacement,

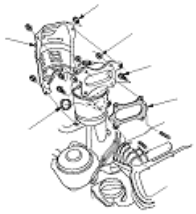
*: This illustration shows RHD model.

TWC (Warm Up) Removal/Installation

1. Lift the vehicle, and support it with jackstands.
2. Remove the bolt (A).
3. Remove the cowl cover and under cowl-cover panel.
4. Remove the A/F sensor (Sensor 1).

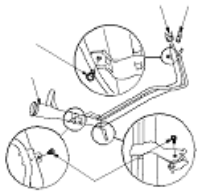


5. Remove the cover (A).
6. Remove the bolts (B) and the nuts (C).
7. Remove the WU-TWC from the gaskets (D).



8. Remove the WU-TWC (A).
9. Install the parts in the reverse order of removal with new gaskets.

Fuel Fill Pipe Removal/Installation

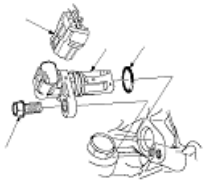


1. Drain the fuel tank.
2. Remove the fuel fill cap.
3. Remove the left rear wheel.
4. Remove the axle beam.
5. Disconnect the fuel fill tube (A) and the breather tube (B) from the fuel fill pipe. Slide back the clamp, then twist the hose as you pull to avoid damaging them.
6. Remove the fuel fill pipe (C).
7. Install the parts in the reverse order of removal.

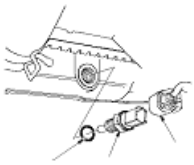
CKP Sensor Replacement

1. Lift the vehicle, and support it with jackstands.
2. Remove the CKP sensor cover (A).

3. Disconnect the CKP sensor connector (A).
4. Remove the CKP sensor (B).
5. Install the parts in the reverse order of removal with a new O-ring (C).
6. Do the CKP pattern clear/CKP pattern learn procedure.



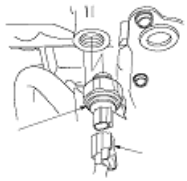
ECT Sensor 2 Replacement



1. Drain the engine coolant.
2. Lift the vehicle, and support it with jackstands.
3. Disconnect the ECT sensor 2 connector (A), then remove ECT sensor 2 (B).
4. Install the parts in the reverse order of removal with a new O-ring (C), then refill the radiator with engine coolant.

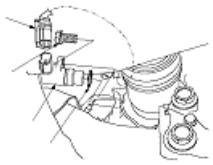
Knock Sensor Replacement

1. Remove the intake manifold.
2. Disconnect the knock sensor 1P connector (A).
3. Remove the knock sensor (B).
4. Install the parts in the reverse order of removal.



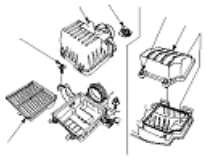
Output Shaft (Countershaft) Speed Sensor Replacement

1. Lift the vehicle, and support it with jackstands.
2. Disconnect the output shaft (countershaft) speed sensor 3P connector (A).
3. Remove the output shaft (countershaft) speed sensor (B).
4. Install the parts in the reverse order of removal with a new O-ring (C).



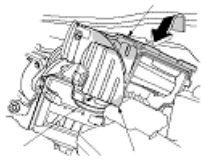
Air Cleaner Removal/Installation

1. Disconnect the MAF sensor/IAT sensor connector(A), then remove the air cleaner cover (B), and the air cleaner element (C).
   NOTE: Be careful not to damage the MAF sensor/IAT sensor on the air cleaner cover.
2. Remove the air cleaner chamber (D).

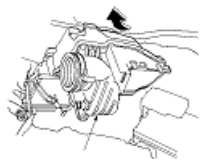


3. Wrap the air cleaner, the cowl cover, and the battery terminal fuse box with the tapes (A) as shown.
4. Remove the battery setting plate, and reposition the battery (B). Reposition the radiator upper hose (C), and the breather pipe (D) as shown.
   NOTE: Do not disconnect the battery terminals.

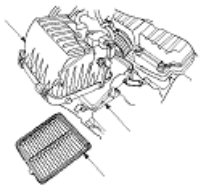
5. Wrap the air cleaner with the tapes (A) as shown.
6. Turn the air cleaner (B) case as shown.



7. Remove the air cleaner case (A) as shown.
8. Install the parts in the reverse order of removal.



Air Cleaner Element Inspection/Replacement



1. Open the air cleaner housing cover (A).
2. Remove the air cleaner element (B) from the air cleaner housing (C).
3. Check the air cleaner element for damage, dirt, or clogging. If it is damage or clogged, replace it.
   NOTE: Do not use compressed air to clean it the air cleaner element.
4. Clean and remove any debris from inside the air cleaner housing.
5. Install the parts in the reverse order of removal.
   - If you did not replace the air cleaner element, this procedure is complete.
   - If you replace the air cleaner element, reset the ECM/PCM with the HDS and do the ECM/PCM idle learn procedure.

Excessive engine oil consumption

Diagnostic procedure

1. Verify that the engine oil filler cap, oil drain bolt, and oil filter are tight.
2. Check for oil leaks.
3. Check for worn valve guide(s) or worn valve stem seal(s).
4. Check for damaged or worn piston ring(s).
5. Check for damaged or worn engine internal parts (cylinder wall, pistons, etc.).

Low oil pressure indicator does not come on with the ignition switch ON (II)

Diagnostic procedure

1. Do the low oil pressure indicator circuit troubleshooting (Open).
2. Test the oil pressure switch.

Also check for

- An open in the wire between the engine control module (ECM)/powertrain control module (PCM) and the oil pressure switch

Low oil pressure indicator stays on

Diagnostic procedure

1. Check the engine oil level.
2. Do the low oil pressure indicator circuit troubleshooting (Short).
3. Test the oil pressure switch.
4. Check the engine oil pressure.
5. Check the oil filter for clogging.
6. Check the oil screen for clogging.
7. Check the relief valve.
8. Inspect the oil pump.

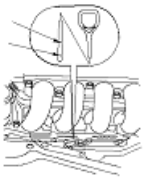
Also check for

- A wire shorted to ground between the engine control module (ECM)/powertrain control module (PCM) and the oil pressure switch

Engine Lubrication Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Excessive engine oil consumption	1. Verify that the engine oil filler cap, oil drain bolt, and oil filter are tight. 2. Check for oil leaks. 3. Check for worn valve guide(s) or worn valve stem seal(s). 4. Check for damaged or worn piston ring(s). 5. Check for damaged or worn engine internal parts (cylinder wall, pistons, etc.).	
Low oil pressure indicator does not come on with the ignition switch ON (II)	1. Do the low oil pressure indicator circuit troubleshooting (Open). 2. Test the oil pressure switch.	An open in the wire between the engine control module (ECM)/powertrain control module (PCM) and the oil pressure switch
Low oil pressure indicator stays on	1. Check the engine oil level. 2. Do the low oil pressure indicator circuit troubleshooting (Short). 3. Test the oil pressure switch. 4. Check the engine oil pressure. 5. Check the oil filter for clogging. 6. Check the oil screen for clogging. 7. Check the relief valve. 8. Inspect the oil pump.	A wire shorted to ground between the engine control module (ECM)/powertrain control module (PCM) and the oil pressure switch

Engine Oil Level Check



1. Park the vehicle on level ground, and start the engine. Hold the engine at 3,000 rpm (min^{-1}) with no load (in Neutral) until the radiator fan comes on, then turn off the engine, and wait approximately 3 minutes.
2. Remove the dipstick, and wipe off the dipstick, then reinstall the dipstick.
3. Remove the dipstick, and check the engine oil level. It should be between the upper mark (A) and lower mark (B).
4. If the engine oil level is near or below the lower mark, add engine oil to bring it between the upper and lower marks.

Engine does not start (does not crank)

Diagnostic procedure

1. Check for loose battery terminals or connections.
2. Test the battery for a low state of charge.
3. Check the starter.
4. Check the starter cut relay (A/T model).
5. Check the transmission range switch (A/T model).
6. Check the ignition switch or related circuits.

Also check for

- Poor ground at G101 (A/T model)

Engine cranks, but does not start

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Check the fuel pressure.
3. Check for a plugged or damaged fuel line.
4. Check for a plugged fuel filter.
5. Check the throttle body.
6. Check for low engine compression.
7. Check for a damaged or broken cam chain.
8. Do the engine control module (ECM)/powertrain control module (PCM) reset function with the Honda Diagnostic System (HDS) to cancel the ALL INJECTORS STOP function.

Engine is hard to start

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Check the fuel pressure.
3. Check for a plugged or damaged fuel line.
4. Check for a plugged fuel filter.

Engine cranks slowly

Diagnostic procedure

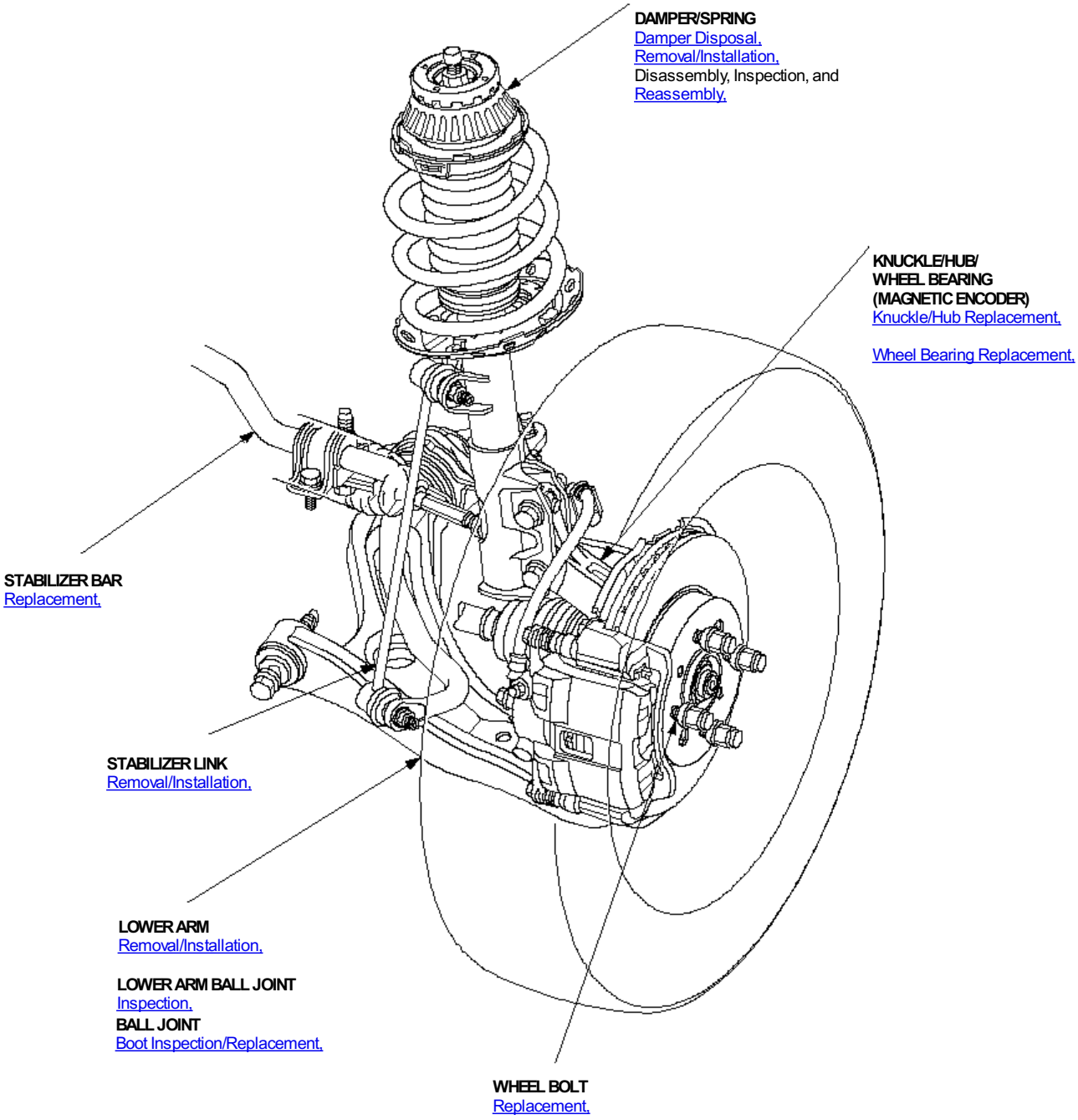
1. Check for loose battery terminals or connections.
2. Test the battery for a low state of charge.
3. Check the starter for binding.
4. Check for excessive drag in the engine.

Starting System Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Engine does not start (does not crank)	1. Check for loose battery terminals or connections. 2. Test the battery for a low state of charge. 3. Check the starter. 4. Check the starter cut relay (A/T model). 5. Check the transmission range switch (A/T model). 6. Check the ignition switch or related circuits.	Poor ground at G101 (A/T model)
Engine cranks, but does not start	1. Check for PGM-FI DTCs. 2. Check the fuel pressure. 3. Check for a plugged or damaged fuel line. 4. Check for a plugged fuel filter. 5. Check the throttle body. 6. Check for low engine compression. 7. Check for a damaged or broken cam chain. 8. Do the engine control module (ECM)/powertrain control module (PCM) reset function with the Honda Diagnostic System (HDS) to cancel the ALL INJECTORS STOP function.	
Engine is hard to start	1. Check for PGM-FI DTCs. 2. Check the fuel pressure. 3. Check for a plugged or damaged fuel line. 4. Check for a plugged fuel filter.	
Engine cranks slowly	1. Check for loose battery terminals or connections. 2. Test the battery for a low state of charge. 3. Check the starter for binding. 4. Check for excessive drag in the engine.	

Front Suspension Component Location Index

Front Suspension



Front Lower Arm Removal/Installation

Special Tools Required

Ball joint remover, 28 mm
07MAC-SL00201

NOTICE

Do not remove the lower arm of both sides at the same time.

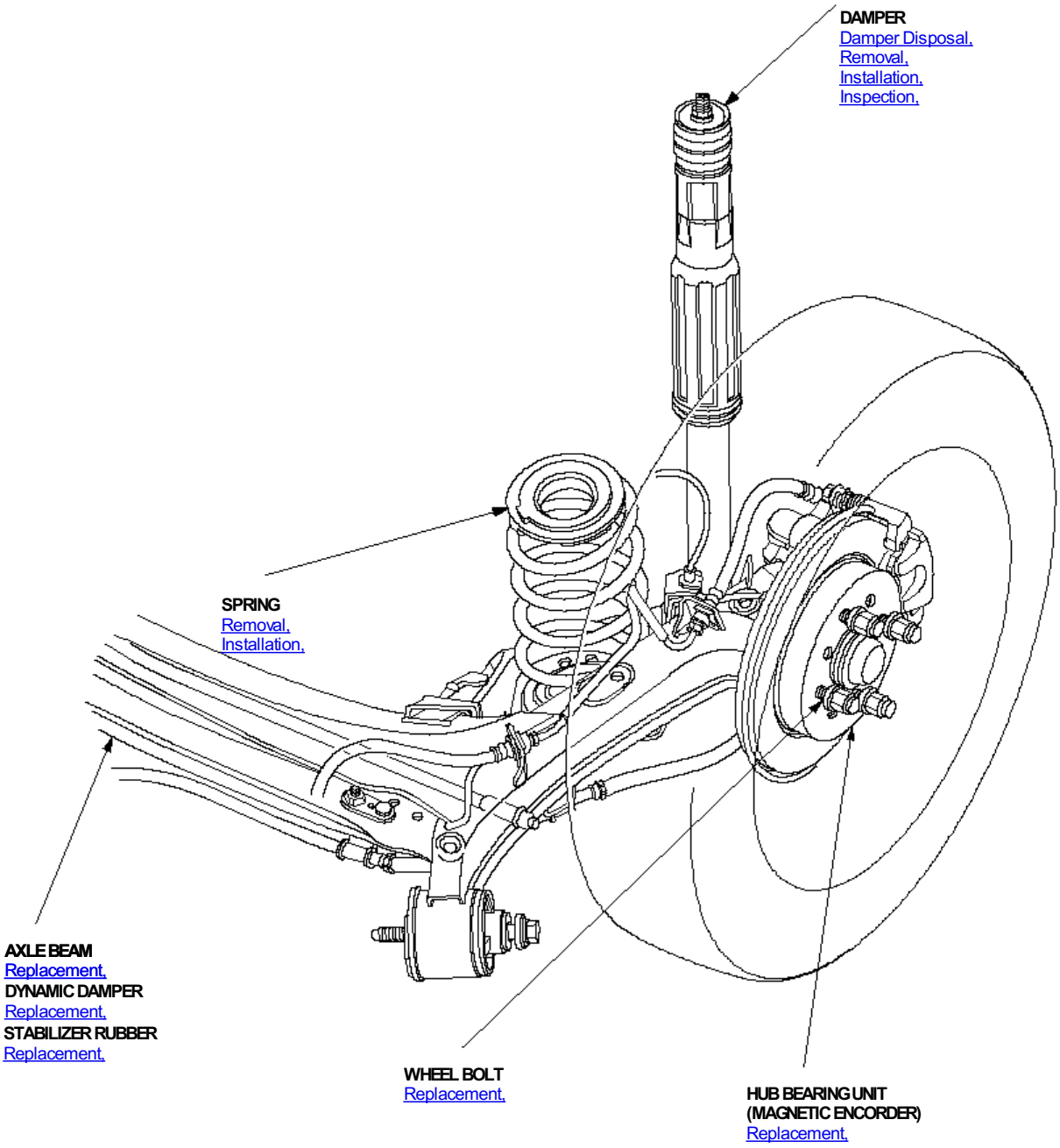
1. Raise the front of the vehicle, and support it with safety stands in the proper locations.
2. Remove the front wheel.
3. Remove the lock pin (A) from the lower arm ball joint, then remove the castle nut (B).
   NOTE: During installation, install the lock pin as shown after tightening the new castle nut.
4. Disconnect the lower ball joint from the knuckle using the ball joint remover.
   NOTE:
   - Be careful not to damage the ball joint boot when installing the remover.
   - Do not force or hammer on the lower arm, or pry between the lower arm and the knuckle. You could damage the ball joint.

---

5. Remove the lower arm mounting bolts, then remove the lower arm (A) from the front subframe.
   NOTE: Use new lower arm mounting bolts during reassembly.
6. Install the lower arm in the reverse order of removal, and note these items:
   - First install all the components, and lightly tighten the bolts and the nuts, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torque values. Do not place the jack against the ball joint of the lower arm.
   - Be careful not to damage the ball joint boot when connecting the lower arm to the knuckle.
   - Before connecting the ball joint, degrease the threaded section and the tapered portion of the ball joint pin, the ball joint connecting hole, and the threaded section and the mating surfaces of the castle nut.
   - Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole. Do not align the castle nut by loosening it.
   - Before installing the wheel, clean the mating surfaces on the brake disc and the inside of the wheel.
7. Check the wheel alignment, and adjust it if necessary.

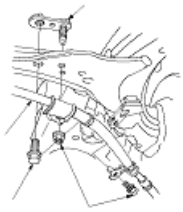
Rear Suspension Component Location Index - Disc Brake type

Rear Suspension

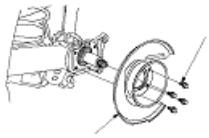


Rear Axle Beam Replacement - Disc Brake type

1. Raise the vehicle, and support it with safety stands in the proper locations.
2. Remove the rear wheels.
3. Remove the rear spring seat lower cover.
4. Remove the rear hub bearing unit.
5. Remove the parking brake cable bracket (left side) (A), the brake line bracket (right side), and the parking brake cable (B) from the axle beam.

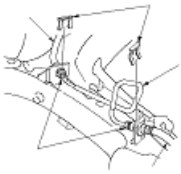


6. Remove the splash guard (A).

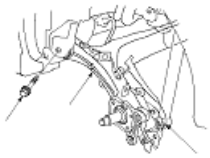


7. Remove the wheel speed sensor (A) and the wheel speed sensor stay (B) from the axle beam (C). Do not disconnect the wheel speed sensor connector.
8. Remove the rear spring.

9. Disconnect the brake hose (A) from both sides of the brake line (B), then remove the brake line by removing the brake hose clip (C).
   NOTE:
   - Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
   - Plug the end of a hose and joints to prevent spilling brake fluid.
   - Use the new brake hose clip during reassembly.



10. Place a floor jack under the lower spring seat (A) on both sides of the axle beam (B), and support it by raising the floor jack. Do not place the floor jack under the center of the axle beam.
11. Remove the axle beam mounting bolts (C) on both sides.
    NOTE: Use new axle beam mounting bolts during reassembly.
12. Lower the jack slowly, then remove the axle beam.
13. Install the axle beam in the reverse order of removal, and note these items:
    - First install all the components, and lightly tighten bolts and the nuts, and place a jack under the lower spring seat of the axle beam on both sides, then raise the suspension to load with the vehicle's weight before fully tightening to the specified torque values.
    - Connect the brake pipe from the vehicle front side first.
    - After installing the brake hose, the brake line, and the parking brake cable, check interference and twisting to other parts.
    - Before installing the brake disc, clean the mating surfaces of the hub bearing unit and the inside of the brake disc.
    - After installing, fill the reservoir with new brake fluid, and bleed the brake system.
    - Check the brake hose and line joint for leaks, and tighten if necessary.
    - Before installing the wheel, clean the mating surfaces of the brake disc and the inside of the wheel.
14. Check the wheel alignment, and adjust it if necessary.

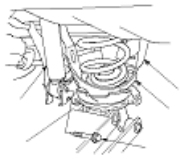


Rear Damper Replacement

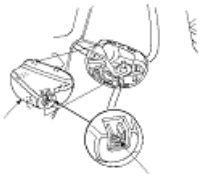
Exploded View

Removal

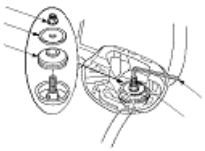
1. Raise the rear of the vehicle, and support it with safety stands in the proper locations.
2. Remove the rear wheels.
3. Remove the wheel speed sensor stay (A) from both sides of the axle beam.



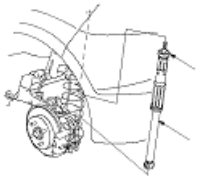
4. Position a floor jack under lower spring seat (A) on both sides of the axle beam (B). Raise the floor jack until the suspension begins to compress.
5. Remove the damper mounting bolt (C) that connects the axle beam and the damper (D) from both sides.



6. Remove the lid (A) from the trunk side trim.
   NOTE: Remove the screw (B) if the lid fixed by it.

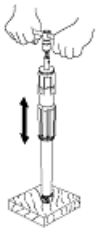


7. Remove the self-locking nut (A) while holding the damper shaft (B) with a hex wrench (C).
8. Remove the damper mounting washer (D) and the damper mounting rubber (E) from the top of the damper.



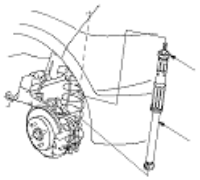
9. Compress the damper unit (A) by hand, and remove it from the vehicle.
   NOTE: Be careful not to damage the body.
10. Remove the damper mounting rubber (B).

Inspection

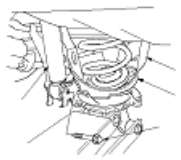


1. Install the flange nut on the damper shaft end, and set the socket wrench and T-handle on the nut.
2. Compress the damper assembly by hand, and check for smooth operation through a full stroke, both compression and extension. The damper should extend smoothly and constantly when compression is released. If it does not, the gas is leaking and the damper should be replaced.
3. Check for oil leaks, abnormal noises, and binding during these tests.

Installation



1. Install the damper mounting rubber (A) onto the damper unit. Position the damper assembly (B) between the body and the axle beam.
   NOTE: Be careful not to damage the body.

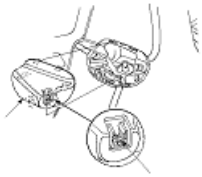


2. Position the floor jack under lower spring seat (A) on both sides of the axle beam (B).
3. Slowly raise the jack until you can align the bolt hole with the holes in the axle beam and the damper (C), and loosely tighten the new damper mounting bolt (D) on both sides.
4. Raise the rear suspension with the jack until the vehicle just lifts off of the safety stands, then tighten the damper mounting bolts to the specified torque value.

5. Install the damper mounting rubber (A), the damper mounting washer (B), and the self-locking nut (C) on the damper shaft (D).
   NOTE: During installation, note the direction of the damper mounting rubber and the damper mounting washer.

6. Tighten the self-locking nut (A) to the specified torque value while holding the damper shaft (B) with a hex wrench (C).

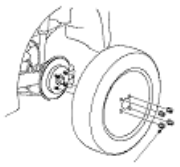
7. Install the lid (A) on the trunk side trim.
   NOTE: Install the screw (B) if the lid fixed by it.



8. Install the wheel speed sensor stay (A) on both sides of the axle beam.
9. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the rear wheels.
10. Check the wheel alignment, and adjust if necessary.

Rear Hub Bearing Unit Replacement - Disc Brake type

Exploded View



Replacement

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations.
2. Remove the wheel nuts (A) and the rear wheel.
3. Release the parking brake lever fully.
4. Remove the caliper body and the brake pads from the caliper bracket.
   NOTE: To prevent damage to the caliper body or the brake hose, use a short piece of wire to hang the caliper body from the undercarriage. Do not twist the brake hose excessively.

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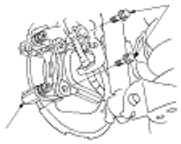
5. Remove the caliper bracket (A) from the axel beam.



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6. Remove the hub cap (A). Raise the stake (B), then remove the spindle nut (C).
7. Remove the rear brake disc.

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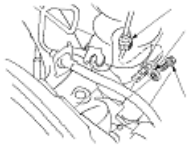
8. Remove the hub bearing unit (A) from the spindle.
9. Check the hub bearing unit for damage and cracks.
10. Install the hub bearing unit in the reverse order of removal, and note these items:
    - Use new a spindle nut and hub cap during reassembly.
    - Before installing the spindle nut, apply a small amount of engine oil to the seating surface of the nut. After tightening, use a drift to stake the spindle nut shoulder against the spindle.
    - Before installing the brake disc, clean the mating surfaces of the hub bearing unit and the inside of the brake disc.
    - Before installing the wheel, clean the mating surfaces of the brake disc and the inside of the wheel.
11. Check the wheel alignment, and adjust it if necessary.

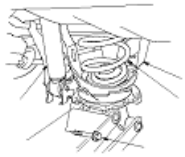
Rear Spring Replacement

Exploded View

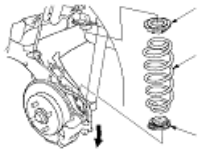


Removal

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations.
2. Remove the rear wheels.
3. Remove the wheel speed sensor (A) and the wheel speed sensor stay (B) from both sides of the axle beam. Do not disconnect the wheel speed sensor connector.



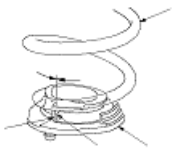
4. Position a floor jack under spring seat (A) on both sides of the axle beam (B). Raise the floor jack until the suspension begins to compress.
5. Remove the damper mounting bolt (C) that connects the axle beam and the damper (D) from both sides.
6. Lower the floor jack gradually.



7. Remove the spring (A), the upper mounting rubber (B), and the lower mounting rubber (C). Do not lower the jack more than necessary.

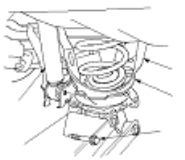
Installation

1. Install the upper mounting rubber (A) on the spring (B) by aligning the upper end (C) of the spring with the ledge portion (D) of the upper mounting rubber.



2. Install the lower mounting rubber (A) on the spring (B) by aligning the upper end (C) of the spring with the ledge portion (D) of the lower mounting rubber.

3. Install the tab (A) of the lower mounting rubber into the groove (B) of the lower spring seat.
   NOTE:
   - Make sure that the tab of the lower mounting rubber is properly installed into the axle beam (C).
   - Make sure that the spring was installed correctly.

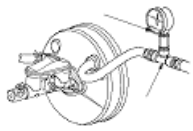


4. Position the floor jack under the lower spring seat (A) on both sides of the axle beam (B).
5. Slowly raise the jack until you can align the bolt hole with the holes in the axle beam and the damper (C), and loosely tighten the new damper mounting bolt (D) on both sides.
6. Raise the rear suspension with the jack until the vehicle just lifts off of the safety stands, then tighten the damper mounting bolts to the specified torque value.

7. Install the wheel speed sensor (A) and the wheel speed sensor stay (B) on both sides of the axle beam.
8. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the rear wheels.
9. Check the wheel alignment, and adjust it if necessary.

Brake Booster Inspection

Special Tools Required



Pressure gauges set
07YAJ-0010410

Vacuum gauge
07YAJ-0010610

Attachments
07410-5790102

Tube joint adapter
07410-5790503

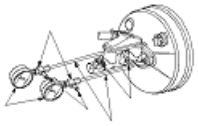
Pressure gauge joint pipes, 10 x 1.0 mm
07510-6340101

Leak Test

1. Install the vacuum gauge (A) between the brake booster and check valve.
2. Start the engine, adjust the engine speed with the accelerator pedal so that the vacuum gauge readings show 66.7 kPa (500 mmHg, 19.7 in.Hg), then stop the engine.
3. Read the vacuum gauge.
   If the vacuum reading decreases 2.7 kPa (20 mmHg, 0.8 in.Hg) or more after 30 seconds, check following parts for leaks.
   - Check valve
   - Vacuum hose, pipe
   - Seals
   - Brake booster
   - Master cylinder

   NOTE: Do not try to disassemble the brake booster. Replace the brake booster as an assembly with a new one.

Function Test



1. Install the vacuum gauge as same as the leak test.
2. Connect the oil pressure gauges (A) to the master cylinder using the attachments pressure gauge joint pipes as shown.
3. Bleed air through the valves (B).
4. Start the engine, and let it idle.

5. Have an assistant depress the brake pedal with a 98 N (10 kgf, 22 lbf) and 196 N (20 kgf, 44 lbf) of pressure measuring with a commercially available pressure gauge (A).
6. The following pressures should be observed at the pressure gauges in each vacuum.

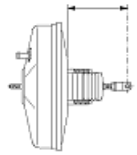
Vacuum booster Vacuum kPa (mmHg, in.Hg)	Brake pedal pressure N (kgf, lbf)	Master cylinder oil pressure kPa (kgf/cm ^{2}, psi)	
0 (0, 0)	98 (10, 22)	0 (0, 0)	
	196 (20, 44)	Except LHD model of M/T	577 (5.9, 84)
		LHD model of M/T	501 (5.1, 73)
66.7 (500, 19.7)	98 (10, 22)	Except LHD model of M/T	4,523 (46.1, 656)
		LHD model of M/T	4,235 (43.2, 614)
	196 (20, 44)	Except LHD model of M/T	9,538 (97.3, 1,383)
		LHD model of M/T	9,468 (96.5, 1,373)

7. Inspect the master cylinder for leaks if the readings do not fall within the limits shown above.

Booster Check Valve Test

1. Disconnect the brake booster vacuum hose (A) at the booster.
   NOTE: If the check valve (B) is faulty, replace the brake booster vacuum hose/check valve as an assembly.
2. Start the engine, and let it idle. There should be vacuum available. If no vacuum is available, the check valve is not working properly. Replace the brake booster vacuum hose and check valve, and retest.

Brake Booster Pushrod Thickness (Reference)



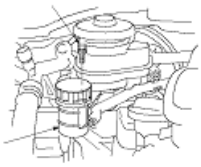
Brake Master Cylinder Replacement

NOTICE

- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
- Be careful not to damage or deform the brake lines during removal and installation.
- Plug the end of a hose and joints to prevent spilling brake fluid.

RHD Model

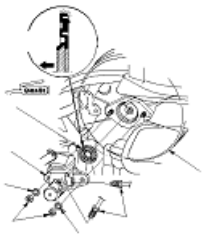
1. Remove the dashboard lid (A).



2. M/T: Remove the clutch reservoir tank (A), and move it aside. Do not disconnect the clutch line from the reservoir tank.
3. Remove the reservoir cap and the brake fluid from the reservoir tank with a syringe.

4. Disconnect the brake fluid level switch connector (A).
5. Remove the reservoir tank (B) and the clip (C) from the bracket (D).

6. Remove the bracket mount bolt (A) and the clip (B).

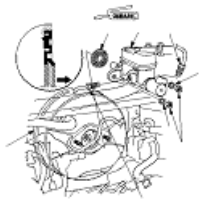


7. Disconnect the brake lines (A) from the master cylinder (B). To prevent spills, cover the hose joints with rags or shop towels.
8. Remove the master cylinder mounting nuts (C) and the washers (D).
9. Remove the master cylinder from the brake booster (E). Be careful not to bend or damage the bake lines when removing the master cylinder.
10. Remove the rod seal (F) from the master cylinder.
    NOTE: During installation, set the new rod seal onto the master cylinder with its grooved side (G) toward the master cylinder.
11. Install the master cylinder in the reverse order of removal, and note these items:
    - Coat the inner bore lip and the outer circumference of the new rod seal with the silicone grease in the master cylinder set.
    - When you apply the silicone grease, make sure not to adhere to the terminal part of connectors and surrounding switches. Also do not touch the switches and the terminal part of connector by hands or glove that adheres the silicone grease.
    - Check the brake pedal height and free play after installing the master cylinder, and adjust it if necessary.
12. Bleed the brake system.
13. Spin the wheels to check for brake drag.

LHD Model

1. Remove the air cleaner cover, and the air cleaner case.
2. Remove the dashboard lid (A).
3. Remove the reservoir cap, and the brake fluid from the reservoir tank with a syringe.

4. Disconnect the brake fluid level switch connector (A).
5. Remove the reservoir tank mounting bolt (B) from the bracket (C).



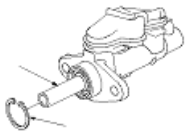
6. Disconnect the brake lines (A) from the master cylinder (B). To prevent spills, cover the hose joints with rags or shop towels.
7. Remove the master cylinder mounting nuts (C) and washers (D).
8. Remove the master cylinder from the brake booster (E). Be careful not to bend or damage the bake lines when removing the master cylinder.
9. Remove the rod seal (F) from the master cylinder.
   NOTE: During installation, set the new rod seal onto the master cylinder with its grooved side (G) toward the master cylinder.
10. Install the master cylinder in the reverse order of removal, and note these items:
    - Coat the inner bore lip and the outer circumference of the new rod seal with the silicone grease in the master cylinder set.
    - When you apply the silicone grease, make sure not to adhere to the terminal part of connectors and surrounding switches. Also do not touch the switches and the terminal part of connector by hands or glove that adheres the silicone grease.
    - Check the brake pedal height and free play after installing the master cylinder, and adjust it if necessary.
11. Bleed the brake system.
12. Spin the wheels to check for brake drag.

Brake Master Cylinder Disassembly

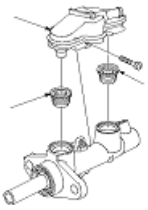
NOTE: The illustrations show RHD model.

1. Remove the rod seal from the master cylinder.
2. Disconnect the reservoir tank hose (A).

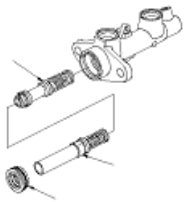
3. Remove the circlip (A) while pushing in the secondary piston (B).



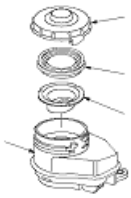
4. Remove the subreservoir (A) and the grommets (B) from the master cylinder.
   NOTE: When subreservoir and master cylinder body are separated, replace the grommets with new ones.



5. Remove the secondary piston (A), primary piston (B) and piston guide (C).

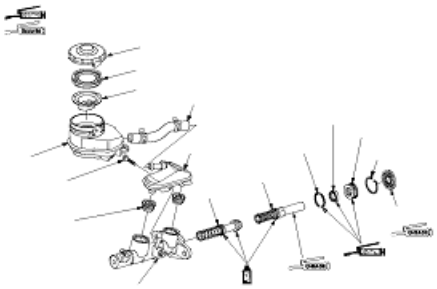


6. Remove the reservoir seal (A) from the reservoir cap (B).
7. Remove the strainer (C) from the reservoir tank (D).



Brake Master Cylinder Reassembly

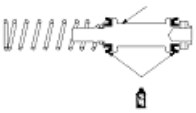
NOTE:



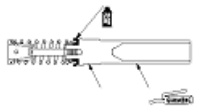
- Clean all parts in brake fluid and air dry; blow out all passages with compressed air.
- Before reassembling, check that all the parts are free of dirt and other foreign particles.
- Replace parts with new ones whenever specified to do so.
- Use only genuine DOT 3 or DOT 4 Honda Brake Fluid. Non-Honda brake fluid can cause corrosion and shorten the life of the system.
- Replace the master cylinder if the bore is damaged or worn. Do not hone or attempt to refinish the bore.
- Coat the piston cups, pressure cup and master cylinder bore with clean brake fluid.
- Use recommended greases in the master cylinder seal set.
- When you apply the silicone grease, make sure not to adhere to the terminal part of connectors and surrounding switches. Also do not touch the switches and the terminal part of connector by hands or glove that adheres the silicone grease.
- The illustrations show RHD model.

1. Install the reservoir seal in the groove of the reservoir cap.
2. Install the strainer, assembled reservoir cap on the reservoir tank.

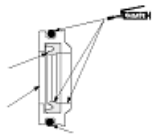
3. Coat the cups (A) of a new primary piston (B) with clean brake fluid, then install the primary piston into the master cylinder.



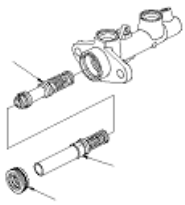
4. Coat the cup (A) of a new secondary piston (B) with clean brake fluid, and apply the silicone grease to the piston surface (C).



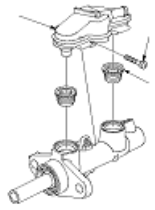
5. Apply the rubber grease to the piston guide (A), a new O-ring (B) and a new secondary cup (C).



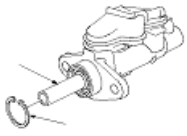
6. Install the primary piston (A), secondary piston (B) and piston guide (C) into the master cylinder. Make sure the direction of piston guide.



7. Install the new grommets (A) and subreservoir (B) to the master cylinder.



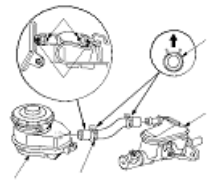
8. Install the new circlip (A) while pushing in the secondary piston (B). Be careful not to scratched damage on the piston surface with the circlip edges.



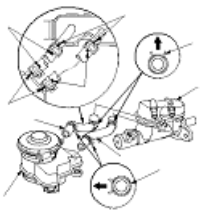
9. Install the reservoir tank (A) and the reservoir tank hose (B) to the subreservoir (C).
   NOTE:
   - Align the "△" mark (D) on the reservoir and subreservoir with the paint mark (E) on the hose.
   - Position the direction of the clamp (F).

10. Apply the silicone grease to a new rod seal, and install the seal onto the master cylinder.

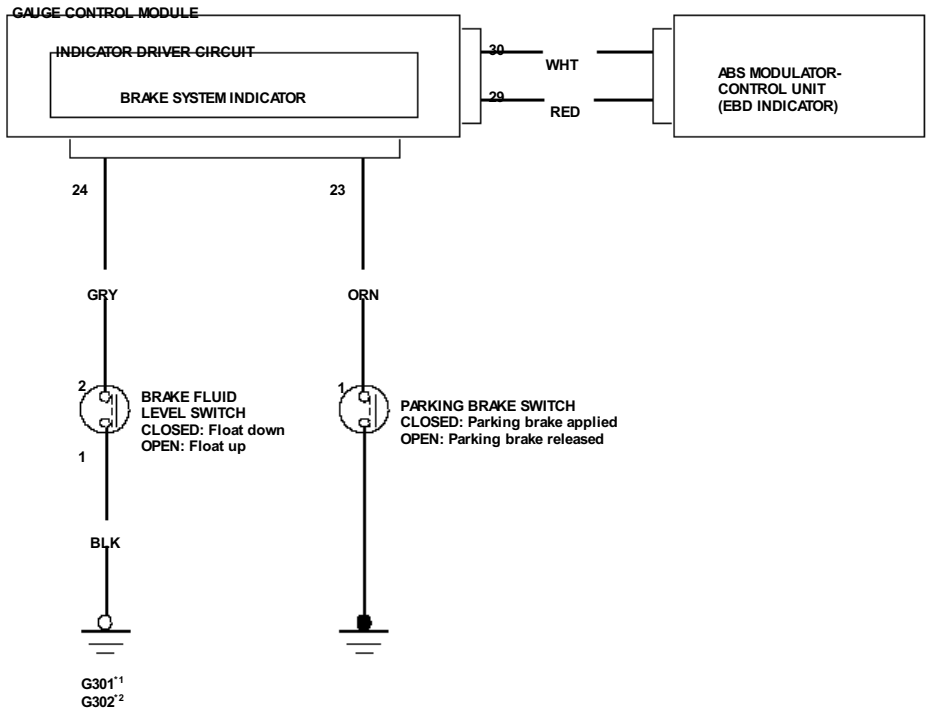
RHD model



LHD model



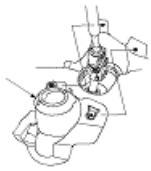
Brake System Indicator Circuit Diagram



*1: RHD model
*2: LHD model

Steering Gearbox Removal and Installation

Special Tools Required



Ball joint remover, 28 mm
07MAC-SL00201

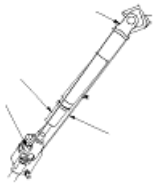
Engine support hanger
AAR-T1256-J00*
*: This special tool is available from Snap-on Tools International, LLC.
Note these items during removal:

- Use solvent and a brush, wash any oil and dirt off the end of the steering gearbox. Avoid any electrical parts. Blow dry with compressed air.
- Be sure to remove the steering wheel before disconnecting the steering joint. Damage to the cable reel can occur.
- Lower the front subframe from the body and remove the steering gearbox through the gap produced by lowering the front subframe.
- The illustrations show RHD model, LHD model is similar for items not shown in this section.

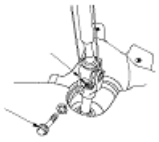
Removal

1. Do the battery terminal disconnection procedure.
2. Raise the vehicle on a lift, and support it with safety stands in the proper locations.
3. Remove the front wheels.
4. Release the lock lever, and adjust the steering column to the full tilt up position, and to the full telescopic in position.
5. Tighten the lock lever.
6. Remove the driver's airbag and the steering wheel.
7. Remove the steering joint cover (A).

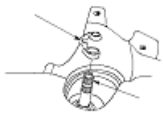
8. Hold the lower slide shaft (A) on the column with a piece of wire (B) between the joint yoke (C) of the lower slide shaft and joint yoke (D) of the upper shaft to prevent the lower slide from pulling out.
9. Release the lock lever, and adjust the steering column to the full telescopic out position, then tighten the lock lever.



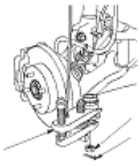
10. Remove the steering joint bolt (A).
11. Disconnect the steering joint (B) by moving the steering joint toward the column.



12. Remove the center guide (A) (if equipped) from top of the pinion shaft (B), and discard it. The center guide is for factory assembly use only.



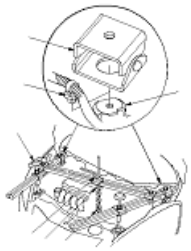
13. Remove the cotter pin (A) from the tie-rod ball joint, then remove the nut (B).
14. Separate the tie-rod ball joint and knuckle using the ball joint remover.



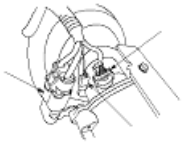
15. Remove the clip (A) from the castle nut (B), and remove the nut.
16. Separate the lower arm ball joint and the knuckle using the ball joint remover.
17. Remove the stabilizer link from the stabilizer bar.
18. Remove the air cleaner.

19. Install the hanger adapter (A) to the threaded hole (B) in the cylinder head using the 8 mm bolt.

20. On the left side, remove the harness clip (A) from the harness clamp bracket (B).
21. Place the cross arm foot (C) to the harness clamp bracket on both side.
22. Install the engine support hanger (AAR-T1256-J00) to the vehicle, and attach the hook (D) to the hanger adapter (E). Tighten the wing nut (F) by hand, and lift and support the engine.

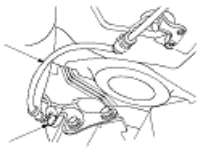


23. RHD model: Disconnect the motor 2P connector (A), torque sensor 3P connector (B), and steering gearbox 1P connector (C) from the torque sensor.



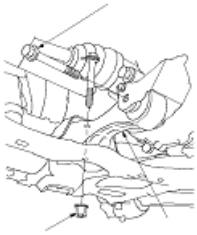
24. LHD model: Disconnect the motor 2P connector (A), and torque sensor 4P connector (B) from the torque sensor.
25. Wrap the connectors with the vinyl tape to avoid the contamination from grease or water.

26. RHD model: Remove the secondary HO2S wire (A) from the clamp (B) on steering gearbox. Do not disconnect secondary HO2S 4P connector and secondary HO2S.

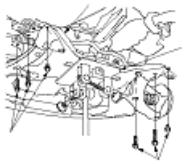


27. LHD model: Remove the secondary HO2S wire clamp (A) on steering gearbox. Do not disconnect secondary HO2S 4P connector and secondary HO2S.
28. Raise the vehicle on a lift.
29. Remove the splash shield.

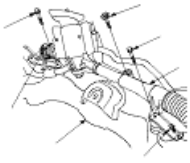
30. Remove the lower torque rod (A).



31. Attach a jack (A) to the center of the front subframe (B) and support the front subframe securely by raising the jack.
32. Remove the front subframe mounting bolts (C).
33. Lower the front subframe and steering gearbox as an assembly by lowering the jack slowly.

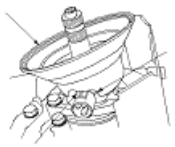


34. Remove the steering gearbox (A) from the front subframe (B).



35. Remove the pinion shaft grommet (A) from the top of the torque sensor.

Installation



1. Before installing the steering gearbox, make sure that no grease is on the mating surface of the steering gearbox and the front subframe. To prevent the gearbox mounting bolts from loosening after the installation, remove any grease from the bolt holes.
2. Install the pinion shaft grommet (A). Align the cutout portion (B) in the pinion shaft grommet with the lug portion (C) on the torque sensor 3P connector. The grommet must not have a gap at the mating surface of the grommet and torque sensor.

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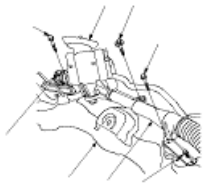
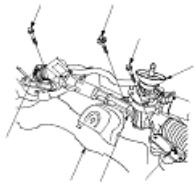
3. Place the steering gearbox (A) on the front subframe (B).
4. Loosely install the stiffener plates, and new gearbox mounting bolts, then tighten the bolts to the specified torque in the sequence shown.
5. Turn the lip (C) of the pinion shaft grommet to ease installation.

RHD model



LHD model



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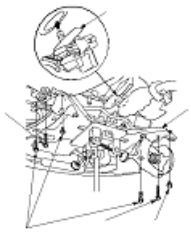
6. Set the front subframe (A) mounting with the steering gearbox on the transmission jack and support it.
7. Carefully raise the front subframe with the jack, and pass the pinion shaft into the cabin. Return the lip (B) of the pinion shaft grommet.
   NOTE:
   - Be sure that the pinion shaft grommet is securely in place. Check whether the pinion shaft grommet is not turning up. Incorrect installation can cause leakage of water, mud, or noise.
   - Take care not to damage the lower arm ball joint boot with the edge of the knuckle, etc.
8. Loosely install new front subframe mounting bolts, then tighten the bolts to the specified torque in the sequence shown.



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9. Install the lower torque rod (A) with new mounting bolts and new mounting nut, and tighten them to the specified torque.
   NOTE: Make sure the stopper (B) of flange bolt securely installed.
10. Install the splash shield.
11. Lower the vehicle.
12. Remove the engine support hanger (AAR-T1256-J00) from the vehicle.

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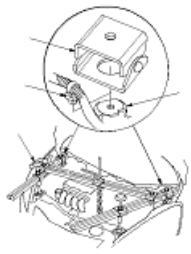
13. Remove the cross arm foot (A), then install the harness clip (B) to the harness clamp bracket (C) on the left side.



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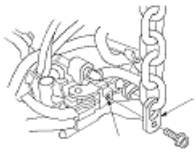
14. Remove the hanger adapter (A) from the threaded hole (B) in the cylinder head.
15. Install the air cleaner.



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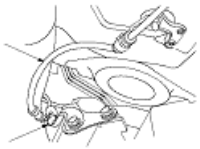
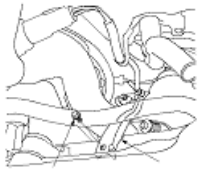
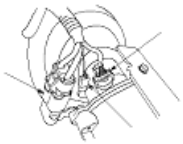
16. RHD model: Install the secondary HO2S wire (A) to the clamp (B) on steering gearbox.



17. LHD model: Install the secondary HO2S wire clamp (A) to the steering gearbox.
18. Remove the vinyl tape from the connectors.

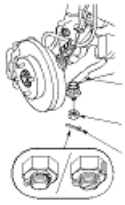


19. RHD model: Connect the motor 2P connector (A), torque sensor 3P connector (B), and steering gearbox 1P connector (C) to the torque sensor.



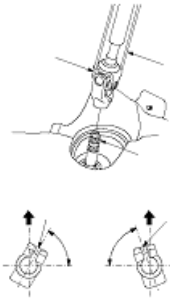
20. LHD model: Connect the motor 2P connector (A), and torque sensor 4P connector (B) to the torque sensor.
21. Connect the stabilizer links.

22. Wipe off any grease contamination from the tapered section and the threads of the ball joint. Connect the tie-rod ends (A) to the knuckles with a nut, then tighten it to the specified torque.
23. Install the new cotter pin (B), and bend it as shown.

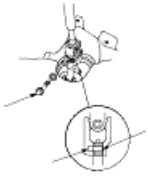


24. Wipe off any grease contamination from the tapered section and threads of the lower arm ball joint. Then reconnect the lower arm (A) to the knuckle. Install the new castle nut (B) and tighten it.
    NOTE:
    - Be careful not to damage the lower ball joint boot (C). Check the ball joint boot for deformation before connecting the knuckle.
    - Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the joint pin clip hole. Do not align the castle nut by loosening it.
25. Install the clip (D).
26. Install the front wheels, then set the wheels in the straight ahead position.
    NOTE: Before installing the wheel, clean the mating surfaces of the brake disc and the inside of the wheel.

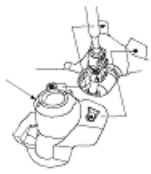
27. Cut the wire (A).
28. Slip the lower end of the steering joint (B) onto the pinion shaft (C) taking care to align the gap (D) within the angle shown.
29. Release the lock lever, and adjust the steering column to the full tilt down position, and to the full telescopic out position, then tighten the lock lever.



30. Align the bolt hole (A) on the steering joint with the groove (B) around the pinion shaft, then loosely install the lower steering joint bolt (C). Be sure that the joint bolt is securely in the groove in the pinion shaft.
31. Pull on the steering joint to make sure that the steering joint is fully seated, then tighten the lower joint bolt to the specified torque.



32. Install the steering joint cover (A).



33. Install the steering wheel and the driver's airbag.

34. With the tyres raised off the ground, check for the following symptoms by turning the steering wheel fully to the right and left several times.

Symptom	Probable cause
Rubbing sound coming from the lower steering column area.	Steering column joint is contacting the cover.
Grating sound from the lower steering column area, or a rough feeling during steering.	Poor engagement of the pinion shaft serrations.
Noise from around the steering wheel during steering.	Poor engagement of the SRS cable reel with the steering wheel, or a damaged cable reel.

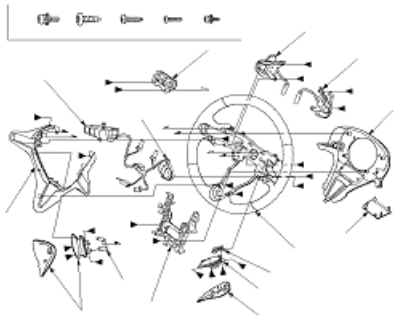
35. Do the battery terminal reconnection procedure, and do these tasks:
    - Turn the ignition switch to ON (II) and check that the SRS indicator should came on for about 6 seconds and then go off.
    - Make sure the horn and turn signal switches work properly.
    - Make sure the steering wheel switches work properly.

36. After installation, do these checks:
    - Start the engine, allow it to idle, and turn the steering wheel from lock-to-lock several times.
    - Check that the EPS indicator does not come on.
    - Check the steering wheel spoke angle. If steering spoke angles to the right and left are not equal (steering wheel and rack are not centered), correct the engagement of the joint/pinion shaft serrations, then adjust the front toe by turning the tie-rod ends, if necessary.

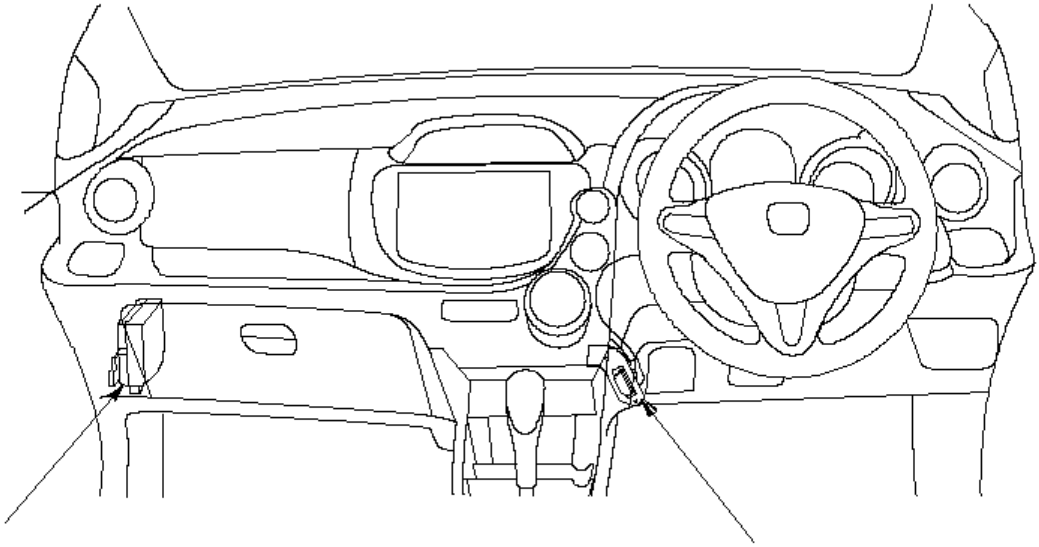
37. Do the memorizing the torque sensor neutral position.

38. Check the wheel alignment, and adjust it if necessary.

Steering Wheel Disassembly/Reassembly



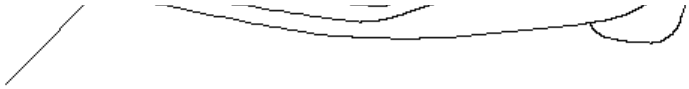
EPS Component Location Index



EPS CONTROL UNIT
Removal/Installation.

DATA LINK CONNECTOR (DLC)

The illustration shows RHD model, LHD model is similar.



STEERING GEARBOX
Removal and Installation.
Rack End Removal and Installation.
Rack Guide Removal/Installation.

SRS indicator does not come on

Diagnostic procedure

1. Symptom Troubleshooting

Also check for

- Communication with the HDS

SRS indicator stays on, but no DTCs are stored

Diagnostic procedure

1. Symptom Troubleshooting

Also check for

- Charging system for under or overcharging
- Communication with the HDS

Side airbag cutoff indicator is flashing

Diagnostic procedure

1. Check for DTCs. If any DTC is indicated, go to the DTC troubleshooting

Also check for

- OPDS Initialization
- Communication with the HDS

Side airbag cutoff indicator stays on

Diagnostic procedure

1. Symptom Troubleshooting

Also check for

- Communication with the HDS

Side airbag cutoff indicator does not come on

Diagnostic procedure

1. Symptom Troubleshooting

Also check for

- OPDS Initialization
- Communication with the HDS

Faulty front seat belt reminder indicator

Diagnostic procedure

1. Symptom Troubleshooting

Also check for

- Communication with the HDS

HDS does not communicate with the SRS unit or the vehicle

Diagnostic procedure

1. Troubleshoot the DLC circuit

Also check for

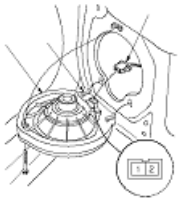
- Communication with the HDS

SRS Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
SRS indicator does not come on	Symptom Troubleshooting	Communication with the HDS
SRS indicator stays on, but no DTCs are stored	Symptom Troubleshooting	• Charging system for under or overcharging • Communication with the HDS
Side airbag cutoff indicator is flashing	Check for DTCs. If any DTC is indicated, go to the DTC troubleshooting	• OPDS Initialization • Communication with the HDS
Side airbag cutoff indicator stays on	Symptom Troubleshooting	Communication with the HDS
Side airbag cutoff indicator does not come on	Symptom Troubleshooting	• OPDS Initialization • Communication with the HDS
Faulty front seat belt reminder indicator	Symptom Troubleshooting	Communication with the HDS
HDS does not communicate with the SRS unit or the vehicle	Troubleshoot the DLC circuit	Communication with the HDS

Speaker Test/Replacement

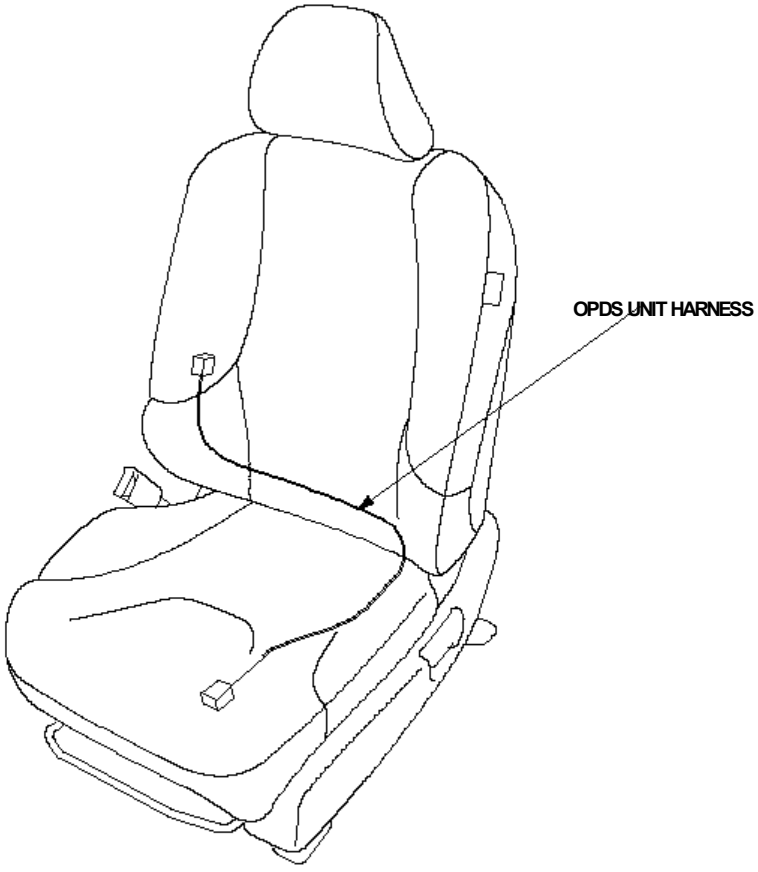
Front/Rear Door Speaker



1. Remove the door panel:
   - Front
   - Rear
2. Remove the bolt. Then lift the speaker (A) straight up to release the lower clips (B).
   NOTICE
   If you pull the speaker out too far from the door, you will damage the lower clips.
3. Disconnect the 2P connector (C), and remove the speaker.
4. Measure the resistance between the terminals No. 1 and No. 2. There should be about 4 Ω.
5. If the resistance is not as specified, replace the door speaker.

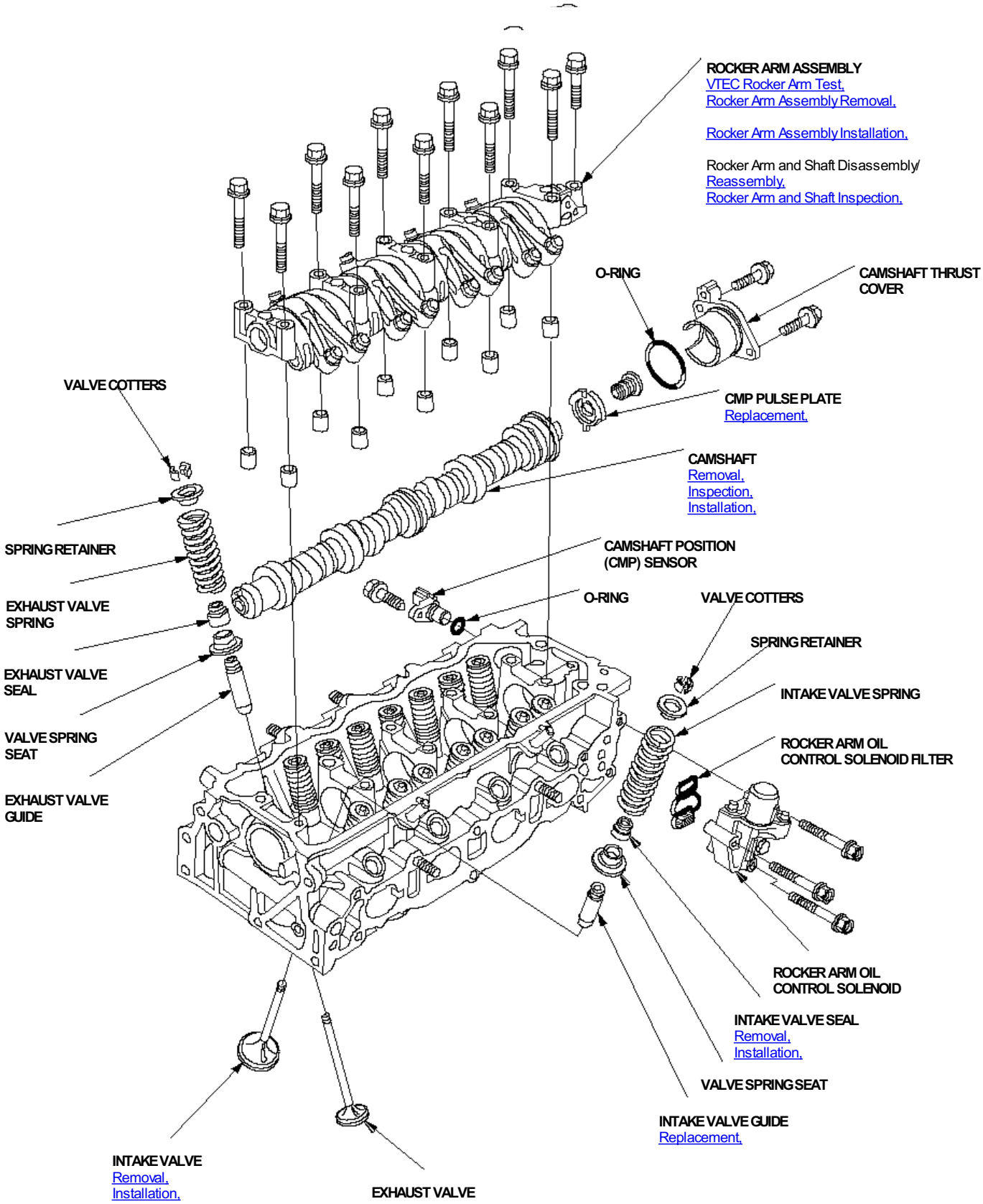
OPDS Unit Harness Locations

FRONT PASSENGER'S SEAT



RHD model is shown, LHD model is symmetrical.

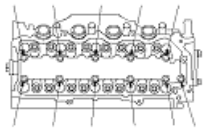
Cylinder Head Component Location Index



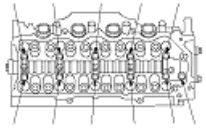
Camshaft Inspection

1. Remove the camshaft sprocket.
2. Remove the rocker arm assembly, then disassemble the rocker arm.
3. Put the rocker shaft holder bridge/rocker shaft holders on the cylinder head, then tighten the bolts to the specified torque.
   Specified Torque
   6 x 1.0 mm
   (1)–(10): 15 N·m (1.5 kgf·m, 11 lbf·ft)
   (11): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
4. Seat the camshaft by pushing it toward the rear of the cylinder head.

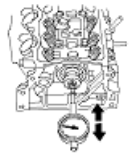
L15A7 engine



L13Z1 engine

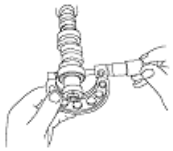


5. Zero the dial indicator against the end of the camshaft. Push the camshaft back and forth, and read the end play. If the end play is beyond the service limit, replace the thrust cover and recheck. If it is still beyond the service limit, replace the camshaft.
   Camshaft End Play
   Standard (New): 0.05–0.25 mm (0.002–0.010 in.)
   Service Limit: 0.5 mm (0.02 in.)



6. Remove the camshaft.
7. Wipe the camshaft clean, then inspect the lift ramps. Replace the camshaft if any lobes are pitted, scored, or excessively worn.

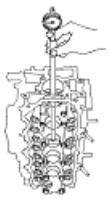
8. Measure the diameter of each camshaft journal.



9. Zero the gauge to the journal diameter.

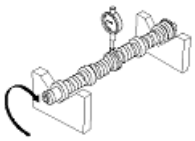
10. Clean the camshaft bearing surfaces in the cylinder head. Measure the inside diameter of each camshaft bearing surface, and check for an out-of-round condition.
    - If the camshaft-to-holder clearance is within limits, go to Step 12 .
    - If the camshaft-to-holder clearance is beyond the service limit, and the camshaft has been replaced, replace the cylinder head.
    - If the camshaft-to-holder clearance is beyond the service limit, and the camshaft has not been replaced, go to Step 11 .

    Camshaft-to-Holder Oil Clearance
    Standard (New): 0.045–0.084 mm (0.0018–0.0033 in.)
    Service Limit: 0.100 mm (0.004 in.)

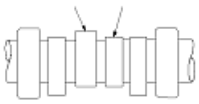


11. Check the total runout with the camshaft supported on V-blocks.
    - If the total runout of the camshaft is within the service limit, replace the cylinder head.
    - If the total runout is beyond the service limit, replace the camshaft, and recheck the oil clearance. If the oil clearance is still out of tolerance, replace the cylinder head.

    Camshaft Total Runout
    Standard (New): 0.03 mm (0.001 in.) max.
    Service Limit: 0.04 mm (0.002 in.)



12. Measure the cam lobe height.



Cam Lobe Height Standard (New):

		INTAKE	EXHAUST
L15A7 engine	PRI	35.241 mm (1.3874 in.)	35.471 mm (1.3965 in.)
	SEC	36.173 mm (1.4241 in.)	
L13Z1 engine	PRI	34.290 mm (1.3500 in.)	35.047 mm (1.3798 in.)
	SEC	30.529 mm (1.2019 in.)	

PRI: Primary SEC: Secondary IN: Intake
EX: Exhaust C/C: Cam Chain

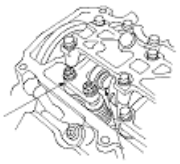
VTEC Rocker Arm Test

Special Tools Required

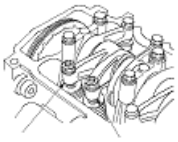
Air supply, 3/8
07LAJ-PR30102

Air adapter, M10 x 1.0
070AJ-0010101

L15A7 engine



L13Z1 engine

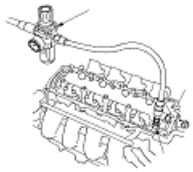


1. Start the engine, and let it run for 5 minutes, then turn the ignition switch to LOCK (0).
2. Remove the cylinder head cover.
3. Rotate the crankshaft clockwise, and visually check that all the primary rocker arms (A) and secondary rocker arms (B) move freely.
   - If the primary rocker arm and secondary rocker arm move together, remove the primary and secondary rocker arms as an assembly, and check that the pistons in the primary and secondary rocker arms move smoothly. If any rocker arm needs replacing, replace the primary and secondary rocker arms as an assembly, then retest.
   - If all the primary rocker arms and secondary rocker arms move freely, go to Step 4 .
4. Check that the air pressure on the shop air compressor gauge indicates over 400 kPa (4 kgf/cm ^{2}, 57 psi).
5. Inspect the valve clearance.

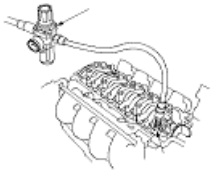
---

6. Install the air adapter (A) to the inspection hole, then connect the valve inspection set (B).
7. Loosen the valve on the regulator, and apply the specified air pressure.
   Specified Air Pressure:
   340 kPa (3.5 kgf/cm ^{2}, 50 psi)

L15A7 engine



L13Z1 engine



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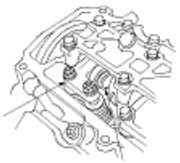
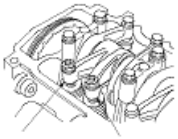
8. With the specified air pressure applied, rotate the crankshaft clockwise, and visually check that all the primary rocker arms (A) and secondary rocker arms (B) move together.
   If the primary rocker arm and secondary rocker arm move freely and independently of each other, remove the primary and secondary rocker arms as an assembly, and check that the pistons in the primary and secondary rocker arms move smoothly. If any rocker arm needs replacing, replace the primary and secondary rocker arms as an assembly, and test.
9. Remove the air supply and the VTEC adapter.
10. Install the cylinder head cover.

L15A7 engine



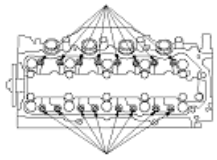
L13Z1 engine



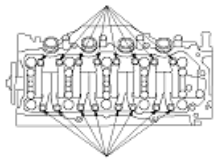
Cylinder Head Rocker Arm Assembly Removal

1. Remove the cylinder head cover.
2. Loosen the rocker arm adjusting screws (A).

L15A7 engine

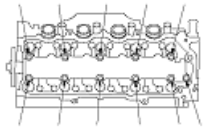


L13Z1 engine

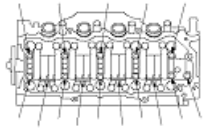


3. Unscrew the rocker shaft mounting bolts two turns at a time, in sequence below.
   NOTE: With L13Z1 engine: Bundle the intake rocker arms with rubber bands (A) to keep them together as a set.

L15A7 engine

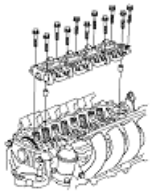


L13Z1 engine

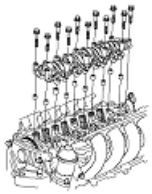


4. Remove the rocker shaft mounting bolts, then remove the rocker arm assembly (A).

L15A7 engine



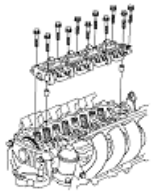
L13Z1 engine



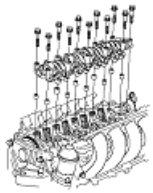
Cylinder Head Rocker Arm Assembly Installation

1. Install the rocker arm assembly (A).

L15A7 engine

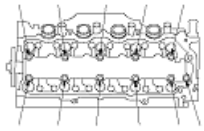


L13Z1 engine

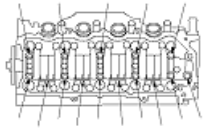


2. Tighten each bolts two turns at a time in sequence.
   NOTE: With L13Z1 engine: Remove the rubber bands (A) from the intake rocker arms.
   Specified Torque
   6 x 1.0 mm
   (1)–(10): 15 N·m (1.5 kgf·m, 11 lbf·ft)
   (11): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)

L15A7 engine



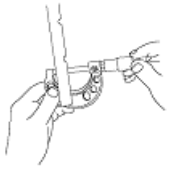
L13Z1 engine



3. Adjust the valve clearance.
4. Install the cylinder head cover.

Cylinder Head Rocker Arm and Shaft Inspection

1. Remove the rocker arm assembly.
2. Disassemble the rocker arm assembly.
3. Measure the diameter of the shaft at the first rocker location.



4. Zero the gauge (A) to the shaft diameter.

5. Measure the inside diameter of the rocker arm, and check it for an out-of-round condition.

Rocker Arm-to-Shaft Clearance

L15A7 engine:	
Intake:	
Standard (New):	**0.017–0.048 mm (0.0007–0.0019 in.)**
Service Limit:	**0.08 mm (0.0031 in.)**
Exhaust:	
Standard (New):	**0.019–0.050 mm (0.0007–0.0020 in.)**
Service Limit:	**0.08 mm (0.0031 in.)**
Intake:	
Standard (New):	**0.019–0.050 mm (0.0007–0.0020 in.)**
Service Limit:	**0.08 mm (0.0031 in.)**
Exhaust:	
Standard (New):	**0.019–0.050 mm (0.0007–0.0020 in.)**
Service Limit:	**0.08 mm (0.0031 in.)**

6. Repeat for all rockers and shaft. If the clearance is beyond the service limit, replace the rocker shaft and all out of service limit rocker arms. If any VTEC rocker arm needs replacement, replace the rocker arms as an assembly.

VTEC Rocker Arms

7. Inspect the rocker arm pistons (B). Push on them manually. If they do not move smoothly, replace the rocker arm set.
   NOTE:
   - Apply new engine oil to the rocker arm pistons when reassembling.
   - When reassembling the secondary rocker arm A, carefully apply air pressure to the oil passage of the rocker arm.
8. Reassemble the rocker arm assembly.
9. Install the rocker arm assembly.

L15A7 engine

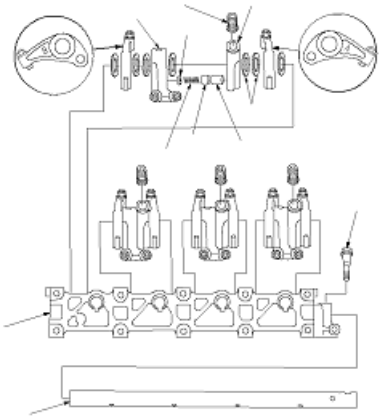
L13Z1 engine

Cylinder Head Rocker Arm and Shaft Disassembly/Reassembly

L15A7 engine

NOTE:

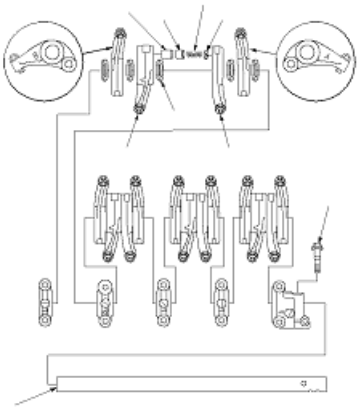
- Identify each part as it is removed so that each item can be reinstalled in its original position.
- Inspect the rocker arm shaft and the rocker arms.
- If reused, the rocker arms must be installed in the their original location.
- Remove the rocker shaft bolt before removing the rocker shaft from the rocker shaft holder bridge.
- Prior to reassembling, clean all the parts in solvent, dry them, and apply new engine oil to any contact points.
- When replacing the rocker arm assembly, remove the fastening hardware from the new rocker arm assembly.



L13Z1 engine

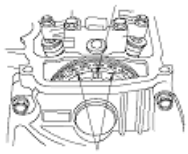
NOTE:

- Identify each part as it is removed so that each item can be reinstalled in its original position.
- Inspect the rocker arm shaft and the rocker arms.
- If reused, the rocker arms must be installed in the their original location.
- Remove the rocker shaft bolt before removing the rocker shaft from the No. 5 rocker shaft holder.
- Prior to reassembling, clean all the parts in solvent, dry them, and apply new engine oil to any contact points.
- When replacing the rocker arm assembly, remove the fastening hardware from the new rocker arm assembly.
- When reassembling the rocker arm and shaft assembly, position the arrows on the rocker shaft holders facing the cam chain side.

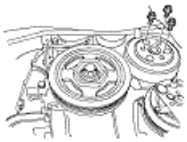


Cam Chain Removal

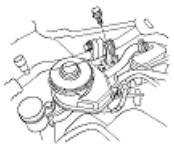
NOTE: Keep the cam chain away from magnetic fields.



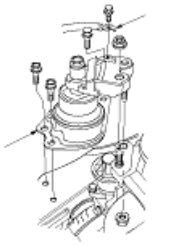
1. Remove the cylinder head cover.
2. Set the No. 1 piston at top dead center (TDC). The ‘‘UP" mark (A) on the camshaft sprocket should be at the top, and the TDC grooves (B) on the camshaft sprocket should line up with the top edge of the head.
3. Remove the right front wheel.
4. Remove the right side splash shield.
5. Loosen the water pump pulley mounting bolts.
6. Remove the drive belt.



7. Remove the water pump pulley.
8. Remove the crankshaft pulley.
9. Remove the drive belt auto-tensioner.



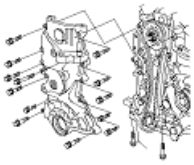
10. Remove the A/C line bracket mounting bolt.
11. Support the engine with a jack and wood block under the oil pan.



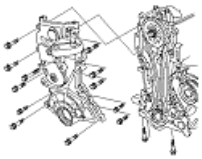
12. Remove the ground cable (A), then remove the side engine mount/bracket assembly (B).

13. Remove the chain case.

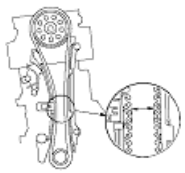
L15A7 engine



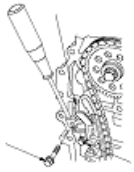
L13Z1 engine



14. Measure the cam chain separation. If the distance is less than the service limit, replace the cam chain and cam chain tensioner.
    Standard Distance: 19 mm (0.75 in.)
    Service Limit: 15 mm (0.59 in.)



15. Apply new engine oil to the sliding surface of the cam chain tensioner slider (A).
16. Hold the cam chain tensioner slider with the screwdriver, then remove the bolt (B), and loosen the bolt (C).



17. Remove the cam chain tensioner slider.

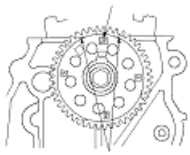
18. Remove the cam chain tensioner (A) and the cam chain guide (B).
19. Remove the cam chain.

Cam Chain Installation

NOTE: Keep the cam chain away from magnetic fields.

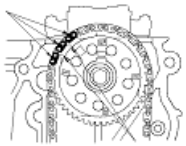
1. Set the crankshaft to top dead center (TDC). Align the TDC mark (A) on the crankshaft sprocket with the pointer (B) on the oil pump.
2. Remove the crankshaft sprocket.

3. Set the camshaft to TDC. The “UP" mark (A) on the camshaft sprocket should be at the top, and the TDC grooves (B) on the camshaft sprocket should line up with the top edge of the head.

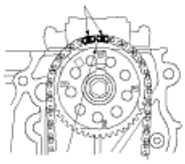


4. Install the cam chain on the crankshaft sprocket with the colored piece (A) aligned with the TDC mark (B) on the crankshaft sprocket, then install the crankshaft sprocket to the crankshaft.

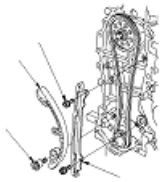
5. With L15A7 engine: Install the cam chain on the camshaft sprocket with the pointers (A) aligned with the three colored pieces (B) as shown.



6. With L13Z1 engine: Install the cam chain on the camshaft sprocket with the pointer (A) aligned with the center of the two colored pieces (B).

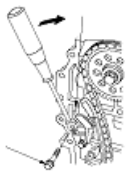


7. Install the cam chain tensioner (A) and the cam chain guide (B).

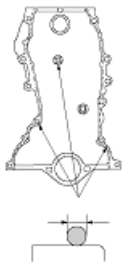


8. Install the cam chain tensioner slider, and tighten the bolt loosely.

9. Apply new engine oil to the sliding surface of the cam chain tensioner slider (A).
10. Rotate the cam chain tensioner slider clockwise to compress the cam chain tensioner, and install the remaining bolt, then tighten the bolts.
11. Check the chain case oil seal for damage. If the oil seal is damaged, replace the chain case oil seal.
12. Remove the all of the old liquid gasket from the chain case mating surfaces, the bolts, and the bolt holes.
13. Clean and dry the chain case mating surfaces.

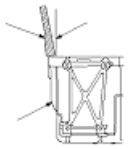


14. Apply liquid gasket (P/N 08C70-K0234M, 08C70-K0334M, or 08C70-X0331S) to the engine block mating surface of the chain case and to the inner threads of the bolt holes.
NOTE: Apply liquid gasket about 2.5 mm (0.098 in.) diameter bead along the broken line (A).



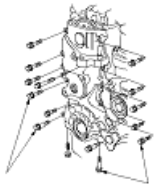
15. Apply liquid gasket (P/N 08C70-K0234M, 08C70-K0334M, or 08C70-X0331S) to the oil pan mating surface of the chain case and to the inner threads of the bolt holes.
NOTE:
    - Apply liquid gasket about 2.5 mm (0.098 in.) diameter bead along the broken line (A).
    - Apply liquid gasket about 5.0 mm (0.20 in.) diameter bead to the shaded area (B).
    - Do not install components if 5 minutes or more have passed after applying the liquid gasket. Instead, remove the old residue and reapply the liquid gasket.

16. Set the edge of the chain case (A) to the edge of the oil pan (B), then install the chain case on the engine block (C).
NOTE:
    - When installing the chain case, do not slide the bottom surface onto the oil pan mounting surface.
    - Wait at least 30 minutes before filling the engine with oil.
    - Do not run the engine for at least 3 hours after installing the chain case.

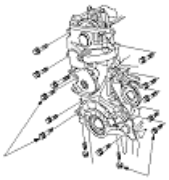


17. Tighten the chain case mounting bolts. Wipe off the excess liquid gasket on the oil pan and the chain case mating area.

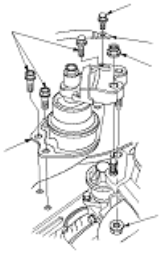
L15A7 engine



L13Z1 engine

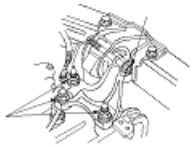


18. Install the side engine mount/bracket assembly (A), then tighten the new side engine mount/bracket assembly mounting bolts (B).
19. Loosely tighten the new side engine mount/bracket assembly mounting nuts (C).
20. Install the ground cable (D).
21. Remove the air cleaner housing assembly.

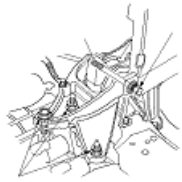


22. Loosen the transmission mount bracket mounting bolts and nuts (A).
23. Raise the vehicle on the lift to full height.

M/T model



A/T model

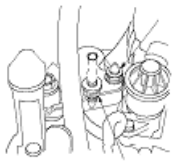


24. Loosen the torque rod mounting bolt and nut (A).
25. Lower the vehicle on the lift.

M/T model

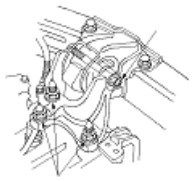
A/T model

26. Tighten the side engine mount/bracket assembly mounting nuts in the numbered sequence shown.



27. Tighten the transmission mount mounting bolts and nuts in the numbered sequence shown.
28. Raise the vehicle on the lift to full height.

M/T model



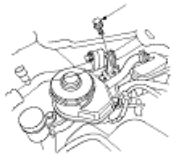
A/T model

29. Tighten the torque rod mounting bolt and nut in the numbered sequence shown.
30. Lower the vehicle on the lift.
31. Install the air cleaner housing assembly.

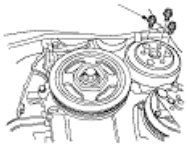
M/T model

A/T model

32. Install the A/C line bracket mounting bolt.
33. Install the cylinder head cover.
34. Install the drive belt auto-tensioner.
35. Install the crankshaft pulley.



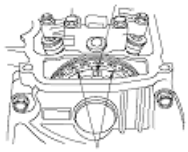
36. Install the water pump pulley.
37. Install the drive belt.
38. Tighten the water pump pulley mounting bolts.
39. Install the right side splash shield.
40. Install the right front wheel.
41. Do the crankshaft position (CKP) pattern clear/CKP pattern learn procedure.



Cylinder Head Valve Clearance Adjustment

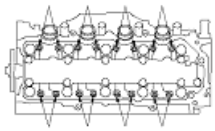
NOTE: Adjust the valves only when the cylinder head temperature is less than 38 °C (100 °F).

1. Remove the cylinder head cover.
2. Set the No. 1 piston at top dead center (TDC). The "UP" mark (A) on the camshaft sprocket should be at the top, and the TDC grooves (B) on the camshaft sprocket should line up with the top edge of the head.

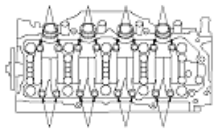


3. Select the correct thickness feeler gauge for the valves you are going to check.
   Valve Clearance
   Intake: 0.15–0.19 mm (0.006–0.007 in.)
   Exhaust: 0.26–0.30 mm (0.010–0.012 in.)

L15A7 engine

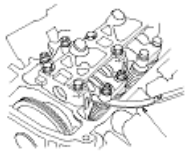


L13Z1 engine

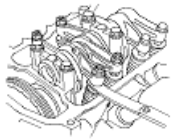


4. Insert the feeler gauge (A) between the adjusting screw and the end of the valve stem on No. 1 cylinder and slide it back and forth; you should feel a slight amount of drag.

L15A7 engine

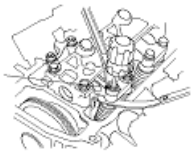


L13Z1 engine

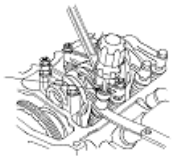


5. If you feel too much or too little drag, loosen the locknut, and turn the adjusting screw (A) until the drag on the feeler gauge is correct.
6. Tighten the locknut and recheck the clearance. Repeat the adjustment, if necessary.
7. Tighten the locknut to the specified torque, and recheck the valve clearance. Repeat the adjustment if necessary.
   Specified Torque
   7 x 0.75 mm 14 N·m (1.4 kgf·m, 10 lbf·ft)
   Apply new engine oil to the nut threads.

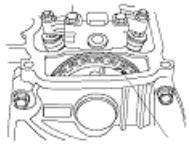
L15A7 engine



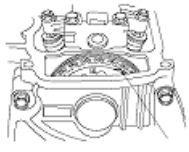
L13Z1 engine



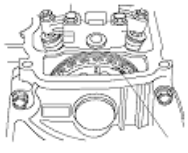
8. Rotate the crankshaft clockwise. Align the No. 3 piston TDC groove (A) on the camshaft sprocket with the top edge of the head.
9. Check, and if necessary, adjust the valve clearance on the No. 3 cylinder.



10. Rotate the crankshaft clockwise. Align the No. 4 piston TDC groove (A) on the camshaft sprocket with the top edge of the head.
11. Check, and if necessary, adjust the valve clearance on the No. 4 cylinder.

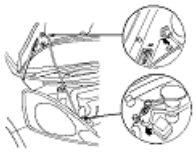


12. Rotate the crankshaft clockwise. Align the No. 2 piston TDC groove (A) on the camshaft sprocket with the top edge of the head.
13. Check, and if necessary, adjust the valve clearance on the No. 2 cylinder.
14. Install the cylinder head cover.



Engine Removal

Special Tools Required



Engine tilt hanger set
07KAK-SJ40101

Engine hanger stay
07KAK-SJ40200

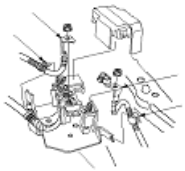
Sub hanger stay
07MAK-PY30100

NOTE:

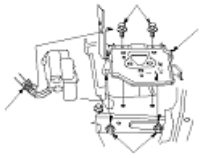
- Use fender covers to avoid damaging painted surfaces.
- To avoid damaging the wiring and terminals, unplug the wiring connectors carefully while holding the connector portion.
- Mark all wiring and hoses to avoid misconnection. Also, be sure that they do not contact other wiring or hoses, or interfere with other parts.

1. Remove the hood support rod, then use it as shown to prop the hood in the wide-open position.
2. Relieve fuel pressure.
3. Do the battery removal procedure.
4. Remove the under-cowl panel.
5. Remove the air cleaner housing assembly.

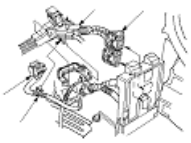
6. Remove the battery cables (A) from the battery terminal fuse box.
7. Remove the harness clamps (B).



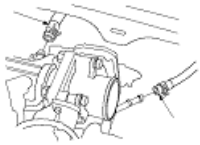
8. With M/T model: Remove the harness clamp (A). Remove the two bolts (B) and loosen the two bolts (C), then remove the battery base (D).



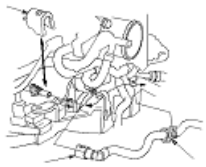
9. Disconnect the engine control module (ECM)/ powertrain control module (PCM) connectors (A) and the engine wire harness connector (B).
10. Remove the harness clamp (C) and harness holder (D).



11. Disconnect the evaporative emission (EVAP) canister hose (A) and brake booster vacuum hose (B).

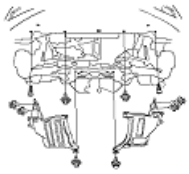


12. Remove the fuel feed hose clamp (A) and the quick-connect fitting cover (B), then disconnect the fuel feed hose (C).



13. Disconnect the secondary heated oxygen sensor (secondary HO2S) connector (A), then remove the secondary HO2S harness from the clamps (B).
14. M/T model: Remove the shift cable.
15. M/T model: Remove the clutch slave cylinder, and clutch line bracket mounting bolt.
16. Remove the radiator cap.
17. Raise the vehicle on the lift to full height.
18. Remove the front wheels.

19. Remove the splash shields.
20. Remove the drive belt.
21. Loosen the drain plug in the radiator, and drain the engine coolant.
22. Drain the engine oil.
23. Drain the transmission fluid:
    - Manual transmission
    - Automatic transmission



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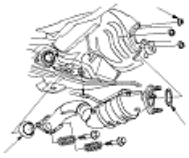
24. Remove the under-floor three way catalytic converter (under-floor TWC).
25. A/T model: Remove the shift cable.
26. Remove the stabilizer links from the stabilizer.
27. Separate the knuckles from the lower arms.



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28. Remove the driveshaft heat shield.
29. Remove the driveshafts. Coat all precision-finished surfaces with clean engine oil. Tie a plastic bags over the driveshaft ends.

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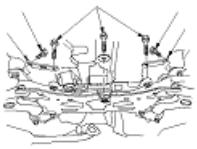
30. Remove the bolts (A) securing the steering gearbox, then remove the steering gearbox stiffeners (B).



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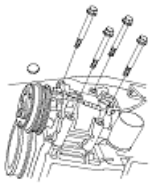
31. Remove the A/C compressor without disconnecting the A/C hoses.
32. Lower the vehicle on the lift.
33. Remove the radiator.



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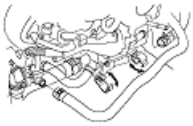
34. Disconnect the heater hoses.
35. Raise the vehicle on the lift to full height.
36. Support the transmission with a jack and wood block under the transmission.



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37. Remove the torque rod.
38. Remove the jack.

M/T model

A/T model

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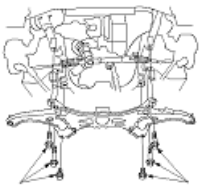
39. Remove the front subframe.
40. Lower the vehicle on the lift.



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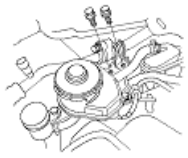
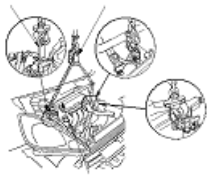
41. With RHD model: Remove the brake fluid reservoir tank bracket mounting bolts.



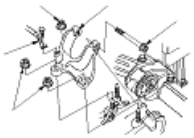
42. Install the sub hanger stay.

43. Attach the special tools to the engine/transmission as shown.

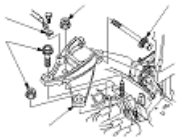


44. Remove the ground cable (A), then remove the transmission mount bracket (B).

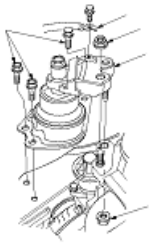
M/T model



A/T model

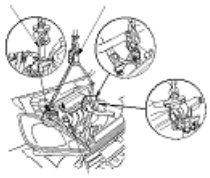


45. Remove the ground cable (A), then remove the side engine mount/bracket assembly (B).
46. Check that the engine/transmission is completely free of vacuum hoses, fuel and coolant hoses, and electrical wiring.
47. Slowly lower the engine/transmission about 150 mm (6 in.). Check once again that all hoses and electrical wiring are disconnected and free from the engine/transmission, then lower it all the way.
48. Disconnect the chain hoist from the engine/transmission.
49. Raise the vehicle, and remove the engine/ transmission from under the vehicle.



Engine Installation

Special Tools Required



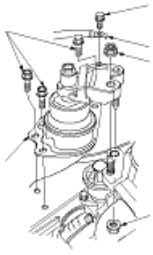
Engine tilt hanger set
07KAK-SJ40101

Engine hanger stay
07KAK-SJ40200

Sub hanger stay
07MAK-PY30100

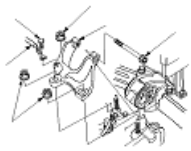
1. Raise the vehicle on the lift, and position the engine/transmission under the vehicle. Lower the vehicle, and attach the special tools to the engine/transmission, then lift the engine/transmission into position in the vehicle.
   NOTE: Reinstall the mounting bolts and support nuts in the sequence given in the following steps. Failure to follow this sequence may cause excessive noise and vibration, and reduce engine mount life.

2. Install the side engine mount/bracket assembly (A), then tighten the new side engine mount/bracket assembly mounting bolts (B).
3. Loosely tighten the new side engine mount/bracket assembly mounting nuts (C).
4. Install the ground cable (D).

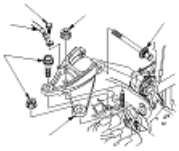


5. Install the transmission mount bracket (A), and loosely tighten the new transmission mount bracket mounting bolts and nuts (B).
6. Install the ground cable (C).
7. Remove the engine tilt hanger set from the engine/transmission

M/T model

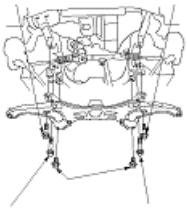


A/T model



8. Remove the sub hanger stay.
9. Raise the vehicle on the lift to full height.

10. Install the front subframe, then tighten the new front subframe mounting bolts in the numbered sequence shown.

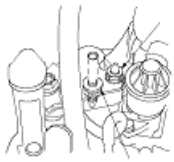


11. Install the torque rod (A). Install the new bolt with the tab (B) on the bolt head aligned with the guide (C) on the front subframe, then loosely tighten the new torque rod mounting bolt and nut (D).
12. Lower the vehicle on the lift.

M/T model

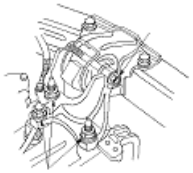
A/T model

13. Tighten the side engine mount/bracket assembly mounting nuts in the numbered sequence shown.



14. Tighten the transmission mount mounting bolts and nuts in the numbered sequence shown.
15. Raise the vehicle on the lift to full height.

M/T model

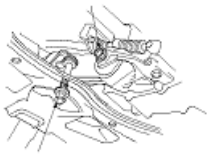


A/T model

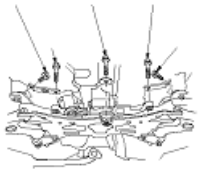
16. Tighten the torque rod mounting bolt and nut in the numbered sequence shown.

M/T model

A/T model

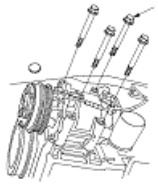


17. Install the securing the steering gearbox and the steering gearbox stiffeners, then tighten the new bolts in the numbered sequence shown.
18. Install a new set ring on the end of each driveshaft, then install the driveshafts. Make sure each ring ‘‘clicks" into place in the differential and the intermediate shaft.

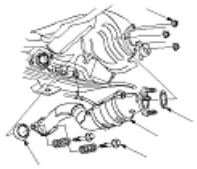


19. Install the driveshaft heat shield.
20. Connect the lower arms to the knuckles.
21. Install the stabilizer links to the stabilizer.
22. A/T model: Install the shift cable.

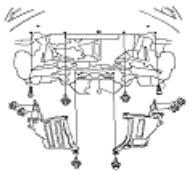
23. Install the A/C compressor.
24. Install the drive belt.



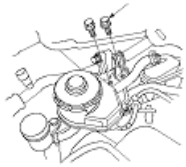
25. Install the under-floor three way catalytic converter (under-floor TWC) (A). Use new gaskets (B) and new self locking nuts (C).



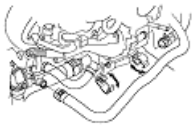
26. Install the splash shields.
27. Lower the vehicle on the lift.



28. With RHD model: Install the brake fluid reservoir tank bracket mounting bolts.

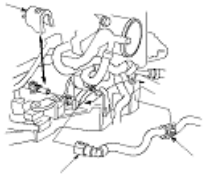


29. Install the heater hoses.
30. Install the radiator.
31. M/T model: Install the clutch slave cylinder, and clutch line bracket mounting bolt.
32. M/T model: Install the shift cable.

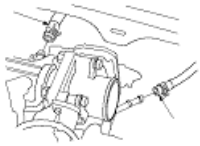


33. Connect the secondary heated oxygen sensor (secondary HO2S) connector (A), then install the secondary HO2S harness to the clamps (B).

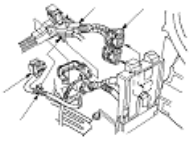
34. Connect the fuel feed hose (A) , then install the quick-connect fitting cover (B) and the fuel feed hose clamp (C).



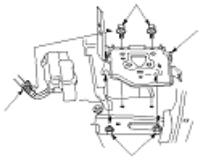
35. Install the evaporative emission (EVAP) canister hose (A) and brake booster vacuum hose (B).



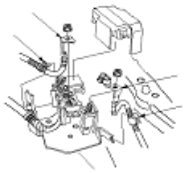
36. Install the harness holder (A), then install the harness clamp (B).
37. Connect the engine wire harness connector (C) and the engine control module (ECM)/powertrain control module (PCM) connectors (D).



38. With M/T model: Install the battery base (A), then install the harness clamp (B).

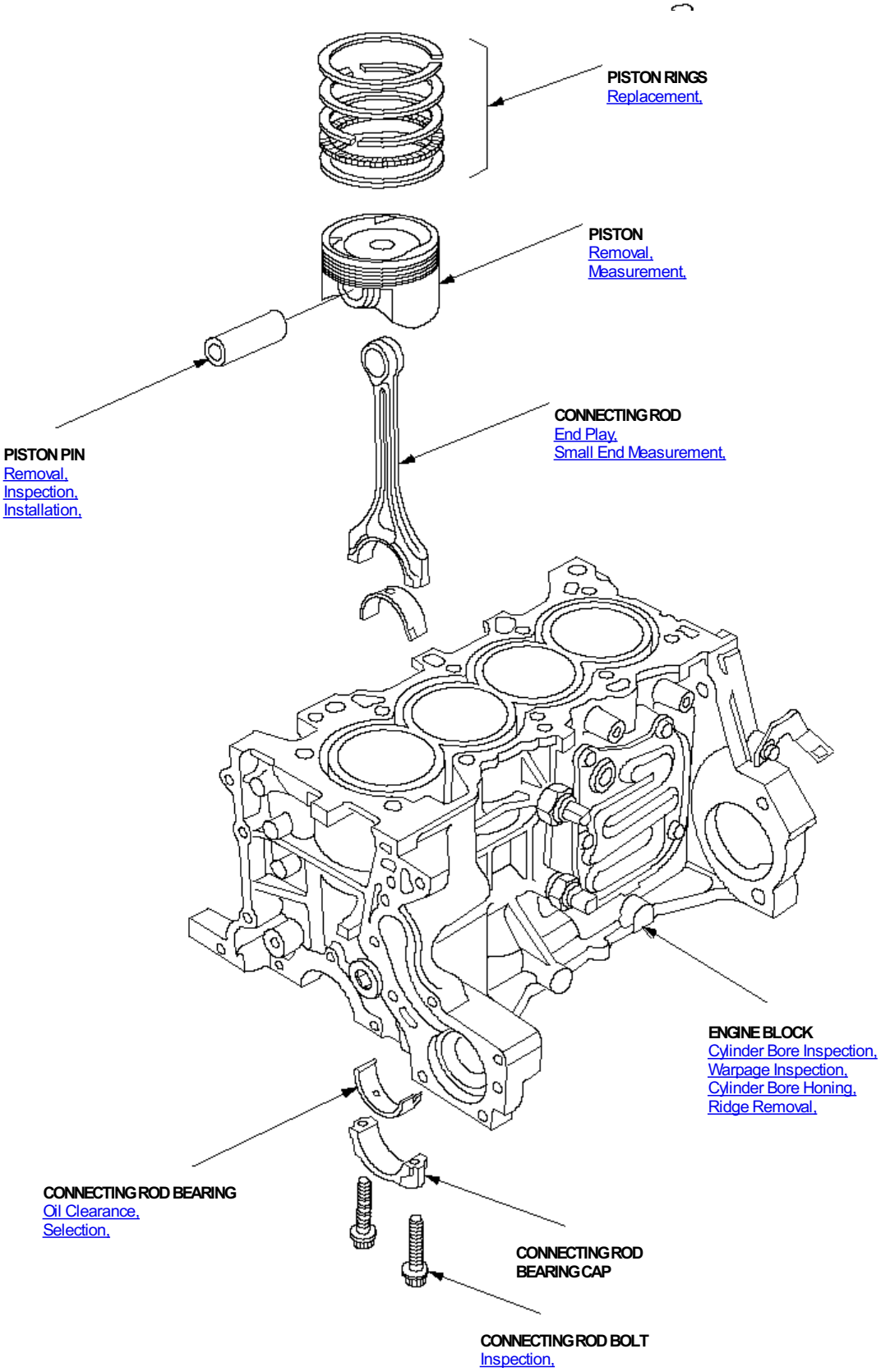


39. Install the battery cables (A) to the battery terminal fuse box.
40. Install the harness clamps (B).
41. Install the front wheels.
42. Install the under-cowl panel.
43. Do the battery installation procedure.
44. Refill the transmission with fluid:
    - Manual transmission
    - Automatic transmission
45. Install the air cleaner housing assembly.
46. A/T model: Move the shift lever to each gear, and verify that the A/T gear position indicator follows the transmission range switch.
47. M/T model: Check that the transmission shifts into all gear smoothly.
48. Inspect for fuel leaks. Turn the ignition switch to ON (II) (do not operate the starter) so the fuel pump runs for about 2 seconds and pressurizes the fuel line. Repeat this operation three times, then check for fuel leakage at any point in the fuel line.
49. Refill the radiator with engine coolant, and bleed air from the cooling system with the heater valve open.
50. Refill the engine with engine oil.
51. Do the ECM/PCM reset procedure.
52. Do the crankshaft position (CKP) pattern clear/CKP pattern learn procedure.
53. Inspect the idle speed.
54. Inspect the ignition timing.



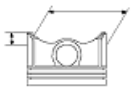
Engine Block Component Location Index

L15A7 engine



Engine Block and Piston Inspection

1. Remove the crankshaft and the pistons.
2. Check the piston for distortion or cracks.

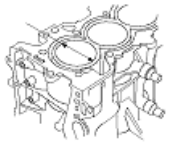


3. Measure the piston diameter (A) at a point 16 mm (0.6 in.) from the bottom of the skirt.

Piston Diameter
L15A7 engine:
Standard (New): **72.980−72.990 mm (2.8732−2.8736 in.)**
Service Limit: **72.97 mm (2.8728 in.)**
L13Z1 engine:
Standard (New): **72.972−72.982 mm (2.8729−2.8733 in.)**
Service Limit: **72.97 mm (2.8728 in.)**

Oversize Piston Diameter
L15A7 engine:
0.25: **73.230−73.240 mm (2.88307−2.88346 in.)**
L13Z1 engine:
0.25: **73.222−73.232 mm (2.88275−2.88314 in.)**

4. Measure wear and taper in direction Y at three levels in each cylinder as shown. If measurements in any cylinder are beyond the Oversize Bore Service Limit, replace the engine block. If the engine block is to be rebored, refer to Step 7 after reboring.



Cylinder Bore Size

Standard (New): **73.000−73.015 mm (2.8740−2.8746 in.)**
Service Limit: **73.065 mm (2.8766 in.)**

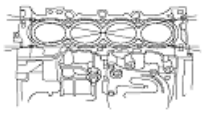
Oversize
0.25: **73.250−73.265 mm (2.8839−2.8844 in.)**

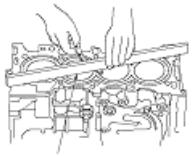
Reboring limit: **0.25 mm (0.01 in.) max.**

Bore Taper
Limit: **(Difference between first and third measurement) 0.05 mm (0.002 in.)**

5. Scored or scratched cylinder bores must be honed.

6. Check the top of the engine block for warpage. Measure along the edges and across the center as shown.

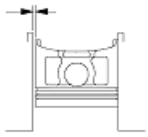




Engine Block Warpage

Standard (New): **0.07 mm (0.003 in.) max.**
Service Limit: **0.10 mm (0.004 in.)**

7. Calculate the difference between the cylinder bore diameter and the piston diameter. If the clearance is near or exceeds the service limit, inspect the piston and engine block for excessive wear.

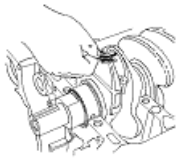


Piston-to-Cylinder Clearance

L15A7 engine:
Standard (New): **0.010−0.035 mm (0.0004−0.0014 in.)**
Service Limit: **0.05 mm (0.002 in.)**
L13Z1 engine:
Standard (New): **0.018−0.043 mm (0.0007−0.0017 in.)**
Service Limit: **0.05 mm (0.002 in.)**

Connecting Rod Bearing Replacement

Rod Bearing Clearance Inspection

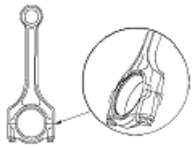


1. To check rod bearing-to-journal oil clearance, remove the bearing cap bridge.
2. Remove the connecting rod cap and bearing half.
3. Clean the crankshaft rod journal and bearing half with a clean shop towel.
4. Place plastigage across the rod journal.
5. Reinstall the bearing half and cap, and torque the bolts to 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft) +90 °.
   NOTE: Do not rotate the crankshaft during inspection.
6. Remove the rod cap and bearing half, and measure the widest part of the plastigage.
   Connecting Rod Bearing-to-Journal Oil Clearance

L15A7 engine:	
Standard (New):	**0.020–0.038 mm (0.0008–0.0015 in.)**
Service Limit:	**0.050 mm (0.0020 in.)**
L13Z1 engine:	
Standard (New):	**0.026–0.044 mm (0.0010–0.0017 in.)**
Service Limit:	**0.050 mm (0.0020 in.)**

7. If the plastigage measures too wide or too narrow, remove the upper half of the bearing, install a new, complete bearing with the same color code(s), and recheck the clearance. Do not file, shim, or scrape the bearings or the caps to adjust clearance.
8. If the plastigage shows the clearance is still incorrect, try the next larger or smaller bearing (the color listed above or below the current one), and check clearance again. If the proper clearance cannot be obtained by using the appropriate larger or smaller bearing, replace the crankshaft and start over.

Rod Bearing Selection



1. Inspect each connecting rod for cracks and heat damage.

Connecting Rod Big End Bore Code Locations

2. Each rod falls into one of four tolerance ranges (from 0 to 0.024 mm (0.0009 in.), in 0.006 mm (0.0002 in.) increments) depending on the size of its big end bore. It's then stamped with a number or bar (1, 2, 3, or 4) indicating the range. You may find any combination of 1, 2, 3, or 4 in any engine.
   If the codes are indecipherable because of an accumulation of dirt and dust, do not scrub them with a wire brush or scraper. Clean them only with solvent or detergent.

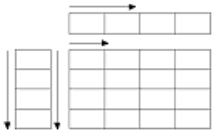
Normal Bore Size:	**43.0 mm (1.69 in.)**

Connecting Rod Journal Code Location

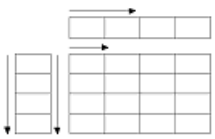
3. The connecting rod journal codes are stamped on the crankshaft.

4. Use the big end bore codes and rod journal codes to select appropriate replacement bearings from the following table.
   NOTE: Color code is on the edge of the bearing.

L15A7 engine

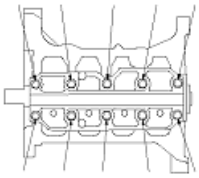


L13Z1 engine



Crankshaft Main Bearing Replacement

Main Bearing Clearance Inspection



1. To check main bearing-to-journal oil clearance, remove the bearing cap bridge and bearing halves.
2. Clean each main journal and bearing half with a clean shop towel.
3. Place one strip of plastigage across each main journal.
4. Reinstall the bearings and bearing cap bridge, then tighten the bearing cap bolts to 25 N·m (2.5 kgf·m, 18 lbf·ft) in the proper sequence.
   NOTE: Do not rotate the crankshaft during inspection.
5. Tighten the bearing cap bolts an additional 40 °.

6. Remove the bearing cap bridge and bearings again, and measure the widest part of the plastigage.

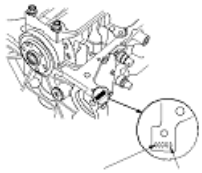
Main Bearing-to-Journal Oil Clearance

Standard (New):	**0.018–0.036 mm (0.0007–0.0014 in.)**
Service Limit:	**0.050 mm (0.0020 in.)**

7. If the plastigage measures too wide or too narrow, remove the crankshaft, and remove the upper half of the bearing. Install a new, complete bearing with the same color code(s), and recheck the clearance. Do not file, shim, or scrape the bearings or the caps to adjust clearance.
8. If the plastigage shows the clearance is still incorrect, try the next larger or smaller bearing (the color listed above or below the current one), and check again. If the proper clearance cannot be obtained by using the appropriate larger or smaller bearings, replace the crankshaft and start over.

Main Bearing Selection

Crankshaft Bore Code Location



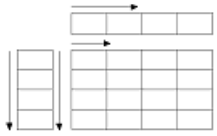
1. Letters have been stamped on the end of the block as a code for the size of each of the five main journal bores. Write down the crank bore codes.
   If you can't read the codes because of accumulated dirt and dust, do not scrub them with a wire brush or scraper. Clean them only with solvent or detergent.

Main Journal Code Location

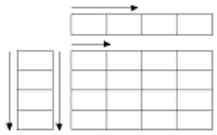
2. The main journal codes are stamped on the crankshaft.

3. Use the crank bore codes and crank journal codes to select the appropriate replacement bearings from the following table.
   NOTE: Color code is on the edge of the bearing.

L15A7 engine

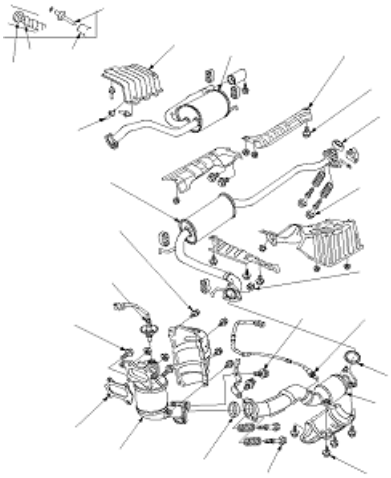


L13Z1 engine



Exhaust Pipe and Muffler Replacement

NOTE: Use new gaskets and self-locking nuts when reassembling.

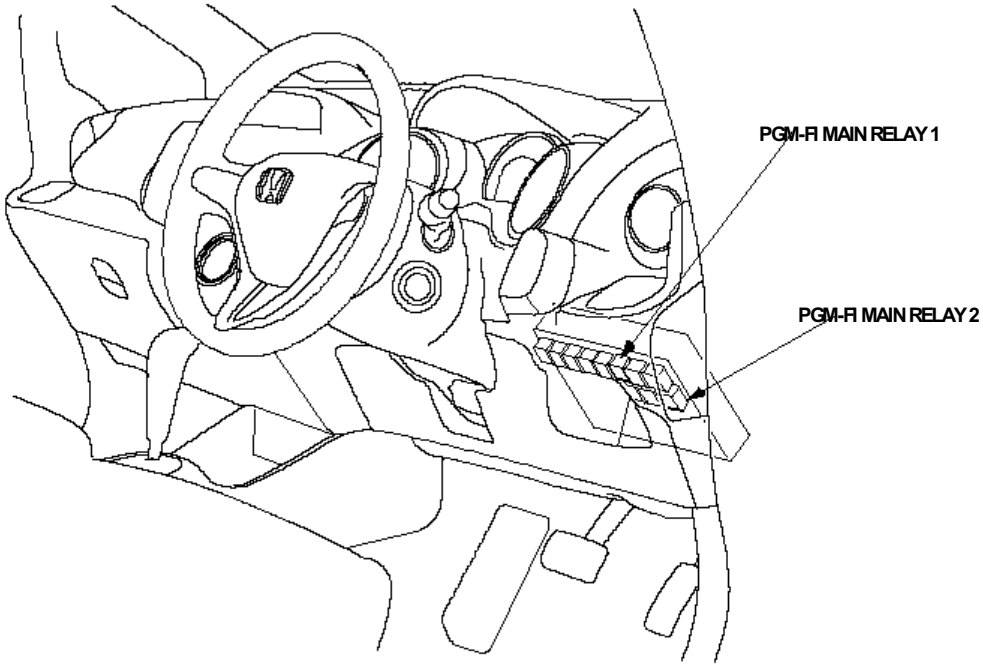


Fuel and Emissions System Description - Vacuum Lines

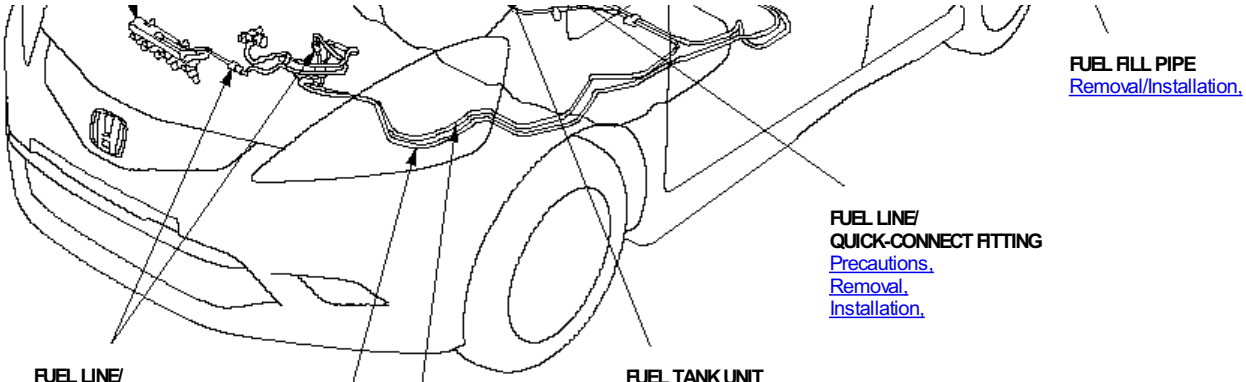
[Vacuum Hose Routing]
[Vacuum Distribution]

Fuel Supply System Component Location Index

RHD model



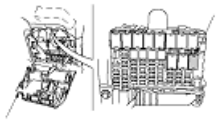
*: This illustration shows RHD model.



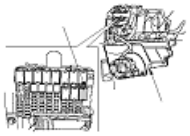
Fuel Pump Circuit Troubleshooting

If you suspect a problem with the fuel pump, check that the fuel pump actually runs; when it is on, you will hear some noise if you listen to the fuel fill port with the fuel fill cap removed. The fuel pump should run for 2 seconds when the ignition switch is turned on. If the fuel pump does not make noise, check as follows:

RHD model



LHD model



1. Turn the ignition switch to LOCK (0).
2. Open the fuse lid (A), then remove PGM-FI main relay 2 (B) from the under-dash fuse/relay box.
3. Turn the ignition switch to ON (II).

4. Measure the voltage between PGM-FI main relay 2 4P connector terminal No. 4 and body ground.

Is there battery voltage?

YES - Go to Step 5 .

NO -
- Replace the under-dash fuse/relay box. ■
- Replace the PGM-FI main relay 1 .■

5. Measure the voltage between PGM-FI main relay 2 4P connector terminal No. 2 and body ground.

Is there battery voltage?

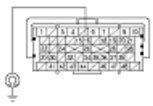
YES - Go to Step 6

NO -
- Check the No. 20 FUEL PUMP (15 A) fuse in the under-dash fuse/relay box.■
- If the fuse is OK, replace the under-dash fuse/relay box. ■

6. Turn the ignition switch to LOCK (0).

7. Connect PGM-FI main relay 2 4P connector terminal No. 3 to body ground with a jumper wire.
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).

10. Check for continuity between body ground and ECM/PCM connector terminal A16.



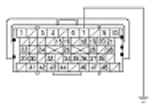
Is there continuity?

YES - Go to Step 11 .

NO - Repair open in the wire between PGM-FI main relay 2 and the ECM/PCM (A16).■

11. Reinstall PGM-FI main relay 2.

12. Connect ECM/PCM connector terminal A7 to body ground with a jumper wire.
13. Turn the ignition switch to ON (II).



14. Measure the voltage between ECM/PCM connector terminal A16 and body ground.

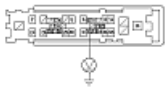
Is there battery voltage?

YES - Go to Step 15 .

NO -
- Repair open in the wire between the under-dash fuse/relay box and the ECM/PCM (A7, A16).■
- Replace PGM-FI main relay 2. ■

15. Turn the ignition switch to LOCK (0).
16. Reconnect ECM/PCM connector A (49P).

17. Turn the ignition switch to ON (II), and measure the voltage between under-dash fuse/relay box connector B (36P) terminal No. 32 and body ground within 2 seconds.

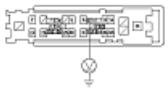


Is there battery voltage?

YES - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■

NO - Go to Step 18 .

18. Turn the ignition switch to ON (II), and measure the voltage between under-dash fuse/relay box connector B (36P) terminal No. 32 and body ground after 2 seconds.



Is there battery voltage?
YES - Go to Step 19 .
NO - If needed, replace the under-dash fuse/relay box, then go to Step 19 .

19. Turn the ignition switch to LOCK (0).

20. Remove the center console.

21. Remove the parking brake lever, then remove the access panel from the floor.

---

22. Turn the ignition switch to ON (II), and measure the voltage between fuel tank unit 4P connector terminal No. 2 and body ground within 2 seconds.

Is there battery voltage?
YES - Go to Step 27 .
NO - Go to Step 23 .

23. Turn the ignition switch to LOCK (0).

24. Remove PGM-FI main relay 2.

---

25. Connect PGM-FI main relay 2 4P connector terminals No. 1 and No. 2 with a jumper wire.

---

26. Turn the ignition switch to ON (II), and measure the voltage between fuel tank unit 4P connector terminal No. 2 and body ground.

Is there battery voltage?
YES - Replace PGM-FI main relay 2 .■
NO - Repair open in the wire between PGM-FI main relay 2 and the fuel tank unit 4P connector.■

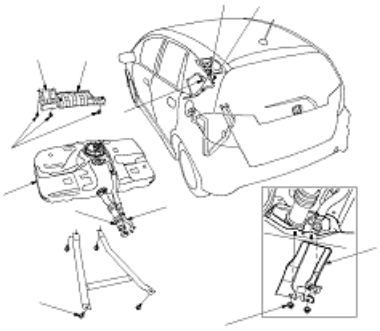
27. Turn the ignition switch to LOCK (0).

---

28. Check for continuity between fuel tank unit 4P connector terminal No. 4 and body ground.

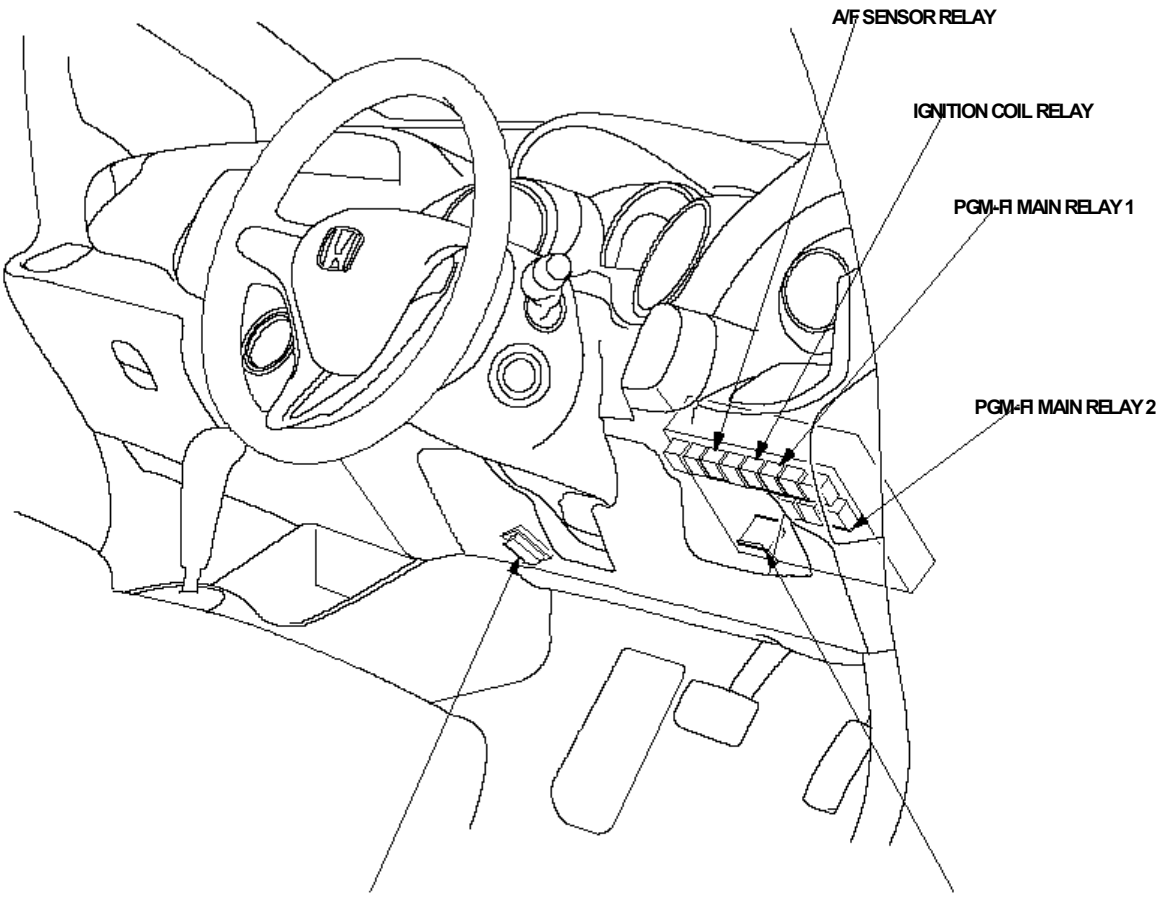
Is there continuity?
YES - Replace the fuel pump. ■
NO - Repair open in the wire between the fuel tank unit 4P connector and G502. ■

Fuel Tank Replacement

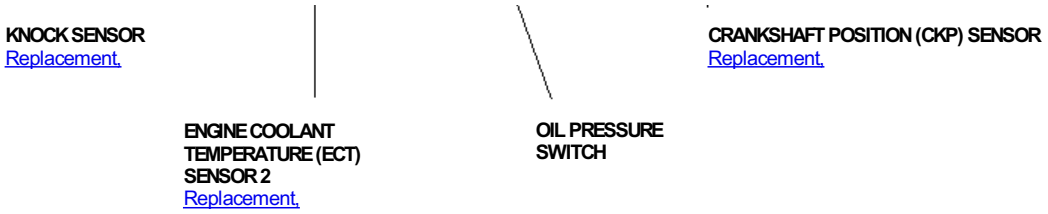


1. Drain the fuel tank, then disconnect the fuel tank unit 4P connector (A), the fuel vapor hose (B), and the quick-connect fittings (C).
2. Lift the vehicle, and support it with jackstands.
3. Remove the fill neck tube cover (D), then disconnenct the fuel fill tube (E) and the suction hose (F). Slide back the clamps, then twist the hoses as you pull to avoid damaging them.
4. Remove the fuel tank guard bracket (G) and the fuel tank protector (H).
5. Place a jack or other support under the tank (I).
6. Remove the strap bolts and the straps (J).
7. Remove the fuel tank.
8. Install the parts in the reverse order of removal.

PGM-FI System Component Location Index



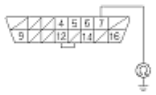
*: This illustration shows RHD model.



*: This illustration shows RHD model.

DLC Circuit Troubleshooting

NOTE: Make sure the HDS and its DLC cable are working properly.



1. Turn the ignition switch to LOCK (0).
2. Connect the HDS to the DLC.
   NOTE: Make sure the HDS is properly connected to the DLC.
3. Turn the ignition switch to ON (II), and read the HDS.

   Does the HDS identify the vehicle?
   YES - Go to Step 4 .
   NO - Go to Step 21 .
4. Check for Temporary DTCs or DTCs in the PGM-FI system with the HDS.

   Are any Temporary DTCs or DTCs indicated?
   YES - Go to the indicated DTC's troubleshooting.■
   NO -
   - If the HDS does not communicate with the SRS system, go to Step 5 .
   - If the HDS does not communicate with the ABS system, go to Step 7 .
   - If the HDS does not communicate with the EPS system, go to Step 9 .
   - If the HDS does not communicate with the IMMOBI (immobilizer) system, go to Step 11 .
   - If the HDS does not communicate with the BODY ELECTRICAL system, go to Step 13 .
5. Turn the ignition switch to LOCK (0).
6. Turn the ignition switch to ON (II), and watch the SRS indicator.

   Does the SRS indicator stay on?
   YES - Go to the SRS system's general troubleshooting information. ■
   NO - Go to Step 13 .
7. Turn the ignition switch to LOCK (0).
8. Turn the ignition switch to ON (II), and watch the ABS indicator.

   Does the ABS indicator stay on?
   YES - Go to the ABS system's general troubleshooting information. ■
   NO - Go to Step 13 .
9. Turn the ignition switch to LOCK (0).
10. Turn the ignition switch to ON (II), and watch the EPS indicator.

    Does the EPS indicator stay on?
    YES - Go to the EPS system's general troubleshooting information. ■
    NO - Go to Step 13 .
11. Turn the ignition switch to LOCK (0).
12. Turn the ignition switch to ON (II), and watch the immobilizer indicator.

    Does the immobilizer indicator stay on or flash?
    YES - Go to the immobilizer system's troubleshooting. ■
    NO - Go to Step 13 .
13. Do the gauge self-diagnostic function.
14. Check the gauge display.

    Is Error 2 indicated?
    YES - Check for B-CAN system DTCs.■
    NO - Go to Step 15 .
15. Turn the ignition switch to LOCK (0).
16. Disconnect the HDS from the DLC.
17. Check for continuity between DLC terminal No. 7 and body ground.

    Is there 5 Ω or less?
    YES - Go to Step 18 .
    NO - Go to Step 19 .
18. Continue to check for continuity between DLC terminal No. 7 and body ground, while disconnecting these parts, one at a time:
    - SRS unit connector A (39P)
    - ABS modulator-control unit 25P connector
    - EPS control unit connector C (16P)
    - Immobilizer-keyless control unit 7P connector
    - Audio unit 24P connector

- Under-dash fuse/relay box (Q) (16P) connector

Does continuity go away when one of the above components is disconnected?

YES - Replace the part caused an open when it was disconnected.■

NO - Repair short in the wire between the DLC (K-line) and the ABS control unit, the SRS unit, the EPS control unit, the immobilizer-keyless control unit, the audio unit, the under-dash fuse/relay box, or the ECM/PCM.■

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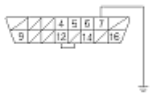
19. Connect DLC terminal No. 7 to body ground with a jumper wire.



20. Check for continuity between body ground and these connector terminals:

Connector	Terminal
SRS unit A (39P)	No. 18 (BLU)
ABS control unit 25P	No. 10 (BLU)
EPS control unit C (16P)	No. 16 (BLU)
Immobilizer-keyless control unit 7P	No. 5 (BLU)
Audio unit 24P	No. 3 (BLU)
Under-dash fuse/relay box (Q) (16P)	No. 2 (BLU)

Is there continuity between the DLC terminal and each of the terminals in the chart?

YES - Replace the part that does not communicate with the HDS.■

NO - Repair open in the wire between the DLC (K-line) and the appropriate connector.■

21. Check for B-CAN system DTCs without the HDS.

Is DTC U0029 and/or U0100 indicated?

YES - Go to Step 34 .

NO - Go to Step 22 .

22. Turn the ignition switch to LOCK (0).

23. Disconnect the HDS from the DLC.

---

24. Measure the voltage between DLC terminal No. 16 and body ground.

Is there battery voltage?

YES - Go to Step 25 .

NO - Repair open in the wire between DLC terminal No. 16 and the No. 1 BACK UP (7.5 A) fuse in the under-dash fuse/relay box.■

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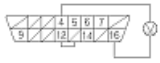
25. Measure the voltage between DLC terminals No. 4 and No. 16.



Is there battery voltage?

YES - Go to Step 26 .

NO - Repair open in the wire between DLC terminal No. 4 and body ground (G502).■

26. Connect the HDS to the DLC.

27. Jump the SCS line with the HDS.

28. Disconnect ECM/PCM connector A (49P).

29. Disconnect the HDS from the DLC.

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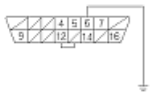
30. Connect DLC terminal No. 6 to body ground with a jumper wire.



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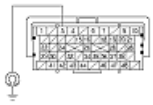
31. Check for continuity between ECM/PCM connector terminal A3 and body ground.



Is there continuity?

YES - Go to Step 32 .

NO - Repair open in the wire between the ECM/PCM (A3) and DLC terminal No. 6.■

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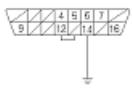
32. Connect DLC terminal No. 14 to body ground with a jumper wire.



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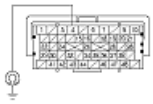
33. Check for continuity between ECM/PCM connector terminal A4 and body ground.



Is there continuity?

YES - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■

NO - Repair open in the wire between the ECM/PCM (A4) and DLC terminal No. 14.■

34. Try to start the engine.

Does the engine start and idle smoothly?

YES - Go to F-CAN circuit troubleshooting. ■

NO - Go to Step 35 .

35. Turn the ignition switch to LOCK (0).

36. Check the No. 60 IGSW (50 A) fuse in the under-dash fuse/relay box.

Is the fuse OK?

YES - Repair open in the wire the No. 60 IGSW (50 A) fuse and the ignition switch. If the wire is OK go to Step 37 .

NO - Repair short in the wire the No. 60 IGSW (50 A) fuse and the under-dash fuse/relay box. Also replace the No. 60 IGSW (50 A) fuse.■

37. Inspect the No. 39 IGP (15 A) fuse in the under-dash fuse/relay box.

Is the fuse OK?

YES - Go to Step 44 .

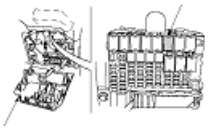
NO - Go to Step 38 .

38. Remove the blown No. 39 IGP (15 A) fuse from the under-dash fuse/relay box.

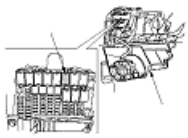
---

39. Open the fuse lid (A), then remove the PGM-FI main relay 1 (B) from the under-dash fuse/relay box.

RHD model



LHD model



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40. Check for continuity between body ground and PGM-FI main relay 1 4P connector terminals No. 2 and No. 3 individually.

Is there continuity?

YES - Replace the under-dash fuse/relay box. ■

NO - Go to Step 41 .

---

41. While disconnecting each of the parts or connectors below, one at a time, check for continuity between PGM-FI main relay 1 4P connector terminal No. 1 and body ground.

- PGM-FI main relay 2
- ECM/PCM connector A (49P)
- Each injector 2P connector
- Camshaft position (CMP) sensor 3P connector
- Crankshaft position (CKP) sensor 3P connector
- Electronic throttle control system (ETCS) control relay

Does continuity go away when one of the above components is disconnected?

YES - Replace the part that made the short to body ground go away when disconnected. If the part is the ECM/PCM, update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. Also replace the No. 39 IGP (15 A) fuse.■

NO - Go to Step 42 .

42. Disconnect these parts or connectors:
    - PGM-FI main relay 2
    - ECM/PCM connector A
    - Injectors
    - Camshaft position (CMP) sensor
    - Crankshaft position (CKP) sensor
    - Electronic throttle control system (ETCS) control relay

---

43. Check for continuity between PGM-FI main relay 1 4P connector terminal No. 2 and body ground.

Is there continuity?
YES - Repair short in the wire between PGM-FI main relay 1 and each item. Also replace the No. 39 IGP (15 A) fuse.■
NO - Replace PGM-FI main relay 1. Also replace the No. 39 IGP (15 A) fuse.■

44. Inspect the No. 20 FUEL PUMP (15 A) fuse in the under-dash fuse/relay box.

Is the fuse OK?
YES - Go to Step 54 .
NO - Go to Step 45 .

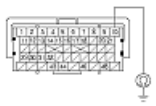
45. Remove the blown No. 20 FUEL PUMP (15 A) fuse from the under-dash fuse/relay box.

46. Jump the SCS line with the HDS.

47. Disconnect ECM/PCM connector C (49P).

---

48. Check for continuity between ECM/PCM connector terminal C10 and body ground.

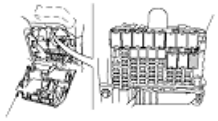


Is there continuity?
YES - Go to Step 49 .
NO - Replace the No. 20 FUEL PUMP (15 A) fuse, and update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■

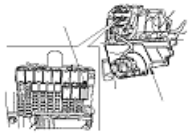
---

49. Open the fuse lid (A), then remove the PGM-FI main relay 2 (B) from the under-dash fuse/relay box.

RHD model



LHD model



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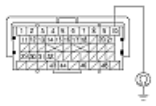
50. Check for continuity between ECM/PCM connector terminal C10 and body ground.



Is there continuity?
YES - Repair short in the wire between the No. 20 FUEL PUMP (15 A) fuse and the ECM/PCM (C10), or PGM-FI main relay 2. Also replace the No. 20 FUEL PUMP (15 A) fuse.■
NO - Go to Step 51 .

51. Disconnect the fuel pump 4P connector.

---

52. Check for continuity between fuel pump 4P connector terminal No. 2 and body ground.

Is there continuity?
YES - Repair short in the wire between the fuel pump and PGM-FI main relay 2. Also replace the No. 20 FUEL PUMP (15 A) fuse.■
NO - Go to Step 53 .

53. Test PGM-FI main relay 2.

Is the relay OK?
YES - Check the fuel pump, and replace it if necessary. Also replace the No. 20 FUEL PUMP (15 A) fuse.■
NO - Replace PGM-FI main relay 2. Also replace the No. 20 FUEL PUMP (15 A) fuse.■

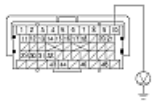
54. Jump the SCS line with the HDS.

55. Disconnect ECM/PCM connectors A (49P) and C (49P).

56. Turn the ignition switch to ON (II).

---

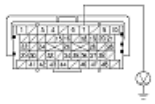
57. Measure the voltage between ECM/PCM connector terminal C10 and body ground.



Is there battery voltage?
YES - Go to Step 58 .
NO - Repair open in the wire between the No. 20 FUEL PUMP (15 A) fuse and the ECM/PCM (C10).■

---

58. Measure the voltage between ECM/PCM connector terminal A7 and body ground.



Is there battery voltage?

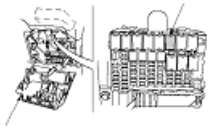
YES - Go to Step 64 .
NO - Go to Step 59 .

59. Turn the ignition switch to LOCK (0).

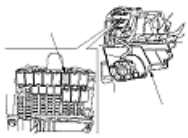
---

60. Open the fuse lid (A), then remove the PGM-FI main relay 1 (B) from the under-dash fuse/relay box.

RHD model



LHD model



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61. Measure the voltage between PGM-FI main relay 1 4P connector terminal No. 3 and body ground.

Is there battery voltage?

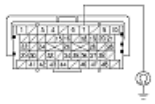
YES - Go to Step 62 .
NO - Replace the under-dash fuse/relay box.

---

62. Connect PGM-FI main relay 1 4P connector terminal No. 4 to body ground with a jumper wire.

---

63. Check for continuity between ECM/PCM connector terminal A7 and body ground.



Is there battery voltage?

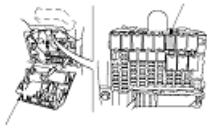
YES - Test PGM-FI main relay 1. If the relay is OK, update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■
NO - Repair open in the wire between the ECM/PCM (A7) and PGM-FI main relay 1.■

64. Turn the ignition switch to LOCK (0).

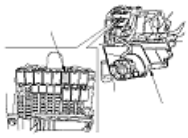
---

65. Open the fuse lid (A), then remove the PGM-FI main relay 1 (B) from the under-dash fuse/relay box.

RHD model



LHD model



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66. Measure the voltage between PGM-FI main relay 1 4P connector terminal No. 2 and body ground.

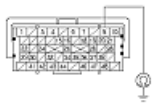
Is there battery voltage?

YES - Go to Step 67 .
NO - Replace the under-dash fuse/relay box. ■

---

67. Connect PGM-FI main relay 1 4P connector terminal No. 1 to body ground with a jumper wire.

68. Check for continuity between ECM/PCM connector terminal A9 and body ground.



Is there continuity?

YES - Go to Step 69 .
NO - Repair open in the wire between the ECM/PCM (A9) and PGM-FI main relay 1.■

69. Test PGM-FI main relay 1.

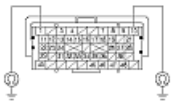
Is PGM-FI main relay 1 OK?

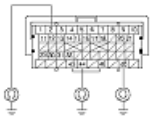
YES - Go to Step 70 .
NO - Replace the PGM-FI main relay 1 .■

70. Disconnect ECM/PCM connector B (49P).

---

71. Check for continuity between body ground and ECM/PCM connector terminals B1, B10, C2, C44, and C48 individually.



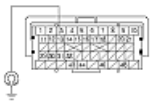


Is there continuity?

YES - Go to Step 72 .
NO - Repair open in the wire between the ECM/PCM (B1, B10, C2, C44, C48) and G101.■

---

72. Check for continuity between ECM/PCM connector terminal C13 and body ground.



Is there continuity?

YES - Go to Step 73 .
NO - Go to Step 74 .

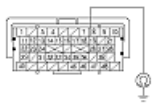
73. Continue to check for continuity between ECM/PCM connector terminal C13 and body ground, while disconnecting these parts, one at a time:
    - MAP sensor 3P connector
    - Output shaft (countershaft) speed sensor 3P connector

Does continuity go away when one of the above components is disconnected?

YES - Repair the part that caused an open when it was disconnected.■
NO - Repair short in the between the ECM/PCM (C13) and the MAP sensor or the output shaft (countershaft) speed sensor.■

---

74. Check for continuity between ECM/PCM connector terminal B19 and body ground.



Is there continuity?

YES - Go to Step 75 .
NO - Go to Step 76 .

75. Continue to check for continuity between ECM/PCM connector terminal B19 and body ground, while disconnecting the input shaft (mainshaft) speed sensor 3P connector.

Is there continuity?

YES - Repair short in the wire between the ECM/PCM (B19) and the input shaft (mainshaft) speed sensor.■
NO - Replace the input shaft (mainshaft) speed sensor. ■

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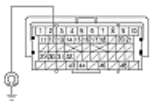
76. Check for continuity between ECM/PCM connector terminal C12 and body ground.



Is there continuity?

YES - Go to Step 77 .
NO - Go to Step 78 .

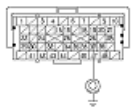
77. Continue to check for continuity between ECM/PCM connector terminal C12 and body ground, while disconnecting the throttle body 6P connector.

Is there continuity?

YES - Repair short in the wire between the ECM/PCM (C12) and the throttle body.■
NO - Replace the throttle body. ■

---

78. Check for continuity between ECM/PCM connector terminal A26 and body ground.



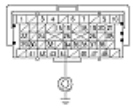
Is there continuity?
YES - Go to Step 79 .
NO - Go to Step 80 .

79. Continue to check for continuity between ECM/PCM connector terminal A26 and body ground, while disconnecting the APP sensor 6P connector.

Is there continuity?
YES - Repair short in the wire between the ECM/PCM (A26) and APP sensor A.■
NO - Replace the accelerator pedal module. ■

---

80. Check for continuity between ECM/PCM connector terminal A25 and body ground.



Is there continuity?
YES - Go to Step 81 .
NO - Go to Step 82 .

81. Continue to check for continuity between ECM/PCM connector terminal A25 and body ground, while disconnecting the APP sensor 6P connector.

Is there continuity?
YES - Repair short in the wire between the ECM/PCM (A25) and APP sensor B.■
NO - Replace the accelerator pedal module. ■

---

82. Check for continuity between ECM/PCM connector terminal A20 and body ground.

Is there continuity?
YES - Go to Step 83 .
NO - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■

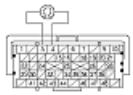
83. Continue to check for continuity between ECM/PCM connector terminal A20 and body ground, while disconnecting the temperature control dial 6P connector.

Is there continuity?
YES - Repair short in the wire between the ECM/PCM (A20) and the temperature control dial.■
NO - Replace the temperature control dial. ■

F-CAN Circuit Troubleshooting

NOTE: Information marked with an asterisk (*) applies to the CANL line.

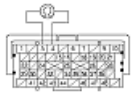
1. Turn the ignition switch to LOCK (0).
2. Jump the SCS line with the HDS.
3. Disconnect ECM/PCM connector A (49P), then disconnect the HDS.
4. Measure the resistance between ECM/PCM connector terminals A3 and A4.



Is there about 95−116 Ω?
YES - Go to Step 27 .
NO - Go to Step 5 .

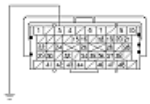
5. Disconnect these connectors:
   - Gauge control module 32P
   - ABS modulator-control unit 25P
   - EPS control unit C (16P)
   - SRS unit A (39P)

6. Check for continuity between ECM/PCM connector terminals A3 and A4.



Is there continuity?
YES - Repair short in the wire between ECM/PCM terminals A3 and A4 * .■
NO - Go to Step 7 .

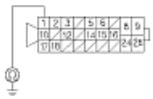
7. Connect ECM/PCM connector terminal A3 to body ground with a jumper wire.



8. Check for continuity between gauge control module 32P connector terminal No. 30 and body ground.

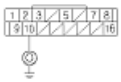
Is there continuity?
YES - Go to Step 9 .
NO - Repair open in the wire between the ECM/PCM (A3) and the gauge control module.■

9. Check for continuity between ABS modulator-control unit 25P connector terminal No. 1 and body ground.



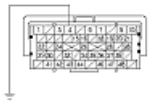
Is there continuity?
YES - Go to Step 10 .
NO - Repair open in the wire between the ECM/PCM (A3) and the ABS modulator-control unit.■

10. Check for continuity between EPS control unit connector C (16P) terminal No. 10 and body ground.



Is there continuity?
YES - Go to Step 11 .
NO - Repair open in the wire between the ECM/PCM (A3) and the EPS control unit.■

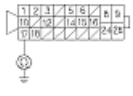
11. Remove the jumper wire from ECM/PCM connector A (49P).
12. Connect ECM/PCM connector terminal A4 to body ground with a jumper wire.



13. Check for continuity between gauge control module 32P connector terminal No. 29 and body ground.

Is there continuity?
YES - Go to Step 14 .
NO - Repair open in the wire between the ECM/PCM (A4) and the gauge control module.■

14. Check for continuity between ABS modulator-control unit 25P connector terminal No. 17 and body ground.



Is there continuity?
YES - Go to Step 15 .
NO - Repair open in the wire between the ECM/PCM (A4) and the ABS modulator-control unit.■

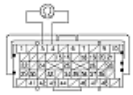
15. Check for continuity between EPS control unit connector C (16P) terminal No. 9 and body ground.

Is there continuity?
YES - Go to Step 16 .
NO - Repair open in the wire between the ECM/PCM (A4) and the EPS control unit.■

16. Reconnect the gauge control module 32P connector.

---

17. Measure the resistance between ECM/PCM connector terminals A3 and A4.



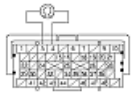
Is there about 108−132 Ω?
YES - Go to Step 18 .
NO - Substitute a known-good gauge control module, If the HDS identifies the vehicle, replace the original gauge control module. ■

18. Disconnect the gauge control module 32P connector.

19. Reconnect the ABS modulator-control unit 25P connector.

---

20. Measure the resistance between ECM/PCM connector terminals A3 and A4.



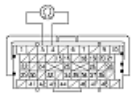
Is there about 2.34−2.86 kΩ?
YES - Go to Step 21 .
NO - Substitute a known-good ABS modulator-control unit, If the HDS identifies the vehicle, replace the original ABS modulator-control unit. ■

21. Disconnect the ABS modulator-control unit 46P connector.

22. Reconnect EPS control unit connector C (16P).

---

23. Measure the resistance between ECM/PCM connector terminals A3 and A4.



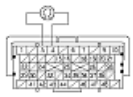
Is there about 2.34−2.86 kΩ?
YES - Go to Step 24 .
NO - Substitute a known-good EPS control unit, If the HDS identifies the vehicle, replace the original EPS control unit. ■

24. Disconnect EPS control unit connector C (16P).

25. Reconnect SRS unit connector A (39P).

---

26. Measure the resistance between ECM/PCM connector terminals A3 and A4.

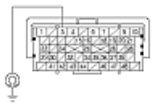


Is there about 2.34−2.86 kΩ?
YES - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■
NO - Substitute a known-good SRS unit. If the HDS identifies the vehicle, replace the original SRS unit. ■

27. Disconnect these connectors:
- Gauge control module 32P
- ABS modulator-control unit 25P
- EPS control unit C (16P)
- SRS unit A (39P)

---

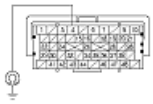
28. Check for continuity between ECM/PCM connector terminal A3 and body ground.



Is there continuity?
YES - Repair short in the wire between ECM/PCM terminals A3 and the gauge control module, the ABS modulator-control unit, the EPS control unit, the SRS unit, or the DLC.■
NO - Go to Step 29 .

---

29. Check for continuity between ECM/PCM connector terminal A4 and body ground.



Is there continuity?
YES - Repair short in the wire between ECM/PCM terminals A4 and the gauge control module, the ABS modulator-control unit, the EPS control unit, the SRS unit, or the DLC.■
NO - Go to Step 30 .

30. Reconnect all connectors.

31. Connect the HDS to the DLC.

32. Disconnect the gauge control module 32P connector.

33. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?
YES - Replace the gauge control module. ■
NO - Go to Step 34 .

34. Turn the ignition switch to LOCK (0).

35. Reconnect the gauge control module 32P connector.

36. Disconnect the ABS modulator-control unit 25P connector.

37. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?
YES - Replace the ABS modulator-control unit. ■
NO - Go to Step 38 .

38. Turn the ignition switch to LOCK (0).

39. Reconnect the ABS modulator-control unit 25P connector.

40. Disconnect EPS control unit connector C (16P).

41. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?
YES - Replace the EPS control unit. ■
NO - Go to Step 42 .

42. Turn the ignition switch to LOCK (0).

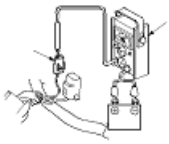
43. Reconnect EPS control unit connector D (28P).

44. Disconnect SRS unit connector A (39P).

45. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?
YES - Replace the SRS unit. ■
NO - Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM, then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM. ■

Idle Speed Inspection



NOTE:

- Before checking the idle speed, check these items:
  - The malfunction indicator lamp (MIL) has not been reported on, and there are no DTCs.
  - Ignition timing
  - Spark plugs
  - Air cleaner
  - PCV system
  - Headlight OFF

1. Disconnect the evaporative emission (EVAP) canister purge valve connector.
2. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard, or a tachometer (B) to the test tachometer connector (C).
3. When using the HDS, make sure the HDS communicates with the ECM/PCM. If it doesn't, go to the DLC circuit troubleshooting.
4. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
5. Check the idle speed without load conditions: headlights, blower fan, radiator fan, and air conditioner off.
   Idle speed should be:

L13Z1 engine

M/T	**650±50 rpm (min $^{-1}$)**
A/T	**700±50 rpm (min $^{-1}$) (in N or P)**

L15A7 engine

M/T	**700±50 rpm (min $^{-1}$)**
A/T	**700±50 rpm (min $^{-1}$) (in N or P)**

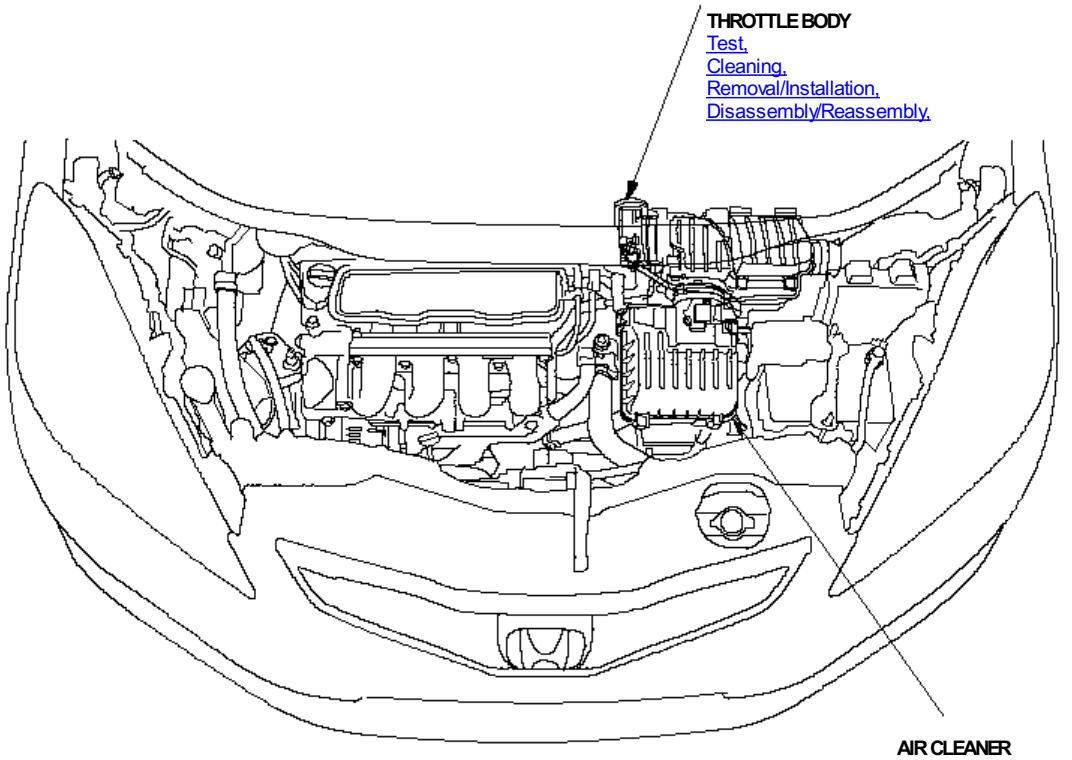
6. Let the engine idle for 1 minute with high electric load (A/C switch on, temperature set to max cool, blower fan on High, and headlights on high beam).
   Idle speed should be:

M/T	**790±50 rpm (min $^{-1}$)**
A/T	**790±50 rpm (min $^{-1}$) (in N or P)**

   NOTE: If the idle speed is not within specification, do the ECM/PCM idle learn procedure. If the idle speed is still not within specification, go to symptom troubleshooting.

7. Reconnect the EVAP canister purge valve connector.

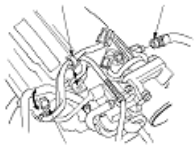
Intake Air System Component Location Index



*: This illustration shows RHD model.

Intake Manifold Chamber Removal and Installation

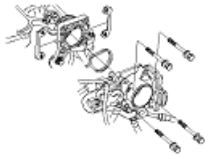
Exploded View



Removal

1. Remove the under-cowl panel.
2. Remove the air cleaner housing assembly.
3. Remove the engine wire harness connectors and wire harness clamps from the intake manifold chamber.
   - Throttle actuator connector
   - Manifold absolute pressure (MAP) sensor connector
4. Remove the brake booster vacuum hose (A) and the harness clamp (B).
5. Remove the water bypass hose from the clamp (C).

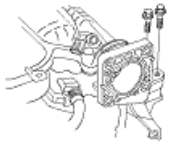
6. Remove the throttle body without disconnecting the water bypass hoses.



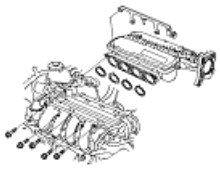
7. Remove the intake manifold bracket mounting bolts.

L15A7 engine

L13Z1 engine

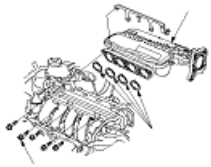


8. Remove the intake manifold chamber.

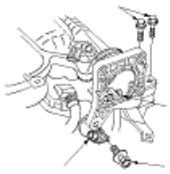


Installation

1. Install the intake manifold chamber (A) with a new gaskets (B), and tighten the bolts in a crisscross pattern in three steps, beginning with the inner bolt.



2. With L15A7 engine: Loosen the intake manifold bracket mounting bolt (A), (B). Tighten the mounting bolts (C), then tighten the mounting bolt (A). Loosely tighten the mounting bolt (D), and tighten the mounting bolt (B), then tighten the mounting bolt (D).

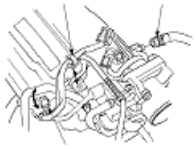


3. With L13Z1 engine: Loosen the intake manifold bracket mounting bolt (A). Tighten the mounting bolts (B), then tighten the mounting bolt (A).

4. Install the throttle body (A) with a new gasket (B).

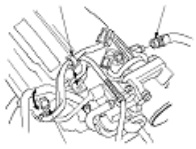
---

5. Install the water bypass hose to the clamp (A).
6. Install the brake booster vacuum hose (B) and the harness clamp (C).
7. Install the engine wire harness connectors and wire harness clamps to the intake manifold chamber.
   - Throttle actuator connector
   - MAP sensor connector
8. Install the air cleaner housing assembly.
9. Install the under-cowl panel.



Intake Manifold/Chamber Assembly Removal and Installation

Exploded View

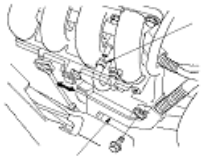


Removal

1. Remove the under-cowl panel.
2. Remove the air cleaner housing assembly.
3. Remove the engine wire harness connectors and wire harness clamps from the intake manifold chamber.
   - Throttle actuator connector
   - Manifold absolute pressure (MAP) sensor connector
   - Exhaust gas recirculation (EGR) valve connector
4. Remove the brake booster vacuum hose (A) and the harness clamp (B).
5. Remove the water bypass hose from the clamp (C).

6. Remove the throttle body without disconnecting the water bypass hoses.

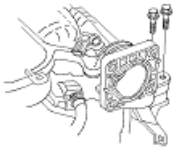
7. Remove the harness holder mounting bolt, then remove the harness holder (A) from the bracket.
8. Remove the positive crankcase ventilation (PCV) hose (B).
9. Remove the dipstick.



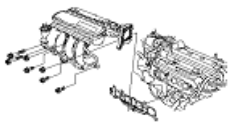
10. Remove the intake manifold bracket mounting bolts.

L15A7 engine

L13Z1 engine

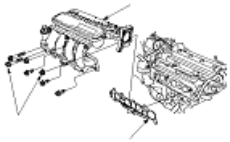


11. Remove the intake manifold/chamber assembly.



Installation

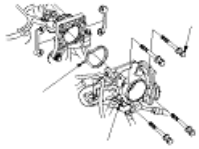
1. Install the intake manifold/chamber assembly (A) with a new gasket (B), and tighten the bolts and nuts in a crisscross pattern in three steps, beginning with the inner bolt.



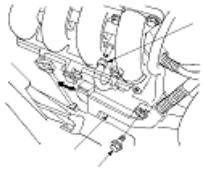
2. With L15A7 engine: Loosen the intake manifold bracket mounting bolt (A), (B). Tighten the mounting bolts (C), then tighten the mounting bolt (A). Loosely tighten the mounting bolt (D), and tighten the mounting bolt (B), then tighten the mounting bolt (D).

3. With L13Z1 engine: Loosen the intake manifold bracket mounting bolt (A). Tighten the mounting bolts (B), then tighten the mounting bolt (A).

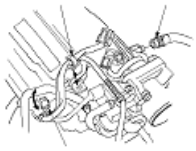
4. Install the throttle body (A) with a new gasket (B).
5. Install the dipstick.



6. Install the PCV hose (A) and harness holder (B).

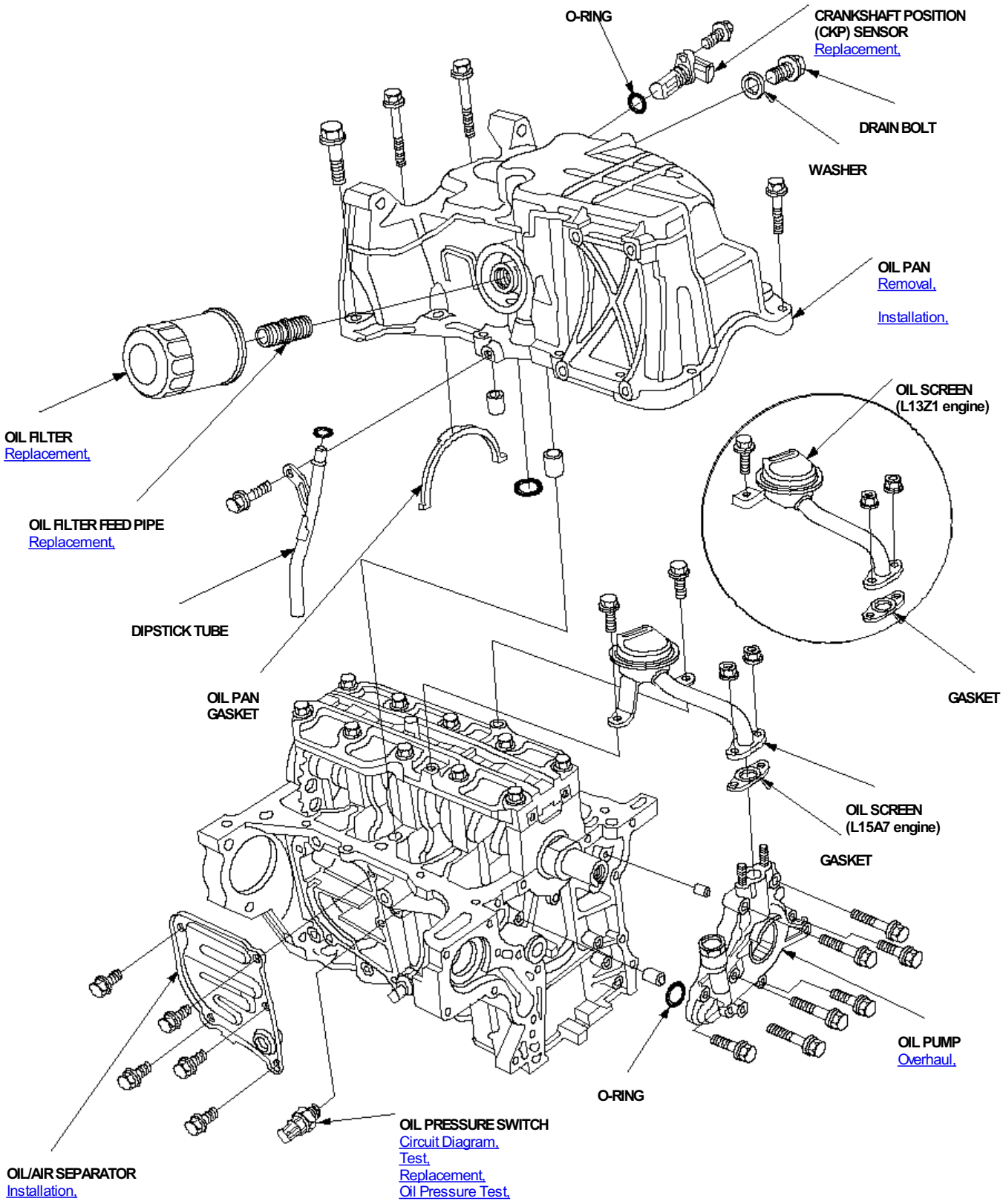


7. Install the water bypass hose to the clamp (A).
8. Install the brake booster vacuum hose (B) and the harness clamp (C).
9. Install the engine wire harness connectors and wire harness clamps to the intake manifold chamber.
    - Throttle actuator connector
    - MAP sensor connector
    - EGR valve connector



10. Install the air cleaner housing assembly.
11. Install the under-cowl panel.

Engine Lubrication Component Location Index



Engine Oil Pump Overhaul

Exploded View

Special Tools Required

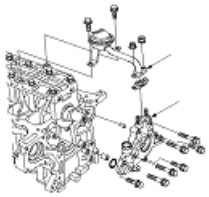
Sub hanger stay
07MAK-PY30100

Removal

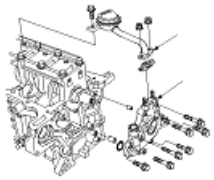
1. Remove the cam chain.
2. Remove the alternator mounting bolt, then install the sub hanger stay.
3. Attach the chain to the sub hanger stay. Lift and support the engine with the chain.
4. Remove the oil pan.

5. Remove the oil screen (A), then remove the oil pump (B).

L15A7 engine



L13Z1 engine

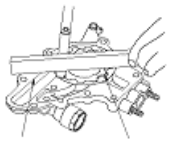


Inspection

1. Remove the screws from the oil pump housing, then separate the pump housing and pump cover.
2. Check the inner-to-outer rotor radial clearance between the inner rotor (A) and the outer rotor (B). If the inner-to-outer rotor clearance exceeds the service limit, replace the oil pump assembly.

Inner Rotor-to-Outer Rotor Radial Clearance

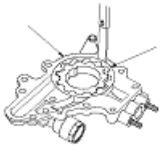
Standard (New):	**0.06–0.16 mm (0.002–0.006 in.)**
Service Limit:	**0.20 mm (0.008 in.)**



3. Check the pump housing-to-rotor axial clearance between the rotors (A) and pump housing (B). If the pump housing-to-rotor axial clearance exceeds the service limit, replace the oil pump assembly.

Housing-to-Rotor Axial Clearance

Standard (New):	**0.02–0.06 mm (0.001–0.002 in.)**
Service Limit:	**0.15 mm (0.006 in.)**



4. Check the pump housing-to-outer rotor radial clearance between the outer rotor (A) and the pump housing (B). If the pump housing-to-outer rotor radial clearance exceeds the service limit, replace the oil pump assembly.

Pump Housing-to-Outer Rotor Radial Clearance

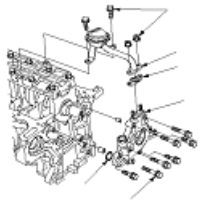
Standard (New):	**0.100–0.175 mm (0.0039–0.0069 in.)**
Service Limit:	**0.20 mm (0.008 in.)**

5. Inspect both rotors and the pump housing for scoring or other damage. Replace the parts, if necessary.
6. Check that the oil pump turns freely.

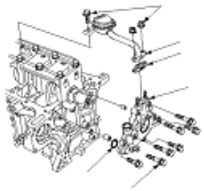
Installation

1. Clean the O-ring groove and the mating surface of the engine block.
2. Install the oil pump (A) with a new O-ring (B).
3. Install the oil screen (C) with a new gasket (D).
4. Install the oil pan.
5. Support the engine with a jack and wood block under the oil pan.

L15A7 engine



L13Z1 engine



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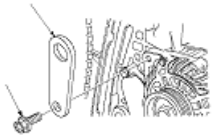
6. Remove the chain and sub hanger stay, then tighten the alternator mounting bolt.
7. Install the cam chain.



Safety Messages

Safety Messages

Your safety, and the safety of others, is very important. To help you make informed decisions, we have provided safety messages, and other safety information throughout this manual. Of course, it is not practical or possible to warn you about all the hazards associated with servicing this vehicle. You must use your own good judgment.
You will find important safety information in a variety of forms including:

- **Safety Labels –** on the vehicle.
- **Safety Messages –** preceded by a safety alert symbol and one of three signal words, DANGER, WARNING, or CAUTION.
  These signal words mean:

  You WILL be KILLED or SERIOUSLY HURT if you don't follow instructions.
  You CAN be KILLED or SERIOUSLY HURT if you don't follow instructions.
  You CAN be HURT if you don't follow instructions.

- **Instructions –** how to service this vehicle correctly and safely.

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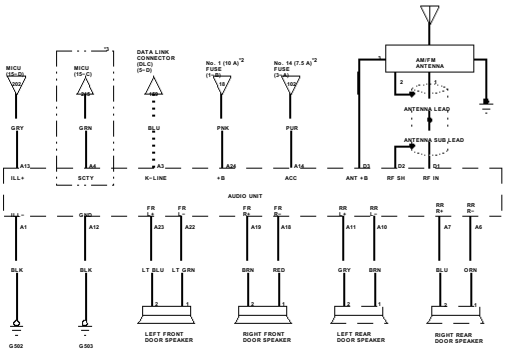
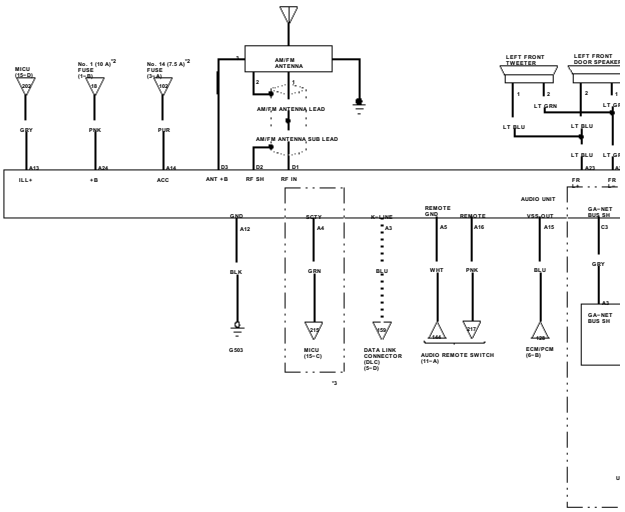
HONDA MOTOR CO., LTD.
Service Publication Office

Audio System

20

A B C





Maintenance Schedule for Normal and Severe Conditions - KM model

This Maintenance Schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
Follow the Normal Conditions Maintenance Schedule if the severe driving conditions specified in the Severe Conditions Maintenance Schedule do not apply.
The following items must be used for "Severe Conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to E.

- Engine oil and engine oil filter: A/B/C/D/E
- Manual transmission fluid: B/D

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.

Service at the indicated distance or time whichever comes first		km x 1,000	20	40	60	80	100	120	140	160	180	200
		miles x 1,000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0
		months	12	24	36	48	60	72	84	96	108	120
Replace engine oil	Normal Conditions		Every 10,000 km (6,250 miles) or 1 year									
	Severe Conditions		Every 5,000 km (3,125 miles) or 6 months									
Replace engine oil filter	Normal Conditions		●	●	●	●	●	●	●	●	●	●
	Severe Conditions		Every 10,000 km (6,250 miles) or 6 months									
Replace air cleaner element			Every 30,000 km (18,750 miles)									
Inspect the valve clearance			Every 40,000 km (25,000 miles)									
Replace fuel filter Have a qualified technician change the fuel filter. Since the fuel system is under pressure, fuel can spray out and create a hazard if all fuel line connections are not handled correctly.			Every 10,000 km (6,250 miles)									
Replace spark plugs	Iridium type		Every 10,000 km (62,500 miles)									
Inspect idle speed								●				
Replace engine coolant Use genuine Honda All Season Antifreeze/Coolant Type 2.			At 200,000 km (120,000 miles) or 10 years, thereafter every 100,000 km (60,000 miles) or 5 years									
Replace manual transmission fluid (MTF) Use genuine Honda MTF.	Normal Conditions							●				
	Severe Conditions				●			●			●	
Replace automatic transmission fluid Use genuine Honda ATF-Z1.	Normal Conditions							●				●
	Severe Conditions				●		●		●		●	

Service at the indicated distance or time whichever comes first	km x 1,000	20	40	60	80	100	120	140	160	180	200
	miles x 1,000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0
	months	12	24	36	48	60	72	84	96	108	120
Check front and rear brakes • Check the front brake pad and disc thickness. Check for damage. • Check the wheel cylinder for leaks. • Check the brake linings for cracking, glazing, wear, and contamination. • Check the caliper for damage, leaks, and tightness.	Every 10,000 km (6,250 miles) or 6 months										
Replace brake fluid • Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid. • Check the brake fluid level is between the upper and lower marks on the reservoir.	Every 3 years										
Check parking brake adjustment Check the parking brake operation.	●	●		●		●		●		●	
Replace dust and pollen filter	●	●	●	●	●	●	●	●	●	●	
Rotate tyres (Check tyre inflation and condition at least once per month)	Every 10,000 km (6,250 miles)										
Visually inspect the following items • Check for correct installation and position, check for cracks, deterioration, rust, and leaks. • Check tightness of screws, nuts, and joints. If necessary, retighten.											
Tie-rod ends, steering gearbox, and boots • Check steering linkage. • Check the boot for damage and leaking grease.	Every 10,000 km (6,250 miles) or 6 months										
Suspension components • Check the bolts for tightness. • Check all dust covers for deterioration and damage.											
Driveshaft boots • Check boot and boot band for cracks. • Check boots for leaking grease.											

Service at the indicated distance or time whichever comes first	km x 1,000	20	40	60	80	100	120	140	160	180	200
	miles x 1,000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0
	months	12	24	36	48	60	72	84	96	108	120
Brake hoses and lines (including ABS) Check the master cylinder and ABS modulator-control unit for damage and leakage.		●	●	●	●	●	●	●	●	●	●
All fluid levels and condition of fluid • Engine coolant • MTF • ATF • Clutch fluid • Brake fluid • Windshield washer fluid											
Exhaust system Check the catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.											
Fuel lines and connections • Check fuel lines for loose connections, cracks, and deterioration. • Retighten loose connections and replace any damaged parts.											

Maintenance Schedule for Normal and Severe Conditions - Except KM model

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first		km x 1,000	20	40	60	80	100	120	140	160	180	200
		miles x 1,000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0
		months	12	24	36	48	60	72	84	96	108	120
Replace engine oil *	Normal Conditions		Every 10,000 km (6,250 miles) or 1 year									
	Severe Conditions		Every 5,000 km (3,125 miles) or 6 months									
Replace engine oil filter *	Normal Conditions		●	●	●	●	●	●	●	●	●	●
	Severe Conditions		Every 10,000 km (6,250 miles) or 6 months									
Replace air cleaner element			Every 30,000 km (18,750 miles)									
Inspect valve clearance			Every 40,000 km (25,000 miles)									
Replace fuel filter						●				●		
Replace spark plugs			Every 100,000 km (62,500 miles)									
Inspect and adjust drive belt Look for cracks and damage, then check the deflection and tension.				●		●		●		●		●
Inspect idle speed								●				
Replace engine coolant Use genuine Honda All Season Antifreeze/Coolant Type 2.			At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years									
Replace Manual Transmission Fluid Use genuine Honda MTF.	Normal Conditions							●				
	Severe Conditions				●			●			●	
Replace Automatic Transmission Fluid Use genuine Honda ATF-Z1.	Normal Conditions							●				●
	Severe Conditions				●		●		●		●	

Service at the indicated distance or time whichever comes first	km x 1,000	20	40	60	80	100	120	140	160	180	200
	miles x 1,000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0
	months	12	24	36	48	60	72	84	96	108	120
Check front and rear brakes • Check the brake pad and disc thickness. Check for damage. • Check the wheel cylinder for leaks. • Check the brake linings for cracking, glazing, wear and contamination. • Check the calipers for damage, leaks, and tightness.	Every 10,000 km (6,250 miles)										
Replace brake fluid • Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid. • Check the brake fluid level is between upper and lower marks on the reservoir.	Every 3 years										
Check parking brake adjustment Check the parking brake operation.		●	●		●		●		●		●
Replace dust and pollen filter		●	●	●	●	●	●	●	●	●	●
Rotate tyres Check tyre inflation and condition at least once per month.	Every 10,000 km (6,250 miles)										
Visually inspect the following items: • Check for correct installation and position, check for cracks, deterioration, rust, and leaks. • Check tightness of screws, nuts, and joints. If necessary, retighten.											
Tie-rod ends, steering gearbox, and boots • Check steering linkage. • Check the boot for damage and leaking grease.	Every 10,000 km (6,250 miles) or 6 months										
Suspension components • Check the bolts for tightness. • Check all dust covers for deterioration and damage.											

Service at the indicated distance or time whichever comes first	km x 1,000	20	40	60	80	100	120	140	160	180	200
	miles x 1,000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0
	months	12	24	36	48	60	72	84	96	108	120
Driveshaft boots • Check the boot and boot band for cracks. • Check boots for leaking grease.											
Brake hoses and lines (including ABS lines) Check the master cylinder and ABS modulator-control unit and leakage.		•	•	•	•	•	•	•	•	•	•
All fluid levels and condition of fluids Check levels and check for leaks. If necessary, add. • Engine coolant • MTF • ATF • Brake fluid • Clutch fluid • Windshield washer fluid											
Exhaust system Check the exhaust pipe and muffler for damage, leaks, and tightness.											
Fuel lines, and connections • Check fuel lines for loose connections, cracks, and deterioration. • Retighten loose connections and replace any damaged parts.											

Mileage / Year

km mile

20,000km/1year

Mileage / Year

km mile

20,000km/1year

Design Specifications

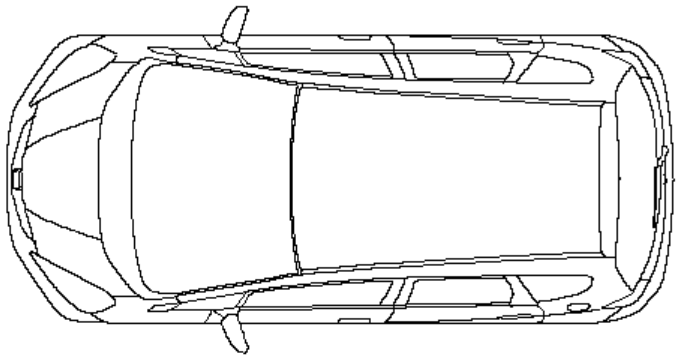
Item	Measurement		Qualification	Specification
DIMENSION	Overall length		Except VTIHI, VTIHI-B	3,900 mm (153.5 in.)
			VTIHI, VTIHI-B	3,920 mm (154.3 in.)
	Overall width			1,695 mm (66.7 in.)
	Overall height			1,525 mm (60.0 in.)
	Wheelbase			2,500 mm (98.4 in.)
	Track	15 inch wheel model	Front	1,490 mm (58.7 in.)
			Rear	1,475 mm (58.1 in.)
		16 inch wheel model	Front	1,475 mm (58.1 in.)
			Rear	1,460 mm (57.5 in.)
	Seating capacity			Five (5)
WEIGHT	Curb weight		M/T	1,050−1,095 kg (2,315−2,414 lbs)
			A/T	1,089−1,135 kg (2,401−2,502 lbs)
	Max. permissible weight			1,510 kg (3,329 lbs)
ENGINE	Type			Water-cooled, 4-stroke SOHC i-VTEC engine
	Cylinder arrangement			Inline 4-cylinder, transverse
	Bore and stroke		L13Z1, L13Z3	73 x 80 mm (2.87 x 3.15 in.)
			L15A7, L15A8	73 x 89.4 mm (2.87 x 3.52 in.)
	Displacement		L13Z1, L13Z3	1,339 cm ^{3} (82 cu in.)
			L15A7, L15A8	1,497 cm ^{3} (91 cu in.)
	Compression ratio		L13Z1, L13Z3	10.5
			L15A7, L15A8	10.4
	Valve train			Chain drive, SOHC 2 valves per cylinder
	Lubrication system			Forced, wet sump, with trochoid pump
	Fuel required		KM model	UNLEADED petrol and alcohol
			Except KM model	UNLEADED petrol with 91 Research Octane Number or higher
STARTER	Type			Gear reduction
	Normal output		Except L13Z1 (M/T), L13Z3 (M/T), L15A8 (M/T)	0.7 kW
			L13Z1 (M/T), L13Z3 (M/T), L15A8 (M/T)	0.6 kW
	Hour rating			30 seconds
	Rotation direction			Clockwise as viewed from drive end
CLUTCH	Type			Single plate dry, diaphragm spring

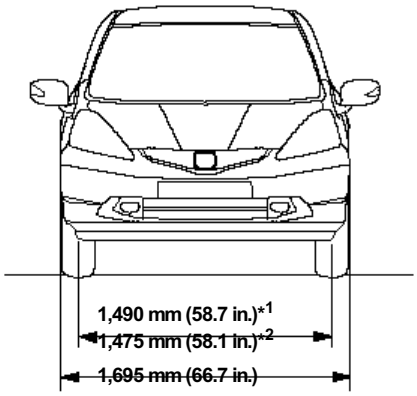
Item	Measurement	Qualification	Specification
MANUAL TRANSMISSION	Type		Synchronized, five-speed forward, one reverse
	Primary reduction		Direct 1:1
	Gear ratio (L13Z1, L13Z3)	1st	3.307
		2nd	1.750
		3rd	1.171
		4th	0.923
		5th	0.767
		Reverse	3.307
		Final	4.625
	Gear ratio (L15A7, L15A8)	1st	3.307
		2nd	1.750
		3rd	1.235
		4th	0.948
		5th	0.809
		Reverse	3.307
		Final	4.625
	Final reduction	Type	Single helical gear
AUTOMATIC TRANSMISSION	Type		Electronically controlled automatic, five-speed forward, one reverse, three-element torque converter with lock-up clutch
	Primary reduction		Direct 1:1
	Gear ratio	1st	2.995
		2nd	1.678
		3rd	1.066
		4th	0.760
		5th	0.551
		Reverse	1.956
		Final	4.562

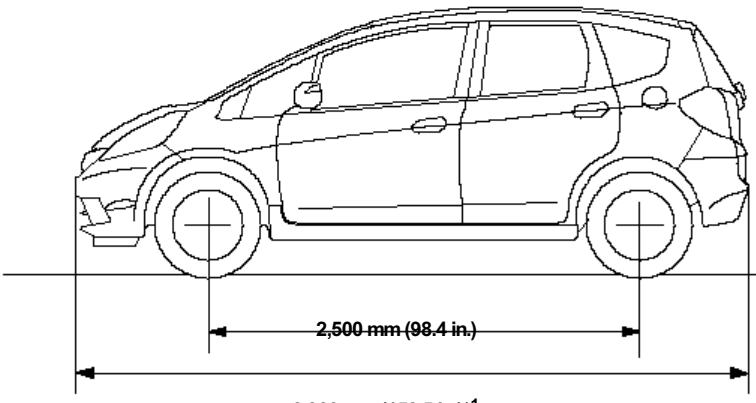
Item	Measurement	Qualification	Specification
	Final reduction	Type	Single helical gear
STEERING	Type		Electrical power-assisted rack and pinion
	Overall ratio		16.09
	Turns, lock-to-lock		3.29
	Steering wheel diameter		370 mm (14.6 in.)
SUSPENSION	Type	Front	Independent strut with stabilizer, coil spring
		Rear	Torsion beam, coil spring
	Shock absorber	Front and rear	Telescopic, hydraulic, nitrogen gas-filled
TYRES	Size		See tyre information label attached to the doorjambs
BRAKES	Type of service brake	Front	Power-assisted self-adjusting ventilated disc
		Rear (disc)	Power-assisted self-adjusting solid disc
		Rear (drum)	Power-assisted self-adjusting solid drum
	Type of parking brake		Mechanical actuating, rear wheels
	Pad friction surface area (swept area)	Front	40.6 cm^2 (6.29 sq in.) x 2
		Rear	21.0 cm^2 (3.26 sq in.) x 2
	Shoe friction surface area	Rear	57.6 cm^2 (8.93 sq in.) x 2

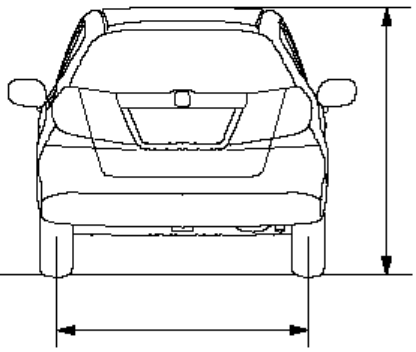
Item	Measurement	Qualification	Specification
AIR CONDITIONING	Compressor	Type	Scroll
		Capacity	77.1 mL (4.7 cu in.)/rev.
		Maximum speed	10,000 rpm (min^{-1})
		Lubricant capacity	80 mL (2 2/3 fl·oz, 2.8 Imp·oz)
		Lubricant type	SP-10
	Condenser	Type	Corrugated fin
	Evaporator	Type	Corrugated fin
	Blower	Type	Radial
		Motor type	170 W/12 V
		Speed control (without climate control)	4 speed
		Speed control (with climate control)	Infinitely variable
		Maximum capacity	400 m^3 (14,126 cu ft)/h
	Temperature control		Air-mix type
	Compressor clutch	Type	Dry, single plate, Poly V-belt drive
		Electrical power consumption at 20 °C (68 °F)	42 W maximum at 12 V
	Refrigerant	Type	HFC-134a (R-134a)
		Capacity	370−420 g (13.1−14.8 oz)
ELECTRICAL RATINGS	Battery		12 V−40 Ah/20 HR (12 V−32 Ah/5 HR)
	Fuses	Battery terminal fuse box	100 A, 60 A, 20 A
		Under-dash fuse/relay box	50 A, 30 A, 20 A, 15 A, 10 A, 7.5 A
	Light bulbs	Headlight high/low beam	12 V−60/55 W
		Front turn signal lights	12 V−21 W
		Front fog lights	12 V−55 W
		Mirror turn signal lights	LED
		Side turn signal lights	12 V−5 W
		Front position lights	12 V−5 W
		Rear turn signal lights	12 V−21 W
		Rear fog lights	12 V−21 W
		Brake/taillights	LED
		High mount brake light	LED
		Back-up lights	12 V−21 W
		License plate lights	12 V−5 W
		Ceiling lights	12 V−8 W
		Cargo area light	12 V−5 W
		Front individual map lights	12 V−8 W
		Gauge lights	LED
		Indicator lights	12 V−0.84 W
	Washer reservoir	Capacity	2.5 L (2.6 US qt, 2.2 Imp qt)

Body Specifications









*1: 15 inch wheel model
*2: 16 inch wheel model

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Power Circuit Identification Brazil-Producted

Engine Electrical

Item	Measurement	Qualification	Standard or New	Service Limit
Ignition coil	Rated voltage		12 V	
	Firing order		1−3−4−2	
Spark plug	Type		NGK: IZFR6K13 DENSO: SKJ20DR-M13	
	Gap		1.2−1.3 mm (0.047−0.051 in.)	———
Ignition timing		At idle (check the *white* mark)	M/T (in neutral): 0±2 ° BTDC	
			A/T (in N or P): 0±2 ° BTDC	
Drive belt	Tension		Auto-tensioner	
Alternator	Output	At 13.5 V and normal engine temperature	95 A	
	Coil (rotor) resistance	At 20 °C (68 °F)	2.1−2.3 Ω	
	Slip ring O.D.		22.7 mm (0.89 in.)	21.2 mm (0.83 in.)
	Brush length		23.0 mm (0.91 in.)	18.0 mm (0.71 in.)
	Brush spring tension		4.1−5.3 N (0.42−0.54 kgf, 0.93−1.19 lbf)	
Starter	Output	Except L13Z1 (M/T), L13Z3 (M/T), L15A8 (M/T)	0.7 kW	
		L13Z1 (M/T), L13Z3 (M/T), L15A8 (M/T)	0.6 kW	
	Commutator mica depth		0.45−0.75 mm (0.018−0.030 in.)	0.20 mm (0.008 in.)
	Commutator runout		0.05 mm (0.002 in.) max.	0.4 mm (0.02 in.)
	Commutator O.D.		27.9−28.0 mm (1.098−1.102 in.)	27.0 mm (1.06 in.)
	Brush length		9.7−10.3 mm (0.38−0.41 in.)	6.0 mm (0.20 in.)

Engine Assembly

Item	Measurement	Qualification	Standard or New	Service Limit
Compression	Pressure check at 250 rpm (min^{-1}) with wide open throttle (See Design Specs for ratio)	Minimum	980 kPa (10.0 kgf/cm^2, 142 psi)	———
		Maximum variation	200 kPa (2.0 kgf/cm^2, 28 psi)	———

Cylinder Head

Item	Measurement	Qualification		Standard or New	Service Limit
Head	Warpage			0.07 mm (0.0028 in.)	0.08 mm (0.003 in.)
	Height			119.9−120.1 mm (4.720−4.728 in.)	———
Camshaft	End play			0.05−0.25 mm (0.002−0.010 in.)	0.5 mm (0.02 in.)
	Camshaft-to-holder oil clearance			0.045−0.084 mm (0.0018−0.0033 in.)	0.100 mm (0.004 in.)
	Total runout			0.03 mm (0.001 in.) max.	0.04 mm (0.002 in.)
	Cam lobe height	L13Z1L13Z3	Intake, primary	34.290 mm (1.3500 in.)	———
			Intake, secondary	30.529 mm (1.2019 in.)	———
			Exhaust	35.047 mm (1.3798 in.)	———
		L15A7	Intake, primary	35.241 mm (1.3874 in.)	———
			Intake, secondary	36.173 mm (1.4241 in.)	———
			Exhaust	35.471 mm (1.3964 in.)	———
		L15A8	Intake, primary	35.162 mm (1.3843 in.)	———
			Intake, secondary	30.529 mm (1.2019 in.)	———
			Exhaust	35.614 mm (1.4021 in.)	———

Item	Measurement	Qualification	Standard or New	Service Limit
Valve	Clearance (cold)	Intake	0.15−0.19 mm (0.006−0.007 in.)	———
		Exhaust	0.26−0.30 mm (0.010−0.012 in.)	———
	Stem O.D.	Intake	5.48−5.49 mm (0.2157−0.2161 in.)	5.45 mm (0.215 in.)
		Exhaust	5.45−5.46 mm (0.2146−0.2150 in.)	5.42 mm (0.213 in.)
	Stem-to-guide clearance	Intake	0.020−0.050 mm (0.0008−0.0020 in.)	0.08 mm (0.003 in.)
		Exhaust	0.050−0.080 mm (0.0020−0.0031 in.)	0.11 mm (0.004 in.)
Valve seat	Width	Intake	0.850−1.150 mm (0.0335−0.0453 in.)	1.60 mm (0.063 in.)

Item	Measurement	Qualification		Standard or New	Service Limit
		Exhaust		1.250–1.550 mm (0.0492–0.0610 in.)	2.00 mm (0.079 in.)
	Stem installed height	Intake		46.1–46.5 mm (1.815–1.831 in.)	46.8 mm (1.843 in.)
		Exhaust		46.2–46.6 mm (1.819–1.835 in.)	46.9 mm (1.846 in.)
Valve spring	Free length	L13Z1 L13Z3	Intake	51.17 mm (2.014 in.)	———
			Exhaust	57.26 mm (2.254 in.)	———
		L15A7 L15A8	Intake	48.55 mm (1.911 in.)	———
			Exhaust	54.52 mm (2.146 in.)	———
Valve guide	I.D.	Intake		5.51–5.53 mm (0.217–0.218 in.)	5.55 mm (0.219 in.)
		Exhaust		5.51–5.53 mm (0.217–0.218 in.)	5.55 mm (0.219 in.)
	Installed height	Intake		15.85–16.35 mm (0.624–0.644 in.)	———
		Exhaust		15.85–16.35 mm (0.624–0.644 in.)	———
Rocker arm	Arm-to-shaft clearance	L13Z1L15A7	Intake	0.019–0.058 mm (0.0007–0.0023 in.)	0.08 mm (0.0031 in.)
			Exhaust	0.019–0.058 mm (0.0007–0.0023 in.)	0.08 mm (0.0031 in.)
		L13Z3	Intake	0.019–0.050 mm (0.0007–0.0020 in.)	0.08 mm (0.0031 in.)
			Exhaust	0.019–0.050 mm (0.0007–0.0020 in.)	0.08 mm (0.0031 in.)
		L15A8	Intake	0.017–0.067 mm (0.0007–0.0026 in.)	0.08 mm (0.0031 in.)
			Exhaust	0.019–0.050 mm (0.0007–0.0020 in.)	0.08 mm (0.0031 in.)

Engine Block

Item	Measurement	Qualification	Standard or New	Service Limit
Block	Warpage of deck		0.07 mm (0.003 in.) max.	0.10 mm (0.004 in.)
	Bore diameter		73.000–73.015 mm (2.8740–2.8746 in.)	73.065 mm (2.8776 in.)
	Bore taper		———	0.05 mm (0.002 in.)
	Reboring limit		———	0.25 mm (0.01 in.)
Piston	Skirt O.D. at 16 mm (0.6 in.) from bottom of skirt	L13Z1, L13Z3	72.972–72.982 mm (2.8729–2.8733 in.)	72.97 mm (2.8728 in.)
		L15A7, L15A8	72.980–72.990 mm (2.8732–2.8736 in.)	72.97 mm (2.8728 in.)
	Clearance in cylinder	L13Z1, L13Z3	0.018–0.043 mm (0.007–0.0017 in.)	0.05 mm (0.002 in.)
		L15A7, L15A8	0.010–0.035 mm (0.0004–0.0014 in.)	0.05 mm (0.002 in.)
Piston ring	Ring-to-groove clearance	Top	0.065–0.090 mm (0.0026–0.0035 in.)	0.15 mm (0.006 in.)
		Second	0.030–0.055 mm (0.0012–0.0022 in.)	0.12 mm (0.005 in.)
	Ring end gap	Top	0.15–0.30 mm (0.006–0.012 in.)	0.60 mm (0.024 in.)
		Second	0.30–0.42 mm (0.012–0.017 in.)	0.65 mm (0.026 in.)
		Oil	0.20–0.70 mm (0.008–0.028 in.)	0.80 mm (0.031 in.)
Piston pin	O.D.		17.996–18.000 mm (0.7085–0.7087 in.)	———
	Pin-to-piston clearance		0.010–0.017 mm (0.0004–0.0007 in.)	———
Connecting rod	Pin-to-rod interference		0.019–0.036 mm (0.007–0.0014 in.)	———
	Small-end bore diameter		17.964–17.977 mm (0.707–0.708 in.)	———
	Large-end bore diameter		43.0 mm (1.69 in.)	———
	End play installed on crankshaft		0.15–0.35 mm (0.006–0.014 in.)	0.40 mm (0.016 in.)
Crankshaft	Main journal diameter		49.976–50.000 mm (1.9676–1.9685 in.)	———
	Rod journal diameter		39.976–40.000 mm (1.5739–1.5748 in.)	———
	Rod/main journal taper		0.005 mm (0.0002 in.)	0.010 mm (0.0004 in.)
	Rod/main journal out-of-round		0.005 mm (0.0002 in.)	0.010 mm (0.0004 in.)
	End play		0.10–0.35 mm (0.004–0.014 in.)	0.45 mm (0.018 in.)
	Runout		0.03 mm (0.0012 in.) max.	0.04 mm (0.0016 in.)
Crankshaft bearing	Main bearing-to-journal oil clearance		0.018–0.036 mm (0.0007–0.0014 in.)	0.050 mm (0.0020 in.)
	Rod bearing clearance	L15A7, L15A8	0.020–0.038 mm (0.0008–0.0015 in.)	0.050 mm (0.0020 in.)
		L13Z1, L13Z3	0.026–0.044 mm (0.0010–0.0017 in.)	0.050 mm (0.0020 in.)

Engine Lubrication

Item	Measurement	Qualification	Standard or New	Service Limit
Engine oil	Capacity	Engine overhaul	4.2 L (4.4 US qt, 3.7 Imp qt)	———
		Oil change including oil filter	3.6 L (3.8 US qt, 3.2 Imp qt)	———
		Oil change without oil filter	3.4 L (3.6 US qt, 3.0 Imp qt)	———
Oil pump	Inner rotor-to-outer rotor clearance		0.06–0.16 mm (0.002–0.006 in.)	0.20 mm (0.008 in.)
	Pump housing-to-outer rotor clearance		0.100–0.175 mm (0.0039–0.0069 in.)	0.20 mm (0.008 in.)
	Pump housing-to-rotor axial clearance		0.02–0.06 mm (0.001–0.002 in.)	0.15 mm (0.006 in.)
Relief valve	Relief valve, oil pressure with oil temperature at 80 °C (176 °F)	At idle	70 kPa (0.7 kgf/cm ^{2}, 10 psi) min.	———
		At 3,000 rpm (min $^{-1}$)	340 kPa (3.5 kgf/cm ^{2}, 50 psi) min.	———

Cooling System

Item	Measurement	Qualification			Standard or New
Radiator	Coolant capacity (Includes engine, heater, hoses, and reservoir) Use genuine Honda All Season Antifreeze/Coolant Type 2	L13Z1, L13Z3 (Brazil Factory)	M/T	Engine overhaul	5.05 L (1.334 US gal, 1.111 lmp gal)
				Coolant change	4.56 L (1.205 US gal, 1.003 lmp gal)
			A/T	Engine overhaul	4.98 L (1.316 US gal, 1.096 lmp gal)
				Coolant change	4.49 L (1.186 US gal, 0.988 lmp gal)
		L15A7, L15A8 (Brazil Factory)	M/T	Engine overhaul	5.06 L (1.337 US gal, 1.113 lmp gal)
				Coolant change	4.57 L (1.207 US gal, 1.005 lmp gal)
			A/T	Engine overhaul	4.99 L (1.318 US gal, 1.098 lmp gal)
				Coolant change	4.50 L (1.189 US gal, 0.990 lmp gal)
Coolant reservoir	Coolant capacity				0.44 L (0.116 US qt, 0.097 lmp qt)
Radiator cap	Opening pressure				93–123 kPa (0.95–1.25 kgf/cm ^{2}, 14–18 psi)
Thermostat	Opening temperature	Begins to open			76–80 °C (169–176 °F)
		Fully open			90 °C (194 °F)
	Valve lift at fully open				8.0 mm (0.31 in.) min.

Fuel and Emissions (FFV)

Item	Measurement	Qualification	Standard or New
Fuel pressure regulator	Pressure with fuel pressure gauge connected		380–430 kPa (3.9–4.4 kgf/cm ^{2}, 55–63 psi)
Subfuel pressure	Pressure with fuel pressure gauge connected		200–250 kPa (2.0–2.5 kgf/cm ^{2}, 28–36 psi)
Fuel tank	Capacity		42 L (11.0 US gal, 9.2 lmp gal)
Subfuel tank	Capacity		0.76 L (0.20 US gal, 0.17 lmp gal)
Engine idle	Idle speed without load	M/T (in neutral)	700±50 rpm
		A/T (in N or P)	
	Idle speed with high electrical load (A/C switch ON, temperature set to max cool, blower fan on High, rear window defogger ON, and headlights on high beam)	M/T (in neutral), A/T (in N or P)	790±50 rpm
	Idle CO		0.1 % max

Fuel and Emissions (Except FFV)

Item	Measurement	Qualification	Standard or New
Fuel pressure regulator	Pressure with fuel pressure gauge connected		320–370 kPa (3.3–3.8 kgf/cm ^{2}, 47–54 psi)
Fuel tank	Capacity		42 L (11.0 US gal, 9.2 lmp gal)
Engine idle	Idle speed without load (L13Z1)	M/T (in neutral)	650±50 rpm (min $^{-1}$)
		A/T (in N or P)	700±50 rpm (min $^{-1}$)
	Idle speed without load (L15A7)	M/T (in neutral), A/T (in N or P)	700±50 rpm (min $^{-1}$)
	Idle speed with high electrical load (A/C switch ON, temperature set to max cool, blower fan on High, rear window defogger ON, and headlights on high beam)	M/T (in neutral), A/T (in N or P)	790±50 rpm (min $^{-1}$)
	Idle CO		0.1 % max.

Clutch

Item	Measurement	Qualification	Standard or New	Service Limit
Clutch pedal	Height from the floor		150 mm (5.91 in.)	———
	Stroke		120–130 mm (4.72–5.12 in.)	———
Flywheel	Runout on clutch mating surface		0.05 mm (0.002 in.) max.	0.15 mm (0.006 in.)
Clutch disc	Rivet head depth		1.00–1.50 mm (0.039–0.059 in.)	0.2 mm (0.008 in.)
	Thickness		7.25–7.95 mm (0.285–0.313 in.)	5.0 mm (0.20 in.)
Pressure plate	Warpage		0.03 mm (0.001 in.) max.	0.15 mm (0.006 in.)
	Height difference of diaphragm spring fingers measured with dial indicator		0.6 mm (0.02 in.) max.	1.0 mm (0.04 in.)

Steering

Item	Measurement	Qualification	Standard or New
Steering wheel	Rotational play measured at outside edge with engine running		0−10 mm (0−0.39 in.)
	Initial turning load measured at outside edge with engine running		29 N (3.0 kgf, 6.6 lbf)
Gearbox	Angle of rack guide screw loosened from locked position		10±3 °

Suspension

Item	Measurement	Qualification	Standard or New	Service Limit
Wheel alignment	Camber	Front	0 ° 07 ′±1 °	
		Rear	−1 ° 00 ′±1 °	
	Caster	Front	3 ° 13 ′±1 °	
	Total toe-in	Front	0±3 mm (0±0.12 in.)	
		Rear	2.5±2.5 mm (0.10±0.10 in.)	
	Front wheel turning angle	Inward	40 ° 38 ′±2 °	
		Outward (reference)	33 ° 30 ′±1 °	
Wheel	Steel wheel runout	Axial	0−1.0 mm (0−0.04 in.)	2.0 mm (0.08 in.)
		Radial	0−1.0 mm (0−0.04 in.)	1.5 mm (0.06 in.)
	Aluminium wheel runout	Axial	0−0.7 mm (0−0.03 in.)	2.0 mm (0.08 in.)
		Radial	0−0.7 mm (0−0.03 in.)	1.5 mm (0.06 in.)
Wheel bearing	End play	Front	0−0.05 mm (0−0.002 in.)	
		Rear	0−0.05 mm (0−0.002 in.)	

Brakes

Item	Measurement	Qualification	Standard or New		Service Limit
Parking brake	Distance traveled when lever pulled with 196 N (20 kgf, 44 lbf) of force		6 to 8 clicks		
Brake pedal	Pedal height (carpet moved aside)	M/T	139 mm (5.5 in.)		
		A/T	138 mm (5.4 in.)		
	Free play		1−5 mm (0.04−0.20 in.)		
Brake disc	Thickness	Front	20.9−21.1 mm (0.82−0.83 in.)		19.0 mm (0.75 in.)
		Rear	8.9−9.1 mm (0.35−0.36 in.)		8.0 mm (0.31 in.)
	Runout		———		0.04 mm (0.0016 in.)
	Parallelism		———		0.015 mm (0.0006 in.)
Brake pad	Thickness	Front	10.5−11.0 mm (0.41−0.43 in.)		1.5 mm (0.06 in.)
		Rear	6.8−7.5 mm (0.27−0.30 in.)		1.6 mm (0.06 in.)
Rear brake (drum brake)	Brake drum I.D.		199.9−200.0 mm (7.870−7.874 in.)		201 mm (7.91 in.)
	Brake shoe lining thickness		4.3 mm (0.17 in.)		1.0 mm (0.04 in.)
Brake booster	Master cylinder oil pressure	Vacuum booster Vacuum kPa (mmHg, in.Hg)	Brake pedal pressure N (kgf, lbf)	Master cylinder oil pressure kPa (kgf/cm ^{2} , psi)	
		0 (0, 0)	98 (10, 22)	0 (0, 0)	
			196 (20, 44)	A/T	577 (5.9, 84)
				M/T	501 (51, 73)
		66.7 (500, 19.7)	98 (10, 22)	A/T	4,523 (46.1, 656)
				M/T	4,235 (43.2, 614)
			196 (20, 44)	A/T	9,538 (97.3, 1.383)
				M/T	9,468 (96.5, 1.373)

Air Conditioning

Item	Measurement	Qualification	Standard or New
Refrigerant	Type		HFC-134a (R-134a)
	Capacity of system		370−420 g (13.1−14.8 oz)
Refrigerant oil	Type		SP-10 (P/N 38897-P13-003, 38898-P13-003, or 38899-P13-A01)
	Capacity of components	Condenser	25 mL (5/6 fl·oz, 0.9 Imp·oz)
		Evaporator	35 mL (1 1/6 fl·oz, 1.2 Imp·oz)
		Each line and hose	10 mL (1/3 fl·oz, 0.4 Imp·oz)
		Receiver/Dryer	10 mL (1/3 fl·oz, 0.4 Imp·oz)

Item	Measurement	Qualification	Standard or New
		Compressor	80−90 mL (2 2/3−3 fl·oz, 2.8−3.2 Imp·oz)
Compressor	Field coil resistance	At 20 °C (68 °F)	3.15−3.45 Ω
	Pulley-to-armature plate clearance		0.35−0.65 mm (0.014−0.026 in.)

VIN, Engine, and Transmission Numbers

Vehicle Identification Number

93H GE6 7 4 0 9 Z 100001

a b c d e f g h

d. Vehicle Grade (Series)
- 4: 1.4 LX, 1.4 LXA, 1.5 LX
- 5: 1.4 LXL, 1.4 LXLA
- 7: 1.5 EX, 1.5 EXA
- 8: 1.5 EXL, 1.5 EXLA

e. Fixed Code or Check Digit

f. Model Year
- 9: '09

g. Factory Code
- Z: SAO PAULO Factory in Brazil

h. Serial Number

Engine Number

L13Z3 - 9100001

ngine
ngine (FFV)
ngine
ngine (FFV)

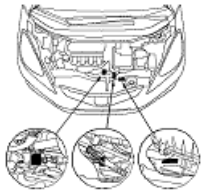
a b

F1R4 - 8000001

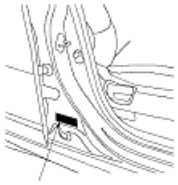
a b

	AREA CODE		TYPE	TYPE	MANUFACTURER NAME
Fit	KM	1.4 LX, 1.4 LXL	L13Z3	5MT	Honda Automoveis do Brasil Ltda.
				5AT	
		1.5 EX, 1.5 EXL	L15A8	5MT	
				5AT	
	KP	1.4 LX, 1.4 LXA, 1.4 LXL, 1.4 LXLA	L13Z1	5MT	
				5AT	
		1.5 EX, 1.5 EXA, 1.5 EXL, 1.5 EXLA	L15A7	5MT	
				5AT	
	KX	1.5 LX, 1.5 EX	L15A7	5MT	
				5AT	

VIN, Engine, and Transmission Number Locations



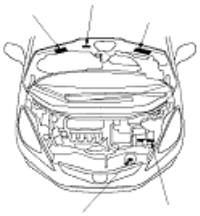
Passenger's Side Doorjamb:



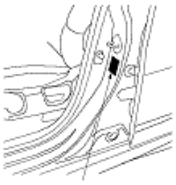
Danger/Warning/Caution Label Locations

Front Passenger's Compartment:

Steering Wheel:



Driver's doorjamb:



Abbreviations

List of automotive abbreviations which may be used in shop manual.

ABS	Anti-lock Brake System
A/C	Air Conditioning, Air Conditioner
ACC	Adaptive Cruise Control
ACEA	Association des Constructeurs Europeens d' Automobiles
ACL	Air Cleaner
A/F	Air Fuel Ratio
AHB	Advanced Hydraulic Booster
ALR	Automatic Locking Retractor
ALT	Alternator
AMP	Ampere(s)
ANT	Antenna
API	American Petroleum Institute
APP	Accelerator Pedal Position
APPROX	Approximately
ASSY	Assembly
A/T	Automatic Transmission
ATDC	After Top Dead Center
ATF	Automatic Transmission Fluid
ATT	Attachment
AUTO	Automatic
AUX	Auxiliary
BARO	Barometric
BAT	Battery
BCM	Battery Condition Monitor
BDC	Bottom Dead Center
BTDC	Before Top Dead Center
CARB	Carburetor
CAT or CATA	Catalytic Converter
CD	Compact Disc
CHG	Charge
CKF	Crankshaft Speed Fluctuation
CKP	Crankshaft Position
CLV	Calculated Load Value
CMBS	Collision Mitigation Brake System
CMP	Camshaft Position
CO	Carbon Monoxide
COMP	Complete
CPB	Clutch Pressure Back up
CPC	Clutch Pressure Control
CPU	Central Processing Unit
CVT	Continuously Variable Transmission
CVTF	Continuously Variable Transmission Fluid
CYL	Cylinder
CYP	Cylinder Position
DIFF	Differential
DLC	Data Link Connector
DLI	Distributor Less Ignition
DOHC	Double Overhead Camshaft
DOT	Department of Transportation
DPF	Diesel Particulate Filter
DPI	Dual Point Injection
DPSF	Dual Pump System Fluid
DTC	Diagnostic Trouble Code
EBD	Electronic Brake Distribution
ECM	Engine Control Module
ECT	Engine Coolant Temperature
EGR	Exhaust Gas Recirculation
EGT	Exhaust Gas Temperature
ELD	Electrical Load Detector
EPR	Evaporator Pressure Regulator
EPS	Electrical Power Steering
ETCS	Electronic Throttle Control System
EVAP	Evaporative Emission
EX	Exhaust
F	Front
FIA	Fuel Injection Air
FL	Front Left
FP	Fuel Pump
FR	Front Right

FRP	Fuel Rail Pressure
FSR	Fail Safe Relay
FWD	Front Wheel Drive
GAL	Gallon
GND	Ground
GPS	Global Positioning System
H/B	Hatchback
HBA	Hydraulic Brake Assist
HC	Hydrocarbons
HDS	Honda Diagnostic System
HFT	Hands Free Telephone
HID	High Intensity Discharge
HIM	Honda Interface Module
HO2S	Heated Oxygen Sensor
HPS	Hydraulic Power Steering
HVAC	Heating, Ventilation, and Air Conditioning
IAB	Intake Air Bypass
IAC	Idle Air Control
IACV	Idle Air Control Valve
IAR	Intake Air Resonator
IAT	Intake Air Temperature
ICM	Ignition Control Module
ID	Identification
ID or I.D.	Inside Diameter
i-DSI	Intelligent-Dual & Sequential Ignition
IG or IGN	Ignition
IMA	Idle Mixture Adjustment Integrated Motor Assisted
IMMOBI.	Immobilizer (Immobiliser)
IMRC	Intake Manifold Runner Control
IMT	Intake Manifold Tuning
IN	Intake
INJ	Injection
INT	Intermittent
IQA	Injector Quantity Adjustment (Diesel model)
ISV	Intake Shutter Valve
KS	Knock Sensor
L	Left
L/C	Lock-up Clutch
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LEV	Low Emission Vehicle
LF	Left Front
LH	Left Handle
LHD	Left Handle Drive
LR	Left Rear
LSD	Limited Slip Differential
L4	In-line Four Cylinder (engine)
MAF	Mass Air Flow
MAP	Manifold Absolute Pressure
MAX	Maximum
MBS	Mainshaft Brake System
MCK	Motor Check
MCM	Motor Control Module
MCU	Moment Control Unit
MICS	Multiplex Integrated Control System
MICU	Multiplex Integrated Control Unit
MIL	Malfunction Indicator Lamp
MIN.	Minimum
MPI	Multi Point Injection
M/S	Manual Steering
M/T	Manual Transmission
MTF	Manual Transmission Fluid
NOx	Oxides of Nitrogen
OBD	On-board Diagnostic
OD or O.D.	Outside Diameter
OPDS	Occupant Position Detection System
O2S	Oxygen Sensor
PAIR	Pulsed Secondary Air Injection
PCM	Powertrain Control Module
PCV	Positive Crankcase Ventilation Proportioning Control Valve

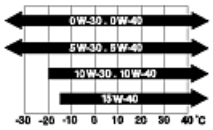
PDU	Power Drive Unit
PGM-FI	Programmed-fuel Injection
PGM-IG	Programmed Ignition
PH	Pressure High
PL	Pilot Light or Pressure Low
PMR	Pump Motor Relay
P/N	Part Number
PRI	Primary
P/S	Power Steering
PSF	Power Steering Fluid
PSP	Power Steering Pressure
PSW	Pressure Switch
Qty	Quantity
R	Right
REF	Reference
RH	Right Handle
RHD	Right Handle Drive
RL	Rear Left
RON	Research Octane Number
RR	Rear Right
SAE	Society of Automotive Engineers
SCS	Service Check Signal
SEC	Second, Secondary
SOHC	Single Overhead Camshaft
SOL	Solenoid
SPEC	Specification
S/R	Sun Roof
SRS	Supplemental Restraint System
STD	Standard
SW	Switch
T	Torque
TB	Throttle Body
T/B	Timing Belt
TC	Torque Converter
TCM	Transmission Control Module
TCS	Traction Control System
TDC	Top Dead Center
TFT	Thin Film Transistor
T/N	Tool Number
TP	Throttle Position
TPMS	Tyre Pressure Monitoring System
TWC	Three Way Catalytic Converter
VC	Viscous Coupling
VCM	Variable Cylinder Management
VIN	Vehicle Identification Number
VSA	Vehicle Stability Assist
VSS	Vehicle Speed Sensor
VTEC	Variable Valve Timing & Valve Lift Electronic Control
VVIS	Variable Volume Intake System
V6	V-engine Six Cylinder (engine)
W	With
W/O	Without
WOT	Wide Open Throttle
2WD	Two Wheel Drive
4WD	Four Wheel Drive
4AT	4-speed Automatic Transmission
5AT	5-speed Automatic Transmission
5MT	5-speed Manual Transmission
6MT	6-speed Manual Transmission
P	Park
R	Reverse
N	Neutral
D4	Drive (1st through 4th gear)
D3	Drive (1st through 3rd gear)
D	Drive
M	Manual mode
S	Second
L	Low
O/D	Over Drive
1ST	Low (gear)
2ND	Second (gear)
3RD	Third (gear)

4TH	Fourth (gear)
5TH	Fifth (gear)
6TH	Sixth (gear)

Lubricants and Fluids

⚠CAUTION

Used engine oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still advisable to thoroughly wash your hands with soap and water as soon as possible after handling used oil.



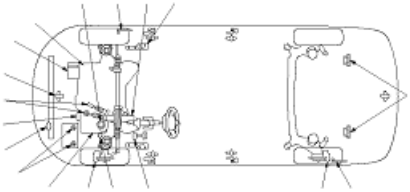
For the details of the lubrication points and the type of lubricants to be applied, refer to the illustrated index and the various work procedures (such as Assembly/Reassembly, Replacement, Overhaul, Installation, etc.) contained in each section.

	Application	Lubricant or Fluid
A	Engine	Always use API service grade SL or higher SAE viscosity: See chart.
B	Manual transmission	Honda Manual Transmission Fluid (MTF) Always use genuine Honda MTF *. Using motor oil can cause stiffer shifting because it does not contain the proper additives.
	Automatic transmission	Honda ATF-Z1 Always use genuine Honda ATF-Z1. Using a non-Honda ATF can affect shift quality.
C D	Brake system (including ABS lines) Clutch system (manual transmission)	Brake Fluid DOT 3 or DOT 4 We recommend genuine Honda Brake Fluid. Using a non-Honda brake fluid can cause corrosion and decrease the life of the system.
E F G H I J K L	Release fork (manual transmission) Battery terminals Brake booster clevis pin Clutch master cylinder clevis pin (manual transmission) Fuel fill door Front fuel fill door (FFV Model) Hood hinges and hood latch Tailgate hinges	Multipurpose Grease
M	Caliper piston boot	Rubber Grease
N O	Caliper piston seal, caliper pins and boots Shift cable ends (manual transmission)	Silicone Grease
P	Air conditioning compressor	Compressor Oil:SP-10 (P/N 38897-P13-003 or 38899-P13-A01) for refrigerant HFC-134a (R-134a)
Q	Cooling system	Always use genuine Honda All Season Antifreeze/Coolant Type 2

If genuine Honda MTF is not available, use API service SL or higher grade motor oil with a viscosity of SAE 10W-30 or 10W-40 as a temporary replacement.

NOTE:

- Lubricate the following grease using the recommended lubricants and fluids.
- In corrosive area, more frequent lubrication is necessary.



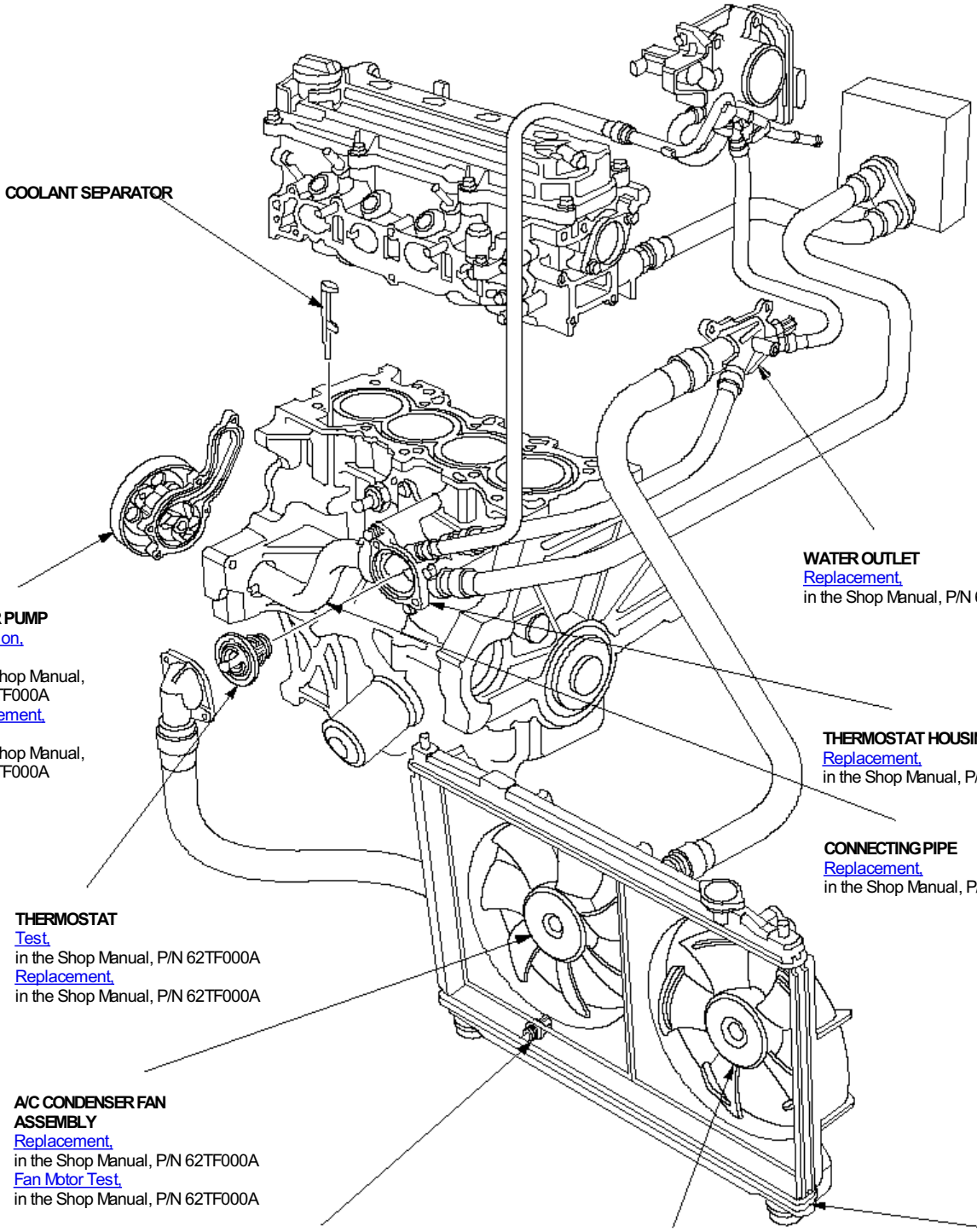
Alternator

Item	Measurement	Qualification	Standard or New	Service Limit
Alternator	Output	At 13.5 V and normal engine temperature	95 A	
	Coil (rotor) resistance	At 20 °C (68 °F)	2.1−2.3 Ω	
	Slip ring O.D.		22.7 mm (0.89 in.)	21.2 mm (0.83 in.)
	Brush length		23.0 mm (0.91 in.)	18.0 mm (0.71 in.)
	Brush spring tension		4.1−5.3 N (0.42−0.54 kgf, 0.93−1.19 lbf)	

Drive belt

Item	Measurement	Qualification	Standard or New	Service Limit
Drive belt	Tension		Auto-tensioner	

Cooling System Component Location Index



COOLANT SEPARATOR

WATER PUMP
Inspection,

in the Shop Manual,
P/N 62TF000A
Replacement,

in the Shop Manual,
P/N 62TF000A

THERMOSTAT
Test,
in the Shop Manual, P/N 62TF000A
Replacement,
in the Shop Manual, P/N 62TF000A

A/C CONDENSER FAN ASSEMBLY
Replacement,
in the Shop Manual, P/N 62TF000A
Fan Motor Test,
in the Shop Manual, P/N 62TF000A

ENGINE COOLANT TEMPERATURE (ECT) SENSOR 2
Replacement,
in the Shop Manual, P/N 62TF000A

RADIATOR FAN ASSEMBLY
Replacement,
in the Shop Manual, P/N 62TF000A
Fan Motor Test,
in the Shop Manual, P/N 62TF000A

RADIATOR
Replacement,

in the Shop Manual,
P/N 62TF000A

WATER OUTLET
Replacement,
in the Shop Manual, P/N 62TF000A

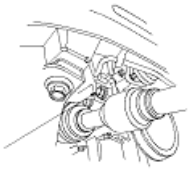
THERMOSTAT HOUSING
Replacement,
in the Shop Manual, P/N 62TF000A

CONNECTING PIPE
Replacement,
in the Shop Manual, P/N 62TF000A

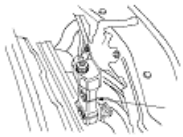
Coolant Replacement

1. Start the engine. Set the heater temperature control dial to maximum heat, then turn the ignition switch to LOCK (0). Make sure the engine and radiator are cool to the touch.
2. Remove the radiator cap.
3. Loosen the drain plug (A), and drain the coolant.

4. Remove the drain bolt (A) located at the rear of the engine block.
5. After the coolant has drained, then reinstall the bolt with a new washer and tighten it securely.
6. Tighten the radiator drain plug securely.
7. Remove, drain, and reinstall the coolant reservoir.



8. Fill the coolant reservoir to the MAX mark (A) with genuine Honda Long Life Antifreeze/Coolant Type 2 (P/N OL999-9001).



9. Pour genuine Honda Long Life Antifreeze/Coolant Type 2 into the radiator up to the base of the filler neck.
   NOTE:
   - Always use genuine Honda Long Life Antifreeze/Coolant Type 2 (P/N OL999-9001). Using a non-Honda coolant can result in corrosion, causing the cooling system to malfunction or fail.
   - Genuine Honda Long Life Antifreeze/Coolant Type 2 is a mixture of 50 % antifreeze and 50 % water. Do not add water.

   Engine Coolant Capacities (Including the coolant reservoir capacity of 0.44 L (0.116 US gal, 0.097 Imp gal)):
   L15A7, L15A8 engine (Brazil Factory): M/T model: At Coolant Change: 4.57 L (1.207 US gal, 1.005 Imp gal)
   After Engine Overhaul: 5.06 L (1.337 US gal, 1.113 Imp gal)
   A/T model: At Coolant Change: 4.50 L (1.189 US gal, 0.990 Imp gal)
   After Engine Overhaul: 4.99 L (1.318 US gal, 1.098 Imp gal)
   L13Z1, L13Z3 engine (Brazil Factory): M/T model: At Coolant Change: 4.56 L (1.205 US gal, 1.003 Imp gal)
   After Engine Overhaul: 5.05 L (1.334 US gal, 1.111 Imp gal)
   A/T model: At Coolant Change: 4.49 L (1.186 US gal, 0.988 Imp gal)
   After Engine Overhaul: 4.98 L (1.316 US gal, 1.096 Imp gal)

10. Loosely install the radiator cap.
11. Start the engine, and let it run until it warms up (the radiator fan comes on at least twice).
12. Turn off the engine. Check the level in the radiator and add genuine Honda Long Life Antifreeze/ Coolant Type 2, if needed.
13. Put the radiator cap on tightly, then start the engine again, and check for leaks.
14. Clean up any spilled engine coolant.

Coolant reservoir

Item	Measurement	Qualification	Standard or New
Coolant reservoir	Coolant capacity		0.44 L (0.116 US qt, 0.097 Imp qt)

Radiator

Item	Measurement	Qualification			Standard or New
Radiator	Coolant capacity (Includes engine, heater, hoses, and reservoir) Use genuine Honda All Season Antifreeze/Coolant Type 2	L13Z1, L13Z3 (Brazil Factory)	M/T	Engine overhaul	5.05 L (1.334 US gal, 1.111 Imp gal)
				Coolant change	4.56 L (1.205 US gal, 1.003 Imp gal)
			A/T	Engine overhaul	4.98 L (1.316 US gal, 1.096 Imp gal)
				Coolant change	4.49 L (1.186 US gal, 0.988 Imp gal)
		L15A7, L15A8 (Brazil Factory)	M/T	Engine overhaul	5.06 L (1.337 US gal, 1.113 Imp gal)
				Coolant change	4.57 L (1.207 US gal, 1.005 Imp gal)
			A/T	Engine overhaul	4.99 L (1.318 US gal, 1.098 Imp gal)
				Coolant change	4.50 L (1.189 US gal, 0.990 Imp gal)

Radiator cap

Item	Measurement	Qualification	Standard or New
Radiator cap	Opening pressure		93−123 kPa (0.95−1.25 kgf/cm ^{2}, 14−18 psi)

Thermostat

Item	Measurement	Qualification	Standard or New
Thermostat	Opening temperature	Begins to open	76−80 °C (169−176 °F)
		Fully open	90 °C (194 °F)
	Valve lift at fully open		8.0 mm (0.31 in.) min.

Head

Item	Measurement	Qualification	Standard or New	Service Limit
Head	Warpage		0.07 mm (0.0028 in.)	0.08 mm (0.003 in.)
	Height		119.9−120.1 mm (4.720−4.728 in.)	———

Camshaft

Item	Measurement	Qualification		Standard or New	Service Limit
Camshaft	End play			0.05–0.25 mm (0.002–0.010 in.)	0.5 mm (0.02 in.)
	Camshaft-to-holder oil clearance			0.045–0.084 mm (0.0018–0.0033 in.)	0.100 mm (0.004 in.)
	Total runout			0.03 mm (0.001 in.) max.	0.04 mm (0.002 in.)
	Cam lobe height	L13Z1L13Z8	Intake, primary	34.290 mm (1.3500 in.)	———
			Intake, secondary	30.529 mm (1.2019 in.)	———
			Exhaust	35.047 mm (1.3798 in.)	———
		L15A7	Intake, primary	35.241 mm (1.3874 in.)	———
			Intake, secondary	36.173 mm (1.4241 in.)	———
			Exhaust	35.471 mm (1.3964 in.)	———
		L15A8	Intake, primary	35.162 mm (1.3843 in.)	———
			Intake, secondary	30.529 mm (1.2019 in.)	———
			Exhaust	35.614 mm (1.4021 in.)	———

Rocker arm

Item	Measurement	Qualification		Standard or New	Service Limit
Rocker arm	Arm-to-shaft clearance	L13Z1L15A7	Intake	0.019−0.058 mm (0.0007−0.0023 in.)	0.08 mm (0.0031 in.)
			Exhaust	0.019−0.058 mm (0.0007−0.0023 in.)	0.08 mm (0.0031 in.)
		L13Z3	Intake	0.019−0.050 mm (0.0007−0.0020 in.)	0.08 mm (0.0031 in.)
			Exhaust	0.019−0.050 mm (0.0007−0.0020 in.)	0.08 mm (0.0031 in.)
		L15A8	Intake	0.017−0.067 mm (0.0007−0.0026 in.)	0.08 mm (0.0031 in.)
			Exhaust	0.019−0.050 mm (0.0007−0.0020 in.)	0.08 mm (0.0031 in.)

Valve

Item	Measurement	Qualification	Standard or New	Service Limit
Valve	Clearance (cold)	Intake	0.15−0.19 mm (0.006−0.007 in.)	———
		Exhaust	0.26−0.30 mm (0.010−0.012 in.)	———
	Stem O.D.	Intake	5.48−5.49 mm (0.2157−0.2161 in.)	5.45 mm (0.215 in.)
		Exhaust	5.45−5.46 mm (0.2146−0.2150 in.)	5.42 mm (0.213 in.)
	Stem-to-guide clearance	Intake	0.020−0.050 mm (0.0008−0.0020 in.)	0.08 mm (0.003 in.)
		Exhaust	0.050−0.080 mm (0.0020−0.0031 in.)	0.11 mm (0.004 in.)

Valve guide

Item	Measurement	Qualification	Standard or New	Service Limit
Valve guide	I.D.	Intake	5.51−5.53 mm (0.217−0.218 in.)	5.55 mm (0.219 in.)
		Exhaust	5.51−5.53 mm (0.217−0.218 in.)	5.55 mm (0.219 in.)
	Installed height	Intake	15.85−16.35 mm (0.624−0.644 in.)	———
		Exhaust	15.85−16.35 mm (0.624−0.644 in.)	———

Valve spring

Item	Measurement	Qualification		Standard or New	Service Limit
Valve spring	Free length	L13Z1 L13Z3	Intake	51.17 mm (2.014 in.)	———
			Exhaust	57.26 mm (2.254 in.)	———
		L15A7 L15A8	Intake	48.55 mm (1.911 in.)	———
			Exhaust	54.52 mm (2.146 in.)	———

Valve seat

Item	Measurement	Qualification	Standard or New	Service Limit
Valve seat	Width	Intake	0.850−1.150 mm (0.0335−0.0453 in.)	1.60 mm (0.063 in.)
		Exhaust	1.250−1.550 mm (0.0492−0.0610 in.)	2.00 mm (0.079 in.)
	Stem installed height	Intake	46.1−46.5 mm (1.815−1.831 in.)	46.8 mm (1.843 in.)
		Exhaust	46.2−46.6 mm (1.819−1.835 in.)	46.9 mm (1.846 in.)

Compression

Item	Measurement	Qualification	Standard or New	Service Limit
Compression	Pressure check at 250 rpm (min^{-1}) with wide open throttle (See Design Specs for ratio)	Minimum	980 kPa (10.0 kgf/cm^2, 142 psi)	———
		Maximum variation	200 kPa (2.0 kgf/cm^2, 28 psi)	———

Block

Item	Measurement	Qualification	Standard or New	Service Limit
Block	Warpage of deck		0.07 mm (0.003 in.) max.	0.10 mm (0.004 in.)
	Bore diameter		73.000−73.015 mm (2.8740−2.8746 in.)	73.065 mm (2.8776 in.)
	Bore taper		———	0.05 mm (0.002 in.)
	Reboring limit		———	0.25 mm (0.01 in.)

Connecting rod

Item	Measurement	Qualification	Standard or New	Service Limit
Connecting rod	Pin-to-rod interference		0.019−0.036 mm (0.007−0.0014 in.)	———
	Small-end bore diameter		17.964−17.977 mm (0.707−0.708 in.)	———
	Large-end bore diameter		43.0 mm (1.69 in.)	———
	End play installed on crankshaft		0.15−0.35 mm (0.006−0.014 in.)	0.40 mm (0.016 in.)

Crankshaft

Item	Measurement	Qualification	Standard or New	Service Limit
Crankshaft	Main journal diameter		49.976−50.000 mm (1.9676−1.9685 in.)	———
	Rod journal diameter		39.976−40.000 mm (1.5739−1.5748 in.)	———
	Rod/main journal taper		0.005 mm (0.0002 in.)	0.010 mm (0.0004 in.)
	Rod/main journal out-of-round		0.005 mm (0.0002 in.)	0.010 mm (0.0004 in.)
	End play		0.10−0.35 mm (0.004−0.014 in.)	0.45 mm (0.018 in.)
	Runout		0.03 mm (0.0012 in.) max.	0.04 mm (0.0016 in.)

Crankshaft bearing

Item	Measurement	Qualification	Standard or New	Service Limit
Crankshaft bearing	Main bearing-to-journal oil clearance		0.018−0.036 mm (0.0007−0.0014 in.)	0.050 mm (0.0020 in.)
	Rod bearing clearance	L15A7, L15A8	0.020−0.038 mm (0.0008−0.0015 in.)	0.050 mm (0.0020 in.)
		L13Z1, L13Z3	0.026−0.044 mm (0.0010−0.0017 in.)	0.050 mm (0.0020 in.)

Piston

Item	Measurement	Qualification	Standard or New	Service Limit
Piston	Skirt O.D. at 16 mm (0.6 in.) from bottom of skirt	L13Z1, L13Z3	72.972−72.982 mm (2.8729−2.8733 in.)	72.97 mm (2.8728 in.)
		L15A7, L15A8	72.980−72.990 mm (2.8732−2.8736 in.)	72.97 mm (2.8728 in.)
	Clearance in cylinder	L13Z1, L13Z3	0.018−0.043 mm (0.007−0.0017 in.)	0.05 mm (0.002 in.)
		L15A7, L15A8	0.010−0.035 mm (0.0004−0.0014 in.)	0.05 mm (0.002 in.)

Piston pin

Item	Measurement	Qualification	Standard or New	Service Limit
Piston pin	O.D.		17.996−18.000 mm (0.7085−0.7087 in.)	———
	Pin-to-piston clearance		0.010−0.017 mm (0.0004−0.0007 in.)	———

Piston ring

Item	Measurement	Qualification	Standard or New	Service Limit
Piston ring	Ring-to-groove clearance	Top	0.065−0.090 mm (0.0026−0.0035 in.)	0.15 mm (0.006 in.)
		Second	0.030−0.055 mm (0.0012−0.0022 in.)	0.12 mm (0.005 in.)
	Ring end gap	Top	0.15−0.30 mm (0.006−0.012 in.)	0.60 mm (0.024 in.)
		Second	0.30−0.42 mm (0.012−0.017 in.)	0.65 mm (0.026 in.)
		Oil	0.20−0.70 mm (0.008−0.028 in.)	0.80 mm (0.031 in.)

Ignition timing

Item	Measurement	Qualification	Standard or New	Service Limit
Ignition timing		At idle (check the *white* mark)	M/T (in neutral): 0±2 ° BTDC	
			A/T (in N or P): 0±2 ° BTDC	

Ignition coil

Item	Measurement	Qualification	Standard or New	Service Limit
Ignition coil	Rated voltage		12 V	
	Firing order		1−3−4−2	

Spark plug

Item	Measurement	Qualification	Standard or New	Service Limit
Spark plug	Type		NGK: IZFR6K13 DENSO: SKJ20DR-M13	
	Gap		1.2−1.3 mm (0.047−0.051 in.)	———

Oil pump

Item	Measurement	Qualification	Standard or New	Service Limit
Oil pump	Inner rotor-to-outer rotor clearance		0.06−0.16 mm (0.002−0.006 in.)	0.20 mm (0.008 in.)
	Pump housing-to-outer rotor clearance		0.100−0.175 mm (0.0039−0.0069 in.)	0.20 mm (0.008 in.)
	Pump housing-to-rotor axial clearance		0.02−0.06 mm (0.001−0.002 in.)	0.15 mm (0.006 in.)

Relief valve

Item	Measurement	Qualification	Standard or New	Service Limit
Relief valve	Relief valve, oil pressure with oil temperature at 80 °C (176 °F)	At idle	70 kPa (0.7 kgf/cm ^{2}, 10 psi) min.	———
		At 3,000 rpm (min $^{-1}$)	340 kPa (3.5 kgf/cm ^{2}, 50 psi) min.	———

Engine oil

Item	Measurement	Qualification	Standard or New	Service Limit
Engine oil	Capacity	Engine overhaul	4.2 L (4.4 US qt, 3.7 Imp qt)	———
		Oil change including oil filter	3.6 L (3.8 US qt, 3.2 Imp qt)	———
		Oil change without oil filter	3.4 L (3.6 US qt, 3.0 Imp qt)	———

Starter

Item	Measurement	Qualification	Standard or New	Service Limit
Starter	Output	Except L13Z1 (M/T), L13Z3 (M/T), L15A8 (M/T)	0.7 kW	
		L13Z1 (M/T), L13Z3 (M/T), L15A8 (M/T)	0.6 kW	
	Commutator mica depth		0.45−0.75 mm (0.018−0.030 in.)	0.20 mm (0.008 in.)
	Commutator runout		0.05 mm (0.002 in.) max.	0.4 mm (0.02 in.)
	Commutator O.D.		27.9−28.0 mm (1.098−1.102 in.)	27.0 mm (1.06 in.)
	Brush length		9.7−10.3 mm (0.38−0.41 in.)	6.0 mm (0.20 in.)

Wheel Alignment

Special Tool Required

Wheel alignment gauge attachment, 56 x 62 mm
07NAJ-SS00301

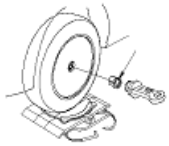
The suspension can be adjusted for front camber and front toe. However, each of these adjustments are interrelated to each other. For example, when you adjust the camber, the toe will change. Therefore, you must adjust the front wheel alignment whenever you adjust camber or toe.

Pre-Alignment Checks

For proper inspection and adjustment of the wheel alignment, do these checks:

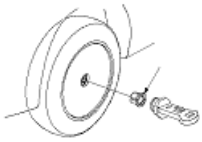
1. Release the parking brake to avoid an incorrect measurement.
2. Make sure the suspension is not modified.
3. Make sure the fuel tank is full, and that the spare tyre or the temporary repair kit, the jack, and the tools are in place on the vehicle.
4. Check the tyre size and tyre pressure according to tyre information.
5. Check the runout of the wheels and tyres.
6. Check the suspension ball joints.
   - Ball joint boot inspection.
   - Lower arm ball joint inspection.
7. Before doing alignment inspections, be sure to remove all extra weight from the vehicle, and no one should be inside the vehicle (driver or passengers).
8. Bounce the vehicle up and down several times to stabilize the suspension.
9. Check that the steering column is set at the center tilt and telescopic position.

Front Caster Inspection



1. Raise the front of the vehicle, and remove the wheel caps.
   NOTE: Push out the cap on the aluminum wheel from the inside after removing the wheel.
2. Set the turning radius gauges beneath the front wheels, and place the boards under the rear wheels the same thickness as the turning radius gauges, then lower the vehicle.
   NOTE: Be sure that the vehicle is level with the wheels on the turning radius gauges and the boards.
3. Install the wheel alignment gauge attachment (A) and camber/caster gauge on the wheel hub, and apply the front brake.
4. Turn the front wheel 20 ° outward, then turn the adjusting screw of the camber/caster gauge to set the bubble at 0 °.
5. Turn the wheel 20 ° inward and read the caster angle on the gauge with the bubble at the center of the gauge.
   Front caster angle: 3 ° 13 '± 1 °
   - If the measurement is within specifications, measure the front camber angle.
   - If the measurement is not within specifications, check for bent or damaged suspension components.

Front Camber Inspection

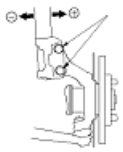


1. Turn the front wheels to the straight ahead position.
2. Raise the front of the vehicle, and remove the wheel caps.
   NOTE: Push out the cap on the aluminum wheel from the inside after removing the wheel.
3. Install the wheel alignment gauge attachment (A) and camber/caster gauge on the wheel hub.
4. Read the camber angle on the gauge with the bubble at the center of the gauge.
   Front camber angle: 0 ° 07 '± 1 °
   (Maximum difference between the right and left side: 0 ° 45 ')
   - If the measurement is within specifications, measure the rear camber.
   - If the measurement for the front camber is not within specifications, go to the front camber adjustment.

Front Camber Adjustment

The front camber can be adjusted by exchanging one or both of the damper pinch bolts with the smaller diameter adjusting bolt(s). The difference between the adjusting bolt diameter and the pinch bolt hole diameter allows for a small range of adjustment.

1. Raise the front of the vehicle, and support it with safety stands in the proper locations.
2. Remove the front wheels.
3. Loosen the damper pinch bolts (A), and adjust the camber angle by moving the bottom of the damper within the range of the damper pinch bolt free play.
4. Tighten the damper pinch bolts to the specified torque.
5. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheels.
6. Lower the vehicle to the ground, and bounce the front of the vehicle up and down several times to settle the suspension.
7. Measure the camber angle.
   - If the measurement is within specification, measure the rear camber.
   - If the measurement is not within specification, go to Step 8 .
8. Raise the front of the vehicle, and support it with safety stands in the proper locations.
9. Remove the front wheels.



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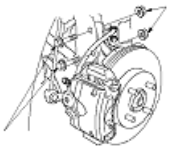
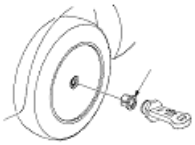
10. Replace the damper pinch bolts with the adjusting bolts (A), and adjust the camber angle.
    NOTE:
    - The camber angle can be adjusted up to ±20 ' (center of tolerance) by replacing one damper pinch bolt with the adjusting bolt.
    - The camber angle can be adjusted up to ±40 ' by replacing both the damper pinch bolts with the adjusting bolts.
11. Tighten the adjusting bolts to the specified torque value.
12. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheels.
13. Lower the vehicle to the ground, and bounce the front of the vehicle up and down several times to settle the suspension.
14. Measure the camber angle. If the camber angle is not within specification, repeat Step 8 through 13 to readjust the camber angle. If the camber measurement is correct, measure the toe-in, and adjust it if necessary.



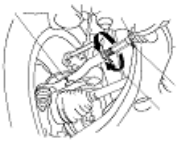
Rear Camber Inspection

1. Raise the rear of the vehicle, and remove the wheel caps.
   NOTE: Push out the cap on the aluminum wheel from the inside after removing the wheel.
2. Install the wheel alignment gauge attachment (A) and camber/caster gauge on the wheel hub.
3. Read the camber angle on the gauge with the bubble at the center of the gauge.
   Rear camber angle: −1 ° 00 '±1 °
   (Maximum difference between the right and left side: 0 ° 45 ')
   - If the measurement is within specifications, measure the toe-in.
   - If the measurement is not within specifications, check for bent or damaged suspension components.



Front Toe Inspection/Adjustment

1. Set the steering column to the middle tilt and telescopic positions. Center the steering wheel spokes, and hold it.
2. Check the toe with the wheels pointed straight ahead.
   Front toe-in: 0±3 mm (0±0.12 in.)
   - If adjustment is required, go to Step 3 .
   - If no adjustment is required, go to rear toe inspection.
3. Loosen the tie-rod locknuts (A) while holding the flat surface sections (B) of the tie-rod end with a wrench, and turn both tie-rods (C) until the front toe is within specifications.
4. After adjusting, tighten the tie-rod locknuts to the specified torque value. Reposition the rack end boot if it is twisted or displaced.
5. Go to rear toe inspection.
   NOTE: Adjust both the right and left wheels at the same time by the same amount in opposite directions to obtain the correct toe and to keep the steering wheel straight.



Rear Toe Inspection

1. Release the parking brake to avoid and incorrect measurement.
2. Check the toe.
   Rear toe-in: **2.5±2.5 mm (0.10±0.10 in.)**

   - If the measurement is within specifications, measure the turning angle.
   - If the measurement is not within specifications, check for bent or damaged suspension components.

Turning Angle Inspection

1. Raise the vehicle and set the turning radius gauges beneath the front wheels, and place the boards under the rear wheels the same thickness as the turning radius gauges, then lower the vehicle.
   NOTE: Be sure that the vehicle is level with the wheels on the turning radius gauges and the boards.
2. Turn the wheel right and left while applying the brake, and measure the turning angle of the both wheels.
   Turning angle:

Inward:	**40 ° 38 '±2 °**
Outward (reference):	**33 ° 30 '±1 °**

3. If the measurement is not within the specifications, even up both sides of the tie-rod threaded section length while adjusting the front toe. If it is correct, but the turning angle is not within the specifications, check for bent or damaged suspension components.

Wheel alignment

Item	Measurement	Qualification	Standard or New	Service Limit
Wheel alignment	Camber	Front	0 ° 07 ′±1 °	
		Rear	−1 ° 00 ′±1 °	
	Caster	Front	3 ° 13 ′±1 °	
	Total toe-in	Front	0±3 mm (0±0.12 in.)	
		Rear	2.5±2.5 mm (0.10±0.10 in.)	
	Front wheel turning angle	Inward	40 ° 38 ′±2 °	
		Outward (reference)	33 ° 30 ′±1 °	

Wheel bearing

Item	Measurement	Qualification	Standard or New	Service Limit
Wheel bearing	End play	Front	0−0.05 mm (0−0.002 in.)	
		Rear	0−0.05 mm (0−0.002 in.)	

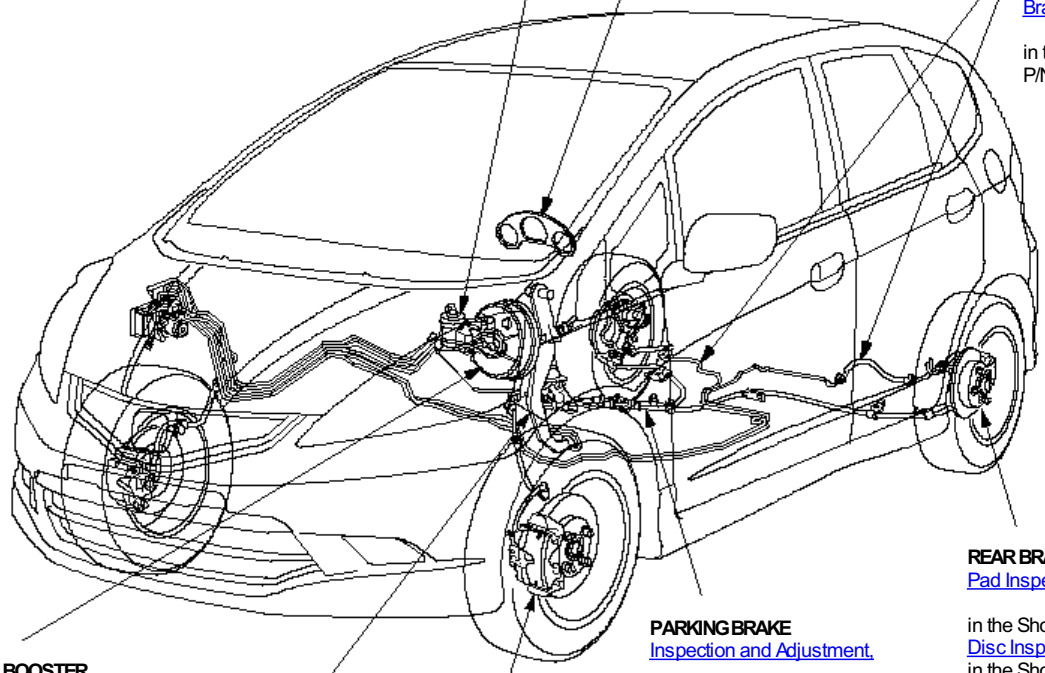
Wheel

Item	Measurement	Qualification	Standard or New	Service Limit
Wheel	Steel wheel runout	Axial	0−1.0 mm (0−0.04 in.)	2.0 mm (0.08 in.)
		Radial	0−1.0 mm (0−0.04 in.)	1.5 mm (0.06 in.)
	Aluminium wheel runout	Axial	0−0.7 mm (0−0.03 in.)	2.0 mm (0.08 in.)
		Radial	0−0.7 mm (0−0.03 in.)	1.5 mm (0.06 in.)

Parking brake

Item	Measurement	Qualification	Standard or New	Service Limit
Parking brake	Distance traveled when lever pulled with 196 N (20 kgf, 44 lbf) of force		6 to 8 clicks	

Conventional Brake Component Location Index



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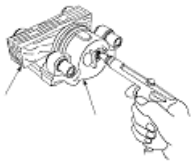
Brake booster

Item	Measurement	Qualification	Standard or New		Service Limit
Brake booster	Master cylinder oil pressure	Vacuum booster Vacuum kPa (mmHg, in.Hg)	Brake pedal pressure N (kgf, lbf)	Master cylinder oil pressure kPa (kgf/cm ^{2} , psi)	
		0 (0, 0)	98 (10, 22)	0 (0, 0)	
			196 (20, 44)	A/T	577 (5.9, 84)
				M/T	501 (51, 73)
		66.7 (500, 19.7)	98 (10, 22)	A/T	4,523 (46.1, 656)
				M/T	4,235 (43.2, 614)
			196 (20, 44)	A/T	9,538 (97.3, 1.383)
				M/T	9,468 (96.5, 1.373)

Front Brake Caliper Overhaul

Exploded View



⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.

- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an appropriate vacuum cleaner.

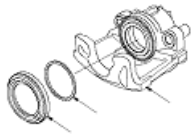
NOTE:
Upper caliper pin B and lower caliper pin A are different. If these caliper pins are installed in the wrong location, it will cause vibration, uneven or rapid pad wear, and possibly uneven tyre wear.

- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
- To prevent dripping brake fluid, cover disconnected hose joints with rags or shop towels.
- Clean all parts in brake fluid and air dry; blow out all passages with compressed air.
- Before reassembling, check that all parts are free of dirt and other foreign particles.
- Replace parts with new ones as specified in the illustration.
- Make sure no dirt or other foreign matter gets in the brake fluid.
- Make sure no grease or oil gets on the brake discs or the brake pads.
- When reusing brake pads, always reinstall them in their original positions to prevent loss of braking efficiency.
- Do not reuse drained brake fluid. Use only clean genuine Honda DOT 3 or DOT 4 Brake Fluid from an unopened container. Using a non-Honda brake fluid can cause corrosion and shorten the life of the system.
- Coat the piston, the piston seal groove, and the caliper bore with clean brake fluid.
- Replace all rubber parts with new ones whenever disassembled.
- After installing the caliper, check the brake hose and line for leaks, interference, and twisting.
- Make sure not to get any silicone grease on the terminal part of the connectors and switches, especially if you have silicone grease on your hands or gloves.

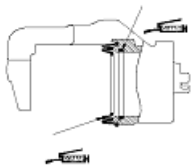
Disassembly

1. Remove the caliper body.
2. Set the wooden block (A) or several shop towels to the caliper body (B) as shown. Blow out the piston with compressed air gradually, and remove the piston from the caliper body.
   NOTE: Do not put the hand into the caliper body because the piston will come out hardly from the caliper body.

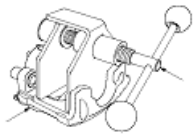
3. Remove the piston boot (A) and the piston seal (B) from the caliper body (C).
   NOTE: Be careful not to damage the inner surface of the cylinder wall with the tool.



Reassembly



1. Apply a thin coat of rubber grease to the new piston seal (A), then install it into the groove in the caliper body.
2. Apply the brake fluid to the new piston boot (B), then install it into the groove in the caliper body.
3. Apply the brake fluid to the outer surface of the piston, then set the piston in place on the caliper body.



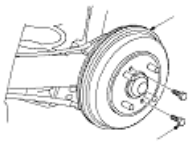
4. Mount the commercially available brake caliper piston compressor tool (A) on the caliper body (B).
5. Press in the piston with the brake caliper piston compressor tool. Make sure that the piston boot is properly positioned into the groove of the piston.
   NOTE:
   - Do not press the piston diagonally, and do not press it forcibly.
   - Be careful not to damage the piston boot when press the piston.
6. Install the caliper body.
7. Bleed the brake system.

Brake disc

Item	Measurement	Qualification	Standard or New	Service Limit
Brake disc	Thickness	Front	20.9−21.1 mm (0.82−0.83 in.)	19.0 mm (0.75 in.)
		Rear	8.9−9.1 mm (0.35−0.36 in.)	8.0 mm (0.31 in.)
	Runout		———	0.04 mm (0.0016 in.)
	Parallelism		———	0.015 mm (0.0006 in.)

Rear Drum Brake Replacement

NOTE: Keep any grease off the brake drum and brake shoes.



1. Raise the rear of the vehicle, and support it with safety stands in the proper locations.
2. Remove the rear wheel.
3. Remove the parking brake, and remove the brake drum (A) from the hub bearing unit.
   NOTE:
   - If necessary, pry the parking brake lever (B) with a flat-tip screw driver (C).
   - If the brake drum stuck to the hub bearing unit. Thread two 8 x 1.25 mm bolts (D) into the brake drum to push it away from the hub bearing unit. Turn each bolt 90 degrees at a time to prevent the brake drum from binding.
   - After installation, press the brake pedal several times to make sure the brakes work and self adjust the brake shoes.

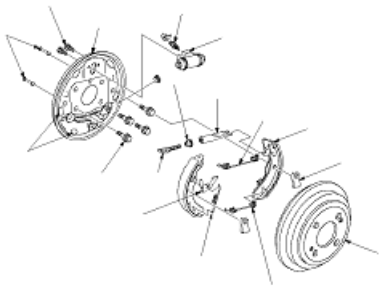
4. Install the brake drum in the reverse order of removal.
   NOTE: Before installing the brake drum, clean the mating surfaces of the rear hub and the inside of the brake drum.
5. Clean the mating surfaces of the brake drum and the inside of the wheel, then install the rear wheel.

Rear Drum Brake Inspection

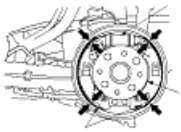
⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.

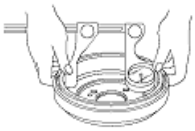
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an appropriate vacuum cleaner.



1. Raise the rear of the vehicle, and support it with safety stands in the proper locations.
2. Remove the rear wheels.
3. Release the parking brake, and remove the brake drum.



4. Check the wheel cylinder (A) for leakage.
5. Check the brake linings (B) for cracking, glazing, wear, and contamination.
   NOTE: Contaminated brake linings or drums reduce stopping ability.
6. Measure the brake lining thickness (C). Measurement does not include brake shoe thickness.
   Brake lining thickness:
   Standard: 4.3 mm (0.17 in.)
   Service limit: 1.0 mm (0.04 in.)
7. If the brake lining thickness is less than the service limit, replace the brake shoes as a set.
8. Check the hub (D) for smooth operation. If it requires servicing, replace the hub bearing unit.

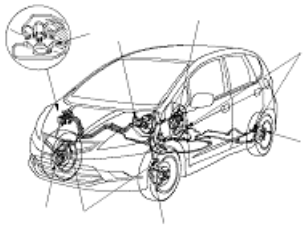


9. Measure the inside diameter of the brake drum with inside vernier calipers.
   Drum inside diameter:
   Standard: 199.9–200 mm (7.870–7.874 in.)
   Service limit: 201 mm (7.91 in.)
10. If the inside diameter of the brake drum is more than the service limit, replace the brake drum.
11. Check the brake drum for scoring, grooves, corrosion, and cracks.
12. Install the brake drum.
    NOTE: Before installing the brake drum, clean the mating surfaces of the rear hub and the inside of the brake drum.
13. Clean the mating surfaces of the brake drum and the inside of the wheel, then install the rear wheel.

Rear brake (drum brake)

Item	Measurement	Qualification	Standard or New	Service Limit
Rear brake (drum brake)	Brake drum I.D.		199.9−200.0 mm (7.870−7.874 in.)	201 mm (7.91 in.)
	Brake shoe lining thickness		4.3 mm (0.17 in.)	1.0 mm (0.04 in.)

Brake Hose and Line Inspection



1. Inspect the brake hoses for damage, deterioration, leaks, interference, and twisting.
2. Check the brake lines for damage, rusting, and leaks. Also check for bent brake lines.
3. Check for leaks at hose and line joints and connections, and retighten if necessary.
4. Check the master cylinder and the ABS modulator-control unit or the proportioning valve for damage and leaks.

Connection Point	Component	Connected to	Specified Torque Value	Note
A	Front brake caliper	Brake hose	35 N·m (3.6 kgf·m, 26 lbf·ft)	Banjo bolt
		Bleed screw	6 N·m (0.6 kgf·m, 4.3 lbf·ft)	
B	Rear brake caliper (Rear disc brake type)	Brake hose	35 N·m (3.6 kgf·m, 26 lbf·ft)	Banjo bolt
		Bleed screw	9 N·m (0.9 kgf·m, 7 lbf·ft)	
	Rear wheel cylinder (Rear drum brake type)	Brake pipe	15 N·m (1.5 kgf·m, 11 lbf·ft)	Flare nut
		Bleed screw	6 N·m (0.6 kgf·m, 4.3 lbf·ft)	
C	Brake hose	Brake line	15 N·m (1.5 kgf·m, 11 lbf·ft)	Flare nut
D	Master cylinder	Brake line	15 N·m (1.5 kgf·m, 11 lbf·ft)	Flare nut
E	ABS modulator-control unit	Brake line	15 N·m (1.5 kgf·m, 11 lbf·ft)	Flare nut
F	Proportioning valve	Brake line	15 N·m (1.5 kgf·m, 11 lbf·ft)	Flare nut

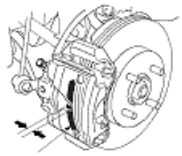
Front Brake Pad Inspection and Replacement

⚠CAUTION

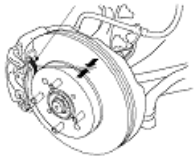
Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.

- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an appropriate vacuum cleaner.

Inner pad



Outer pad



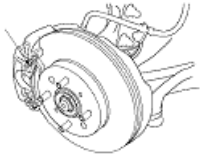
Inspection

1. Raise the front of the vehicle, and support it with safety stands in the proper locations.
2. Remove the front wheels.
3. Check the thickness (A) of the inner pad (B) and the outer pad (C). Do not include the thickness of the backing plate.
   Brake pad thickness:

Standard:	**10.5–11.0 mm (0.41–0.43 in.)**
Service limit:	**1.5 mm (0.06 in.)**

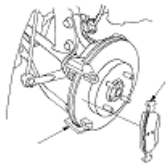
4. If the brake pad thickness of any of the pads is less than the service limit, replace the front brake pads as a set.
5. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheels.

Replacement



1. Remove some brake fluid from the master cylinder.
2. Raise the front of the vehicle, and support it with safety stands in the proper locations.
3. Remove the front wheels.
4. Remove the housing clip (A).

5. Remove the brake hose mounting bolt (A).
6. Remove the pin bolts (B), then remove the caliper body (C).



7. Remove the outer pad (A) from the caliper bracket (B).
8. Clean the caliper bracket thoroughly; remove any rust, and check for grooves and cracks.
9. Inspect the brake disc, and check for damage and cracks.

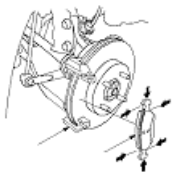
10. Remove the inner pad (A) from the caliper body (B).
11. Clean the caliper body thoroughly; remove any rust, and check for grooves and cracks.

12. Mount a commercially available brake caliper piston compressor tool (A) on the caliper body (B).
13. Press in the piston with the brake caliper piston compressor tool so the caliper will fit over the brake pads. Make sure the piston boot is in position to prevent damaging it when pivoting the caliper body.
    NOTE: Be careful when pressing in the piston; brake fluid might overflow from the master cylinder's reservoir. If brake fluid gets on any painted surface, wash it off immediately with water.
14. Remove the brake caliper piston compressor tool.

15. Apply Plastilube to the areas indicated by the arrows. Wipe excess grease off the brake pads (A). Keep grease off the brake discs and the brake pads. Contaminated brake discs or the brake pads reduce stopping ability.
16. Install the inner pad to the caliper body (B), and install the outer pad to the caliper bracket (C). If you are reusing the brake pads, always reinstall the brake pads in their original positions to prevent a momentary loss of braking efficiency.

Inner pad

Outer pad



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17. Install the caliper body (A) into position, then install the pin bolts (B).
18. Install the brake hose mounting bolt (D).

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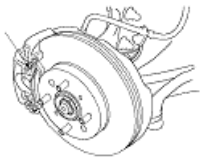
19. Install the housing clip (A).
20. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheels.
21. Press the brake pedal several times to make sure the brakes work.
    NOTE: Engagement may require a greater pedal stroke immediately after the brake pads have been replaced as a set. Several applications of the brake pedal will restore the normal pedal stroke.
22. Add brake fluid as needed.
23. After installation, check for leaks at hose and line joints or connections, and retighten if necessary.
    Test-drive the vehicle, then recheck for leaks.



Brake pad

Item	Measurement	Qualification	Standard or New	Service Limit
Brake pad	Thickness	Front	10.5−11.0 mm (0.41−0.43 in.)	1.5 mm (0.06 in.)
		Rear	6.8−7.5 mm (0.27−0.30 in.)	1.6 mm (0.06 in.)

Brake pedal

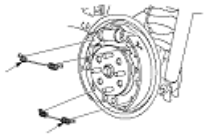
Item	Measurement	Qualification	Standard or New	Service Limit
Brake pedal	Pedal height (carpet moved aside)	M/T	139 mm (5.5 in.)	
		A/T	138 mm (5.4 in.)	
	Free play		1−5 mm (0.04−0.20 in.)	

Rear Brake Shoe Replacement

⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.

- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an approved vacuum cleaner.



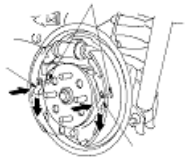
NOTE:

- Contaminated brake linings or drums reduce stopping ability.
- Block the front wheels before jacking up the rear of the vehicle.

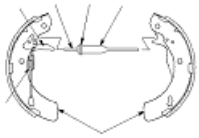
Disassembly

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations.
2. Remove the rear wheels.
3. Release the parking brake, and remove the brake drum.
4. Remove the upper return spring (A) and lower return spring (B).

5. Remove the tension pins (A) by turning them while pushing each retainer spring (B).
6. Disconnect the parking brake cable from the parking brake lever, and remove the brake shoes from the backing plate.

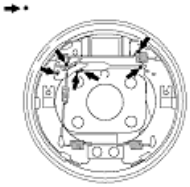


7. Remove the push rod female (A), adjuster nut (B), and push rod male (C), and separate the brake shoes (D).
8. Remove the self-adjuster spring (E) and self-adjuster lever (F).

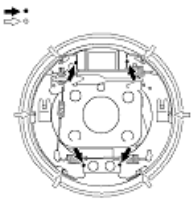


Reassembly

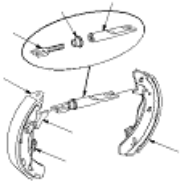
1. Apply a thin coat of rubber grease to the connecting rod ends (A), and the sliding surfaces (B) as shown. Wipe off any excess. Keep grease off the brake linings.



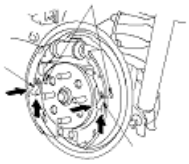
2. Apply a thin coat of Molykote 44 MA grease to the shoe ends (A) and the edge of the shoe surfaces (B) that contact the backing plate as shown. Wipe off any excess. Keep grease off the brake linings.



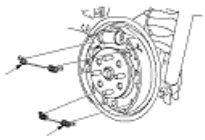
3. Install the self-adjuster lever (A) and self-adjuster spring (B) on the front side brake shoe (C).
4. Connect the parking brake cable to the rear side brake shoe (D), and assemble the brake shoes with the push rod female (E), adjuster nut (F), and push rod male (G).
5. Install the shoes on the backing plate, fitting the top of the brake shoes on the wheel cylinder pistons and the bottom of the brake shoes on the locating plate.



6. Install the tension pins (A), and secure them with the retainer springs by turning them while pushing each retainer spring (B).



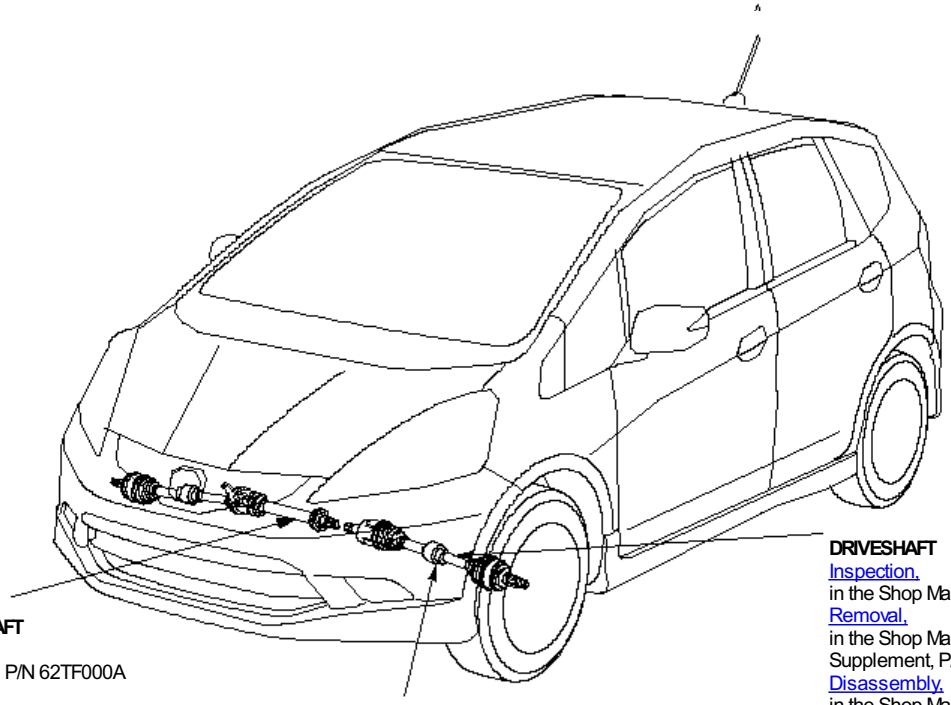
7. Install the upper return spring (A) and lower return spring (B).



8. Install the brake drum.
   NOTE: Before installing the brake drum, clean the mating surface of the rear hub and the inside of the brake drum.
9. Clean the mating surfaces of the brake drum and the inside of the wheel, then install the rear wheel.
10. Press the brake pedal several times to make sure the brakes work and to set the self-adjusting brake.
    NOTE: Engagement of the brakes may require a greater pedal stroke immediately after the brake shoes have been replaced as a set. Several applications of the brake pedal will restore the normal pedal stoke.
11. Adjust the parking brake.

Driveline/Axle Component Location Index

M/T model



INTERMEDIATE SHAFT
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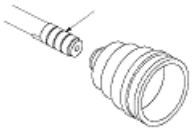
Reassembly,
in the Shop Manual, P/N 62TF000A
Installation,
in the Shop Manual, P/N 62TF000A

DYNAMIC DAMPER
Replacement,

DRIVESHAFT
Inspection,
in the Shop Manual, P/N 62TF000A
Removal,
in the Shop Manual
Supplement, P/N 62TF020
Disassembly,
in the Shop Manual, P/N 62TF000A
Reassembly,
Installation,
in the Shop Manual
Supplement, P/N 62TF020

Driveshaft Reassembly



Exploded View
M/T model

Exploded View
A/T model

Special Tools Required

Boot band tool,
KD-3191

or equivalent commercially available
Boot band pincers,
Kent-Moore J-35910

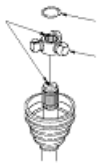
or equivalent commercially available
Boot band pliers,
commercially available

NOTE: Refer to the Exploded View as needed during this procedure.

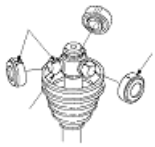
Inboard Joint Side

1. Wrap the splines with vinyl tape (A) to prevent damaging the inboard boot.
2. Install the inboard boot onto the driveshaft, then remove the vinyl tape. Be careful not to damage the inboard boot.

3. Install the spider (A) onto the driveshaft by aligning the marks (B) you made on the spider and the end of the driveshaft.
4. Install a new circlip (C) into the driveshaft groove. Always rotate the circlip in its groove to make sure it is fully seated.



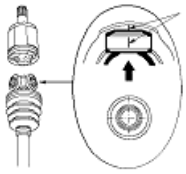
5. Fit the rollers (A) onto the spider (B) with the high shoulders facing outward, and note these items:
   - Reinstall the rollers in their original positions on the spider by aligning the marks (C) you made.
   - Hold the driveshaft pointed up to prevent the rollers from falling off.



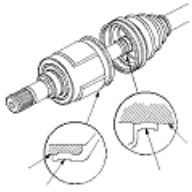
6. Pack the inboard joint with the joint grease included in the new inboard boot set.

Model	Left/Right Driveshaft	Grease quantity Inboard joint
M/T	Left	98−118 g (3.5−4.2 oz)
	Right	117−137 g (4.1−4.8 oz)
A/T	Left	98−118 g (3.5−4.2 oz)
	Right	112−132 g (4.0−4.7 oz)

7. Fit the inboard joint onto the driveshaft and note these items:
   - Reinstall the inboard joint onto the driveshaft by aligning the marks (A) you made on the inboard joint and the rollers.
   - Hold the driveshaft so the inboard joint is pointing up to prevent it from falling off.

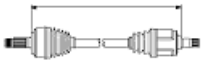


8. Fit the boot ends (A) onto the driveshaft (B) and the inboard joint (C).

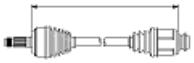


9. Adjust the length (A) of the driveshafts to the figure as shown, then adjust the boots to halfway between full compression and full extension. Bleed excess air from the boots by inserting a flat-tipped screwdriver between the boot and the joint.

Driveshaft type 1



Driveshaft type 2

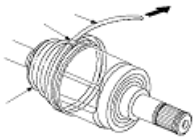


Model	Left/Right Driveshaft	Driveshaft Type	Specified Length (A)
M/T	Left	1	525.5−530.5 mm (20.69−20.89 in.)
	Right	1	787−792 mm (30.98−31.18 in.)
A/T	Left	1	525.5−530.5 mm (20.69−20.89 in.)
	Right	2	484−489 mm (19.06−19.25 in.)

10. Install the new boot bands.
    - For the double loop type, go to Step 11 .
    - For the low profile type, go to Step 20 .

---

11. Fit the boot ends onto the driveshaft and the inboard joint, then install a new double loop band (A) onto the boot (B). NOTE: Pass the end of the new double loop band through the clip (C) twice in the direction of the forward rotation of the driveshaft.
12. Pull up the slack in the band by hand.



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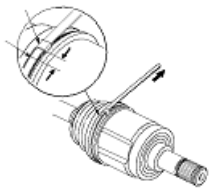
13. Mark a position (A) on the band 10−14 mm (0.4−0.6 in.) from the clip (B).



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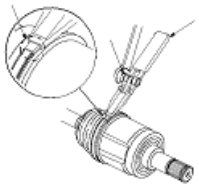
14. Thread the free end of the band through the nose section of the commercially available boot band tool KD-3191 or equivalent (A), and into the slot on the winding mandrel (B).
15. Using a wrench on the winding mandrel of the boot band tool, tighten the band until the marked spot (C) on the band meets the edge of the clip.



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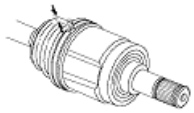
16. Lift up the boot band tool to bend the free end of the band 90 degrees to the clip. Center-punch the clip, then fold over the remaining tail onto the clip.

---

17. Unwind the boot band tool, and cut off the excess free end of the band to leave a 5−10 mm (0.2−0.4 in.) tail protruding from the clip.



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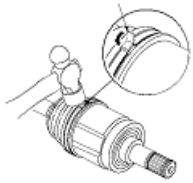
18. Bend the band end (A) by tapping it down with a hammer.
    NOTE:
    - Make sure the band and the clip do not interfere with anything on the vehicle and the band does not move.
    - Clean any grease remaining on the surrounding surfaces.
19. Repeat Step 11 through 18 for the band on the other end of the boot.



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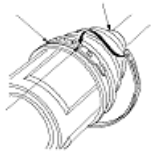
20. Install a new low profile band (A) onto the boot (B), then hook the tab (C) of the band.



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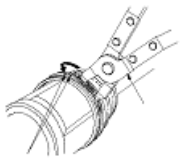
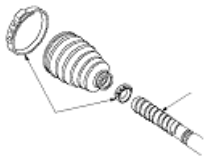
21. Close the hook portion of the band with a commercially available boot band pincers (A), then hook the tabs (B) of the band.
22. Install the boot band on the other end of the boot, and repeat Step 20 through 21.



Outboard Joint Side

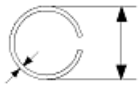


1. Wrap the splines with vinyl tape (A) to prevent damaging the outboard boot.
2. Install the new ear clamp bands (B) and the outboard boot, then remove the vinyl tape. Be careful not to damage the outboard boot.

---

3. Make sure to check the size of a new stop ring.
   NOTICE
   To avoid driveshaft and vehicle damage, make sure you install a new stop ring.
   Stop ring specifications

Overall diameter (A):	**22.2 mm (0.87 in.)**
Wire diameter (B):	**1.6 mm (0.06 in.)**



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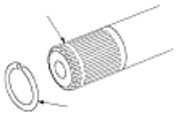
4. Install a new stop ring (A) into the driveshaft groove (B).



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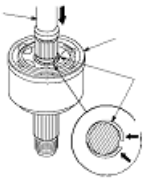
5. Pack about 35 g (1.2 oz) grease included in the new outboard boot set into the driveshaft hole in the outboard joint.
   NOTE: If you are installing a new outboard joint, the grease is already installed.

---

6. Insert the driveshaft (A) into the outboard joint (B) until the stop ring (C) is close to the joint.



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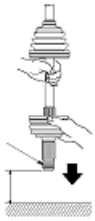
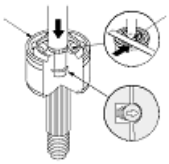
7. To completely seat the outboard joint, pick up the driveshaft and joint, and tap or hit them from a height of about 10 cm (4 in.) onto a hard surface.
   NOTE: Do not use a hammer as excessive force may damage the driveshaft. Be careful not to damage the threaded section (A) of the outboard joint.



---

8. Check the alignment of the paint mark (A) you made with the outboard joint rim (B).
   NOTICE
   To avoid driveshaft and vehicle damage, the shaft must be all the way into the outboard joint to ensure the stop ring is properly seated.

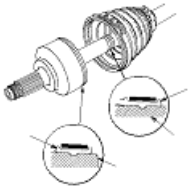


---

9. Pack the outboard joint (A) with the remaining joint grease included in the new outboard boot set.
   Total grease quantity
   Outboard joint: 107−127 g (3.8−4.5 oz)

---

10. Fit the boot ends (A) onto the driveshaft (B) and the outboard joint (C). Bleed any excess air from the boot by inserting a flat-tipped screwdriver between the boot and the joint.



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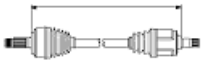
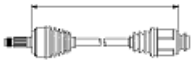
11. Inspect the length (A) of the driveshafts to the figure as shown, then adjust the boots to halfway between full compression and full extension.

Driveshaft type 1



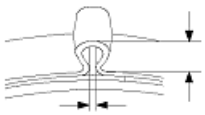
Driveshaft type 2



Model	Left/Right Driveshaft	Driveshaft Type	Specified Length (A)
M/T	Left	1	525.5−530.5 mm (20.69−20.89 in.)
	Right	1	787−792 mm (30.98−31.18 in.)
A/T	Left	1	525.5−530.5 mm (20.69−20.89 in.)
	Right	2	484−489 mm (19.06−19.25 in.)

12. Close the ear portion (A) of the band with commercially available boot band pliers Kent-Moore J-35910 or equivalent (B).

13. Check the clearance between the closed ear portion of the band. If the clearance is not within the standard, close the ear portion of the band tighter.



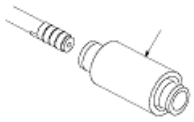
14. Repeat Step 12 and 13 for the band on the other end of the boot.

Driveshaft Dynamic Damper Replacement

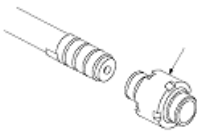
1. Remove the inboard joint.
2. Remove the dynamic damper band.
3. Remove the dynamic damper (A).
4. Install the new dynamic damper.
   NOTE: Be careful not to swap the dynamic dampers. Check the type of dynamic damper by its shape.

Model	Left/Right Driveshaft	Dynamic Damper (A) Type
M/T	Left	———
	Right	1
A/T	Left	2
	Right	2

Dynamic damper type 1



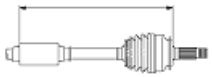
Dynamic damper type 2



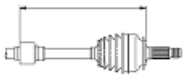
5. Adjust the specified distance (A) between the outboard joint side and the dynamic damper edge.
   NOTE: Check the type of dynamic damper by its shape.

Model	Left/Right Driveshaft	Dynamic Damper Type	Specified Distance (A)
M/T	Left	———	———
	Right	1	287.5−291.5 mm (11.32−11.48 in.)
A/T	Left	2	251−255 mm (9.88−10.04 in.)
	Right	2	

Dynamic damper type 1



Dynamic damper type 2



6. Install the dynamic damper band.
7. Install the inboard joint.

Gearbox

Item	Measurement	Qualification	Standard or New
Gearbox	Angle of rack guide screw loosened from locked position		10±3 °

Steering wheel

Item	Measurement	Qualification	Standard or New
Steering wheel	Rotational play measured at outside edge with engine running		0−10 mm (0−0.39 in.)
	Initial turning load measured at outside edge with engine running		29 N (3.0 kgf, 6.6 lbf)

Refrigerant

Item	Measurement	Qualification	Standard or New
Refrigerant	Type		HFC-134a (R-134a)
	Capacity of system		370−420 g (13.1−14.8 oz)

Refrigerant oil

Item	Measurement	Qualification	Standard or New
Refrigerant oil	Type		SP-10 (P/N 38897-P13-003, 38898-P13-003, or 38899-P13-A01)
	Capacity of components	Condenser	25 mL (5/6 fl·oz, 0.9 Imp·oz)
		Evaporator	35 mL (1 1/6 fl·oz, 1.2 Imp·oz)
		Each line and hose	10 mL (1/3 fl·oz, 0.4 Imp·oz)
		Receiver/Dryer	10 mL (1/3 fl·oz, 0.4 Imp·oz)
		Compressor	80–90 mL (2 2/3–3 fl·oz, 2.8–3.2 Imp·oz)

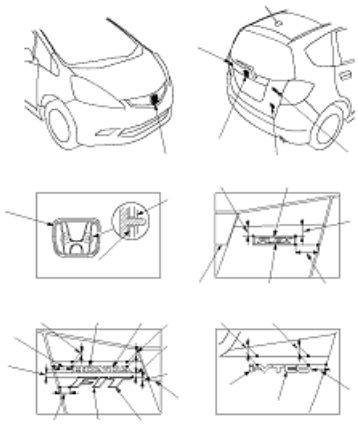
Compressor

Item	Measurement	Qualification	Standard or New
Compressor	Field coil resistance	At 20 °C (68 °F)	3.15−3.45 Ω
	Pulley-to-armature plate clearance		0.35−0.65 mm (0.014−0.026 in.)

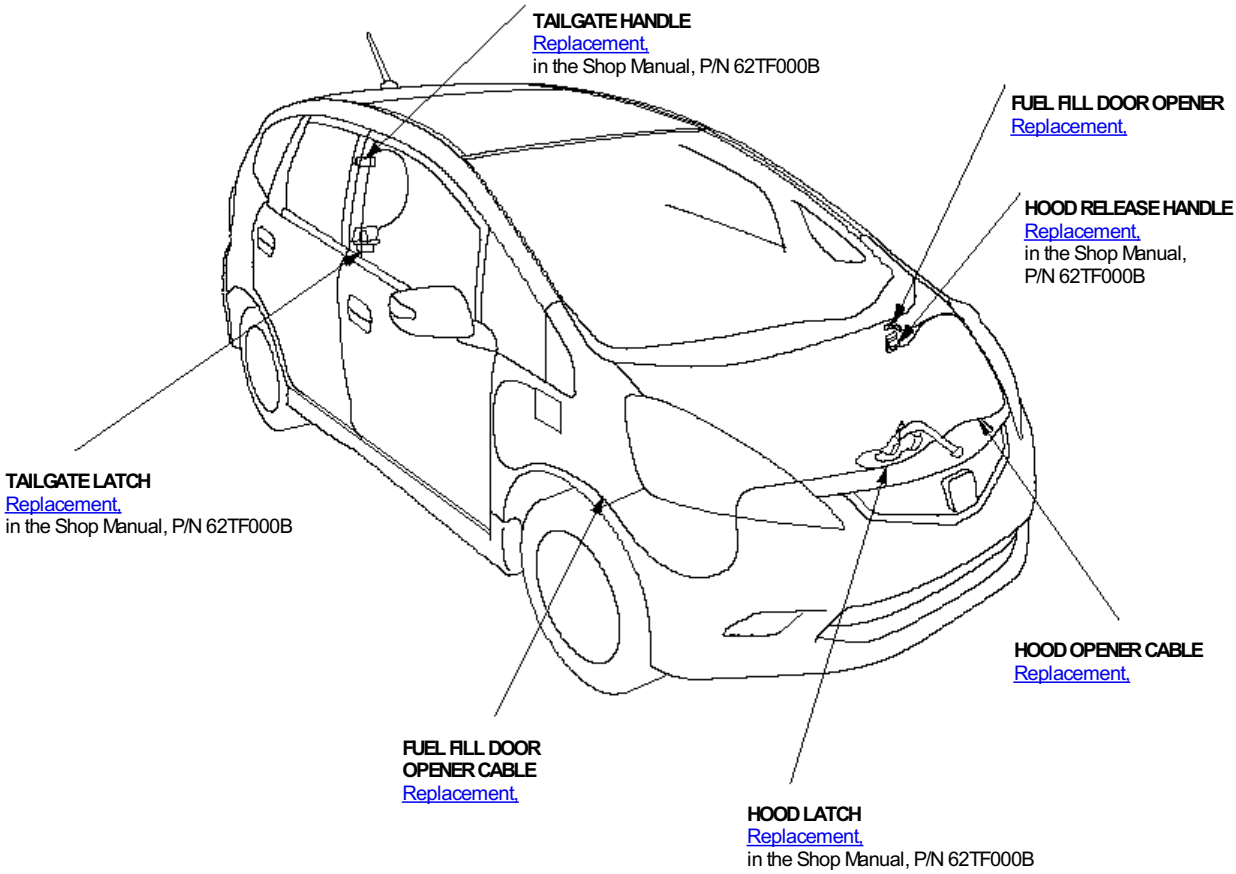
Emblem/Sticker Replacement

NOTE: When removing the emblems, take care not to scratch the body.

1. To remove the front “H" emblem, remove the upper front grille.
2. To remove the rear “H" emblem, remove the rear license trim.
3. Clean the body surface with a sponge dampened in isopropyl alcohol. After cleaning, keep oil, grease, and water from getting on the surface.
4. Apply the emblems where shown.

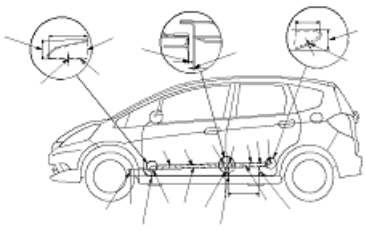


Openers Component Location Index



Door Molding Replacement

For Some Models



NOTE:

- Be careful not to pry too far or you may bend the molding.
- Put on gloves to protect your hands.
- When removing the moldings, take care not to scratch the body.

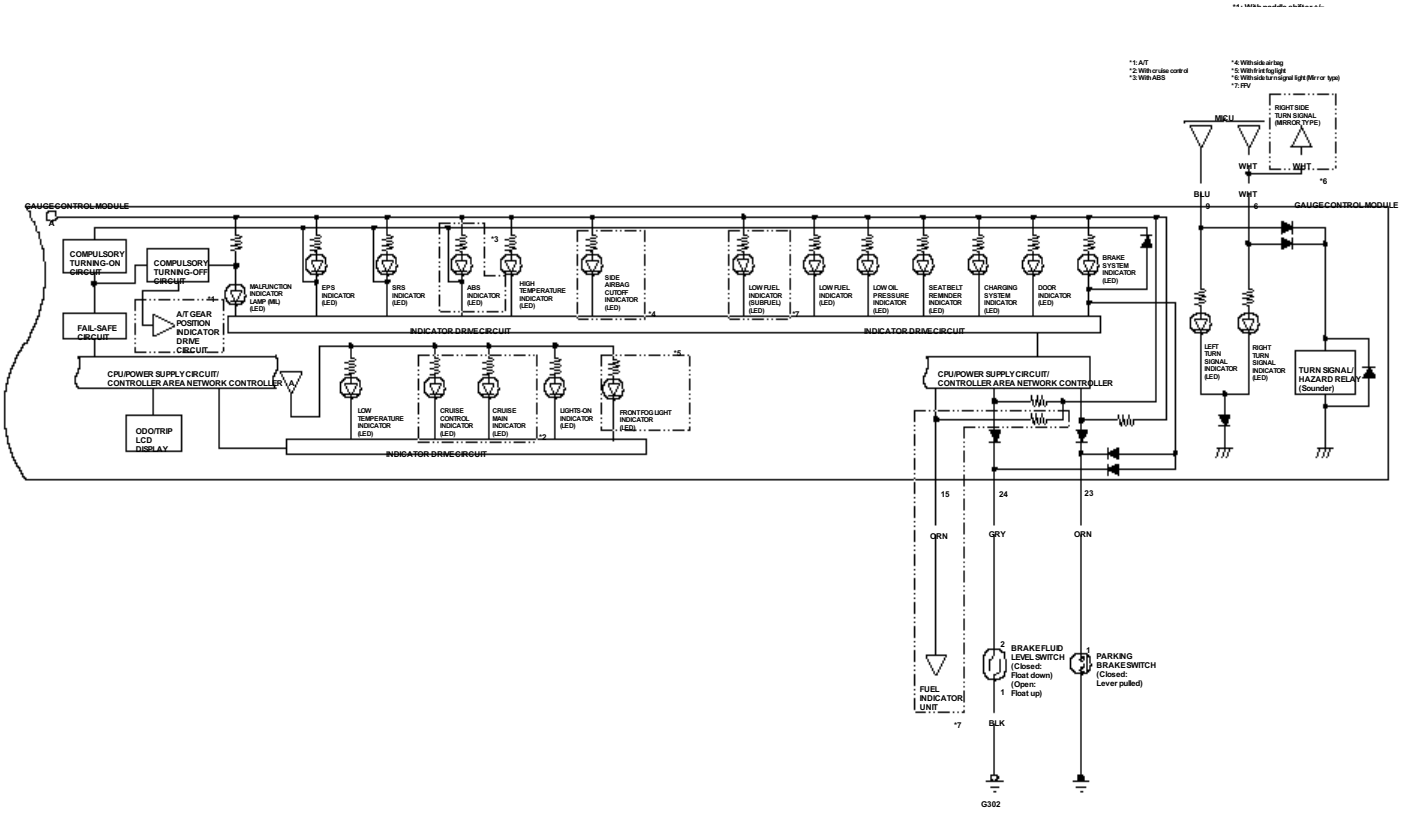
1. Gently pry the front door molding (A) or rear door molding (B) away from the door while separating the adhesive tape (C, D, E, F, G, H, I).

2. Clean the bonding surface with a sponge dampened in isopropyl alcohol. After cleaning, keep oil, grease, and water from getting on the surface.

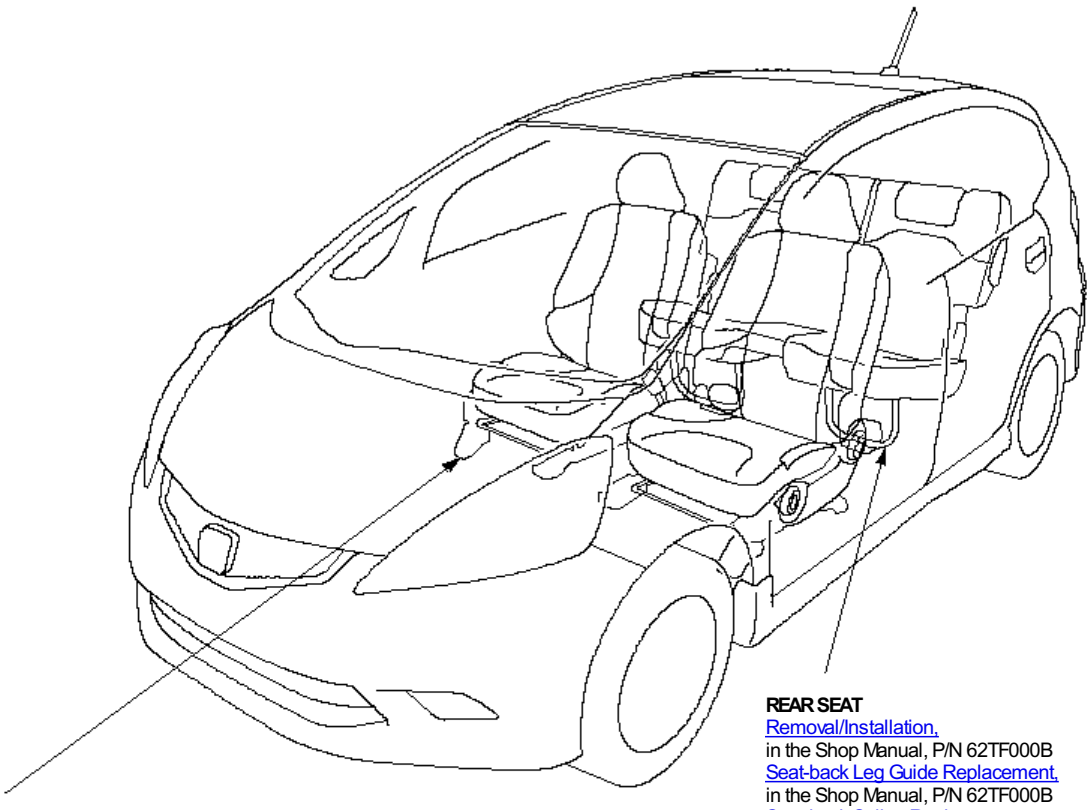
3. Apply the moldings where shown and press the molding into place.

Adhesive tape (C):	**Thickness 1.2 mm (0.047 in.) Width 38 mm (1.50 in.) Length 66.5 mm (2.62 in.)**
Adhesive tape (D):	**Thickness 1.2 mm (0.047 in.) Width 10 mm (0.39 in.) Length 888 mm (34.96 in.)**
Adhesive tape (E):	**Thickness 1.2 mm (0.047 in.) Width 30 mm (1.18 in.) Length 30 mm (1.18 in.)**
Adhesive tape (F):	**Thickness 1.2 mm (0.047 in.) Width 37 mm (1.46 in.) Length 40 mm (1.57 in.)**
Adhesive tape (G):	**Thickness 1.2 mm (0.047 in.) Width 10 mm (0.39 in.) Length 505 mm (19.88 in.)**
Adhesive tape (H):	**Thickness 1.2 mm (0.047 in.) Width 10 mm (0.39 in.) Length 460 mm (18.11 in.)**
Adhesive tape (I):	**Thickness 1.2 mm (0.047 in.) Width 36.5 mm (1.44 in.) Length 51 mm (2.01 in.)**

Gauges Circuit Diagram



Seats Component Location Index



FRONT SEAT
Removal/Installation,
Armrest Replacement,
in the Shop Manual, P/N 62TF000B
Frame Replacement,
in the Shop Manual, P/N 62TF000B
Seat-back Cover/Pad Replacement,
Recline Cover Removal/Installation,
Cushion Cover/Pad Replacement,

REAR SEAT
Removal/Installation,
in the Shop Manual, P/N 62TF000B
Seat-back Leg Guide Replacement,
in the Shop Manual, P/N 62TF000B
Seat-back Striker Replacement,
in the Shop Manual, P/N 62TF000B
Disassembly/Reassembly,
in the Shop Manual, P/N 62TF000B
Seat-back Latch Replacement,
in the Shop Manual, P/N 62TF000B
Seat-back Cover/Pad Replacement,
in the Shop Manual, P/N 62TF000B
Seat-back Hinge Replacement,
in the Shop Manual, P/N 62TF000B
Cushion Cover/Pad Replacement,
in the Shop Manual, P/N 62TF000B
Control Cable Replacement,
in the Shop Manual, P/N 62TF000B
Cushion Leg Replacement,
in the Shop Manual, P/N 62TF000B

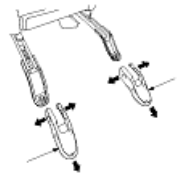
Front Seat Removal/Installation

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:

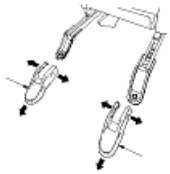
- Put on gloves to protect your hands.
- When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.
- Take care not to scratch the body or tear the seat covers.
- When removing components, use the trim tools or equivalent.

1. Tilt the steering wheel all the way up, and telescope it all the way in.
2. Slide the front seat all the way forward, then remove the rear inner seat track end covers (A) and rear outer seat track end covers (B) from the rear of both seat tracks.

Driver's seat

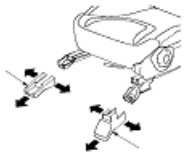


Passenger's seat

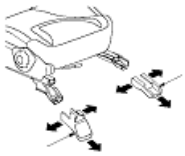


3. Slide the front seat rearward fully, then remove the front inner seat track end covers (A) and front outer seat track end covers (B) from the front of driver's seat tracks.
4. Slide the seat about half way to the rear so you can access the seat mounting bolts. If you remove the manual height adjustable seat, fully raise the seat.

Driver's seat



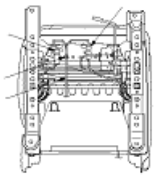
Passenger's seat



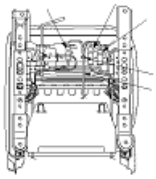
5. Remove the bolts.
6. Do the battery terminal disconnection procedure, then wait at least 3 minutes before removing the seat.

7. Lift up the front seat, then detach the harness clip (A) of the floor wire harness (B), and disconnect the seat belt buckle switch connector (C) and the side airbag connector (D) (for some models). On passenger's seat, disconnect the OPDS unit harness connector (E) (for some model).
8. Remove the head restraint.
9. With the help of an assistant, carefully remove the front seat through the front door opening.

Driver's seat



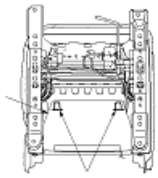
Passenger's seat



10. Install the seat in the reverse order of removal, and note these items:
    - Tighten the seat mounting bolts to the specified torque in the sequence shown. Slide the seat all the way back and tighten (1) and (2), then slide it forward and tighten (3) and (4). The driver's seat on LHD model is shown, the passenger's seat on LHD model is symmetrical.
    - Make sure each connector is plugged in properly.
    - Tighten the bolts by hand first, then tighten them to specification with a torque wrench.
    - Do the battery terminal reconnection procedure.
    - Check for any DTCs that may have been set during repairs, and clear them.

Front Seat Cushion Cover/Pad Replacement - Without Seat Heater

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:



- Put on gloves to protect your hands.
- Take care not to tear the seams or damage the seat covers.
- Do not repair any tear or frayed spots of the seat cover.
- When removing components, use the trim tools or equivalent.

1. Remove the front seat.
2. Remove the front seat recline cover.
3. From under the seat cushion, release the hook (A) from the seat cushion frame spring. Pull the cushion cover (B) back.

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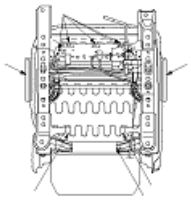
4. From under seat cushion, release the hook strips (A, B, C, D) from the seat cushion frame.



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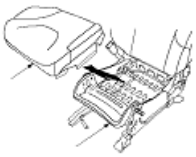
5. Remove the seat cushion cover/pad (A) from the seat frame (B).



6. Install the cover in the reverse order of removal, and note these items:
   - To prevent wrinkles when installing a seat cushion cover, make sure the material is stretched evenly over the pad before securing the hook strips.
   - If the clips are damaged or stress-whitened, replace them with new ones.

Front Seat Recline Cover Removal/Installation

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:

- Put on gloves to protect your hands.
- Take care not to tear the seams or damage the seat covers.
- When removing components, use the trim tools or equivalent.

1. Remove the front seat.

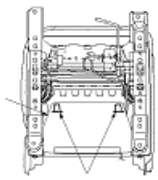
2. Remove the screw and the clip, then remove the center cover (A).

3. Remove the recline cover (A).
   -1. Driver's seat: Using a trim tool, remove the cap (B) and remove the pin (C), then remove the height handle (D).
   -2. Remove the push nut (E) then remove the recline handle (F).
   -3. Remove the screws (G) and clip (H) and release the hook (I), then remove the recline cover.

4. Install the cover in the reverse order of removal and note these items.
   - If the clips are damaged or stress-whitened, replace them with new ones.
   - Replace the push nut with a new one. Make sure the push nut is installed correctly.
   - Make sure the connecting pipe (A) is installed through the seat back cover (B).

Front Seat-back Cover/Pad Replacement - Without Seat Heater

SRS components are located in this area. Review the SRS component locations and the precautions and procedures before doing repairs or service.
NOTE:

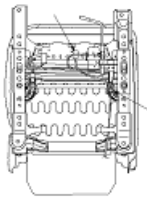


- Do not repair any tears or frayed spots of the seat-back cover. If necessary, replace the seat-back cover.
- Take care not to tear the seams or damage the seat covers.
- Passenger's seat: Do not touch the OPDS sensor in the seat-back pad, and keep it away from oil.
- Put on gloves to protect your hands.
- When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.
- When removing components, use the trim tools or equivalent.

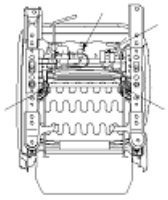
1. Remove the front seat.
2. Driver's seat: If equipped, remove the front seat armrest.
3. From under the seat cushion, release the hook (A) from the seat cushion frame spring. Pull the cushion cover back (B).
4. Remove the recline handle.

5. From under the seat cushion, remove the wire ties (A) and connector(s), then pull it to out side of the seat.
   - Driver's seat:
     - For some models: Side airbag connector (B)
   - Passenger's seat:
     - For some models: Side airbag connector (B)
     - For some models: OPDS unit harness connector (C)

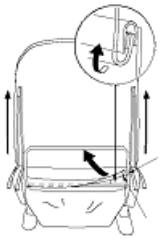
Driver's seat



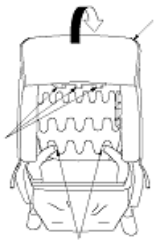
Passenger's seat



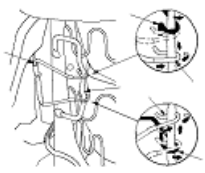
6. From behind the seat-back, release the hook (A), and unzip the seat-cover (B).



7. Pull back the seat-back cover (A), then release the hook strips (B) from the seat-back frame.

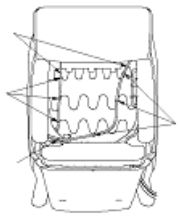


8. Release airbag wire A and airbag wire B from the seat-back frame (C).



9. Passenger's seat: Remove the OPDS unit cover (A).
   -1. Turn over the seat-back cover and the pad (B) as needed.
   -2. Release the cover from the lower hooks (C).
   -3. Pull the cover upward to release it from the upper hook (D).
10. Passenger's seat: Disconnect the OPDS sensor connectors (E) from the OPDS unit (F).

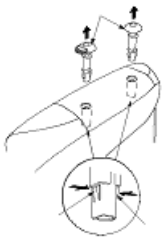
11. Passenger's seat: Remove the wire ties (A), and detach the harness clip (B) fastening the OPDS sensor harnesses (C).



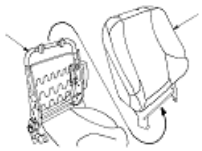
12. Passenger's seat: Pull the side airbag harness (A) and OPDS unit harness (B) out through the harness hole (C) in the seat-back cover.

13. Driver's seat: Pull the side airbag harness (A) out through the harness hole (B) in the seat-back cover (C).

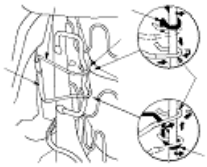
14. Pull out the head restraint guides (A) while pinching the tabs (B) on the end of the guides, and remove them.



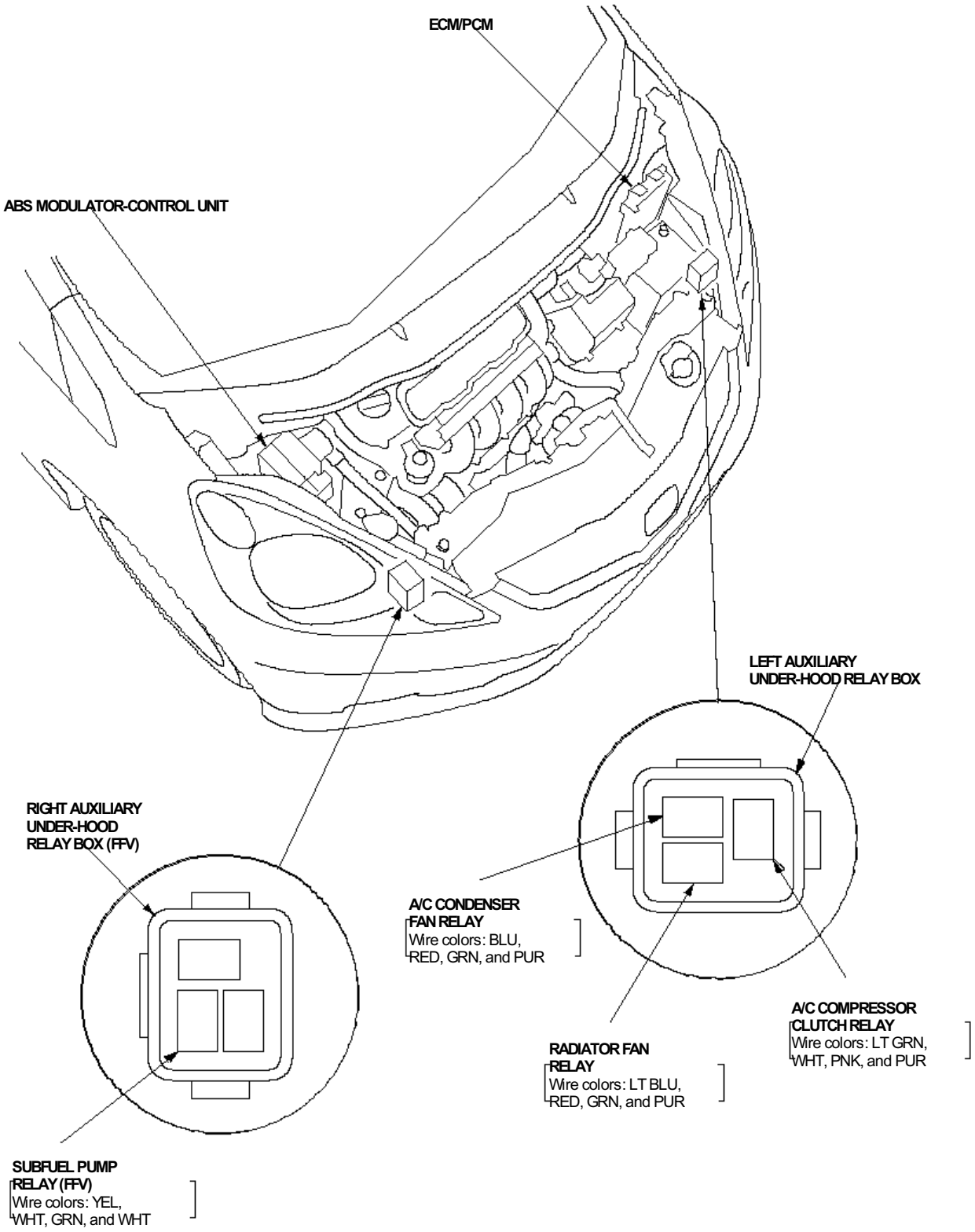
15. Remove the seat-back cover/pad (A) from the seat-back frame (B).



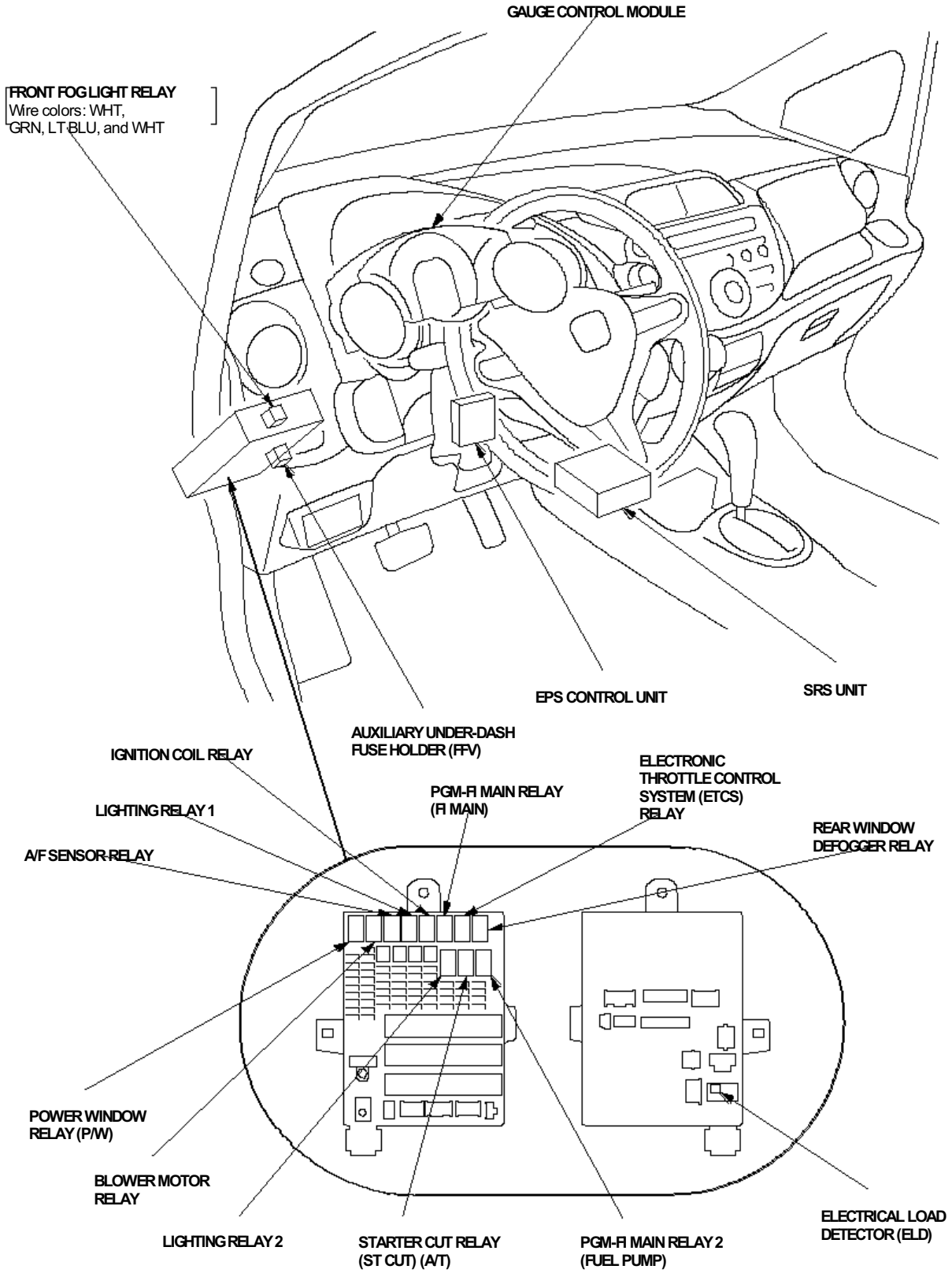
16. Install the cover/pad in the reverse order of removal, and note these items:
    - Reinitialize the OPDS unit.
    - Before installing the seat-back cover/pad, make sure airbag wires (A, B) are installed to the reinforcing cloths (C) correctly, and wire A and wire B are securely assembled.
    - Use only original Honda replacement seat-back cover/pads.
    - Make sure the side airbag harness and the OPDS unit harness (passenger's seat) are routed properly.



Relay and Control Unit Locations - Engine Compartment



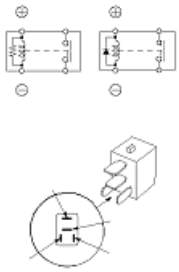
Relay and Control Unit Locations - Dashboard 1



Power Relay Test

Use this chart to identify the type of relay, then do the test listed for it.

Relay	Test
A/C compressor clutch relay	Normally-open type
A/C condenser fan relay	
A/F sensor relay	
Blower motor relay	
ETCS control relay	
Front fog light relay	
Horn relay	
Ignition coil relay	
Lighting relay 1	
Lighting relay 2	
PGM-FI main relay 1 (FI MAIN)	
PGM-FI main relay 2 (FUEL PUMP)	
Power window relay (P/W)	
Radiator fan relay	
Rear window defogger relay	
Starter cut relay (ST CUT)	
Subfuel pump relay	

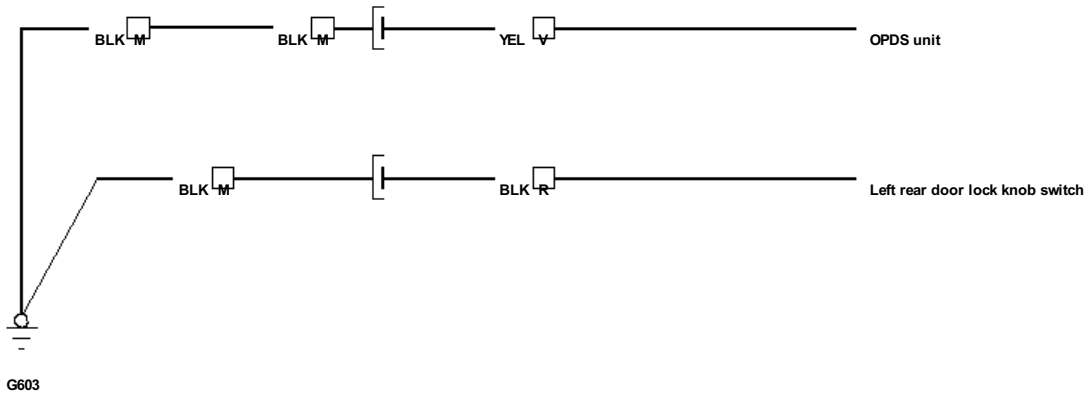


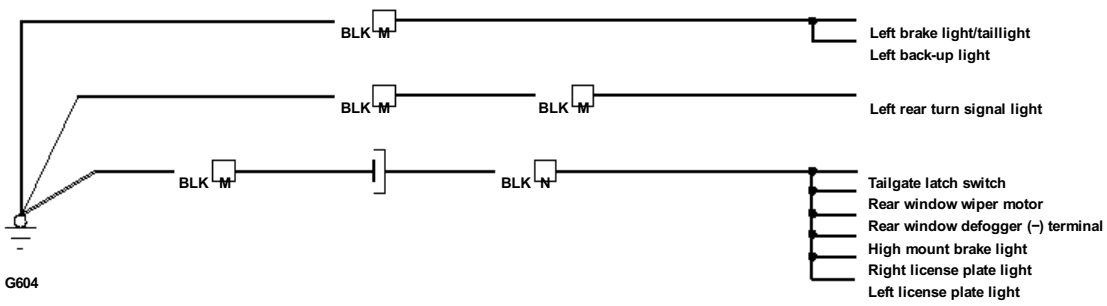
Normally-open type

Check for continuity between the terminals:

- There should be continuity between the No. 1 and No. 2 terminals when battery power is connected to the No. 4 terminal, and body ground is connected to the No. 3 terminal.
- There should be no continuity between the No. 1 and No. 2 terminals when power is disconnected.

Ground Circuit Identification





M : Floor wire harness

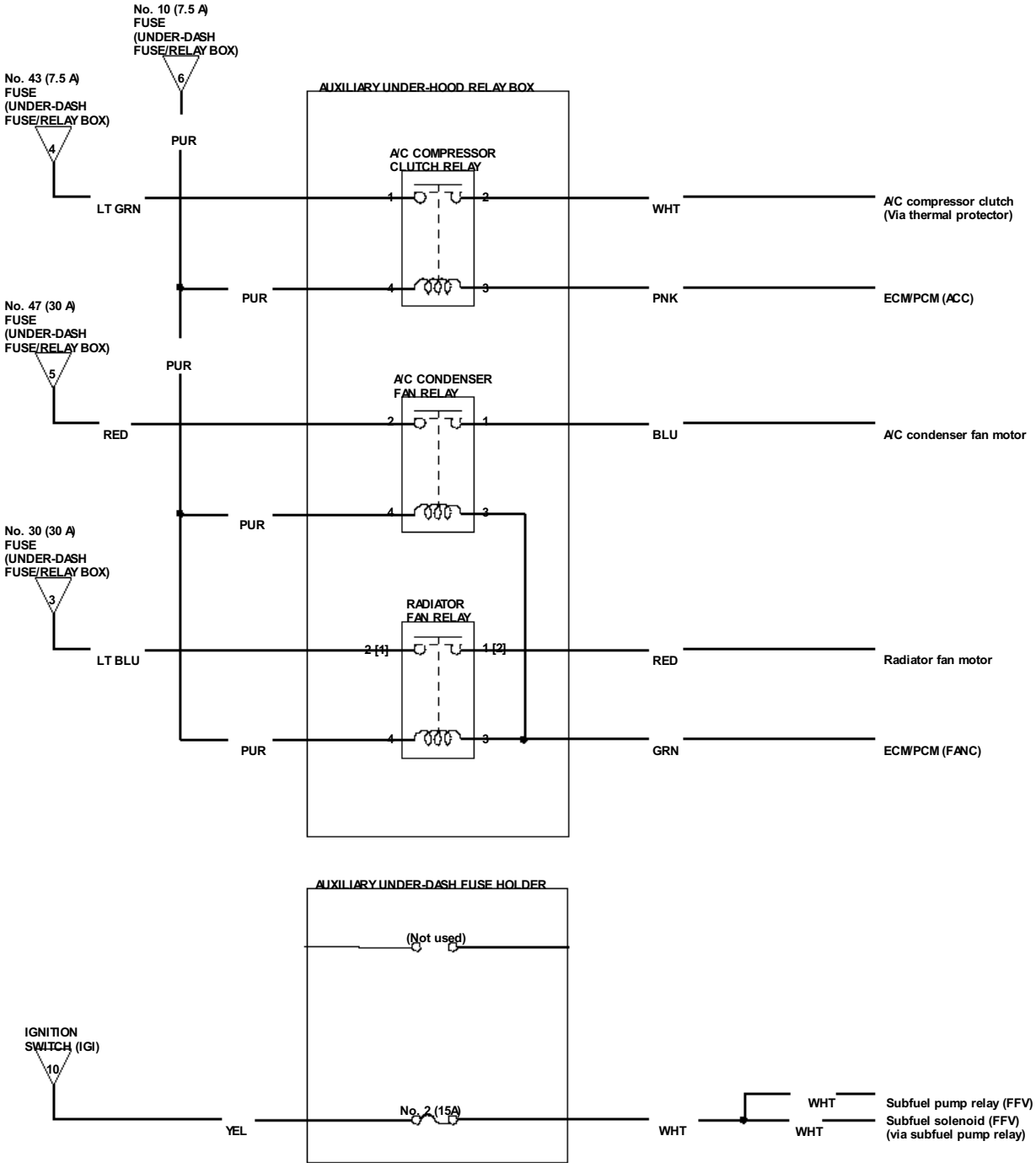
N : Tailgate wire harness

R : Left rear door wire harness

: Reminder wire harness

: OPDS unit harness

Power Circuit Identification



Under-dash Fuse/Relay Box

Fuse Number	Amps	Component(s) or Circuit(s) Protected
1	10 A	Audio unit, Cargo area light, Ceiling light, Data link connector (DLC), Gauge control module, Immobilizer-keyless control unit, Individual map light, MICU (+B BACK UP)
2	———	Not used
3	20 A	Power window master switch
4	———	Not used
5	10 A	Back-up light (via back-up light switch) (M/T), MICU (IG BACK LT) (A/T)
6	10 A	SRS unit (VB)
7	10 A	PCM (VBSOL)
8	7.5 A	SRS unit (VA), OPDS unit *1
9	20 A	Front fog lights (via front fog light relay), Front fog light relay
10	7.5 A	Optional connector, A/C compressor clutch relay *2, A/C condenser fan relay *2, Radiator fan relay *2, Blower motor relay, Rear window defogger relay, A/C switch indicator *5, Power mirror switch, Rear window defogger switch indicator light, Climate control unit *4
11	7.5 A	ABS modulator-control unit (IG1), EPS control unit
12	10 A	MAF sensor, ECM/PCM (BKSWNC) *3, EVAP canister purge valve, Secondary HO2S, Alternator
13	20 A	Cigarette lighter, Accessory power socket
14	7.5 A	Key interlock solenoid (A/T), Audio unit, MICU (ACC)
15	———	Not used
16	10 A	Rear window wiper motor
17	20 A	Front passenger's power window motor (via front passenger's power window switch), Power window master switch
18	20 A	Power window master switch, Right rear power window motor (via right rear power window switch)
19	20 A	Left rear power window motor (via left rear power window switch), Power window master switch
20	15 A	ECM/PCM (IG1), Fuel pump (via PGM-FI main relay 2 (FUEL PUMP)), Immobilizer-keyless control unit
21	15 A	MICU (IG1 WASHER)
22	7.5 A	Electrical load detector (ELD), Gauge control module, MICU (IG1 METER) Shift lock solenoid (A/T), Fuel indicator unit (FFV)
23	10 A	MICU (+B HAZARD)
24	15 A	ECM/PCM *3, High mount brake light *3, Horn (High), Horn (Low), Horn relay, Left brake light *3, Right brake light *4, MICU (+B HORN)
25	———	Not used
26	10 A	A/F sensor (via A/F sensor relay), A/F sensor relay
27	30 A	MICU (+B DOOR LOCK)
28	———	Not used

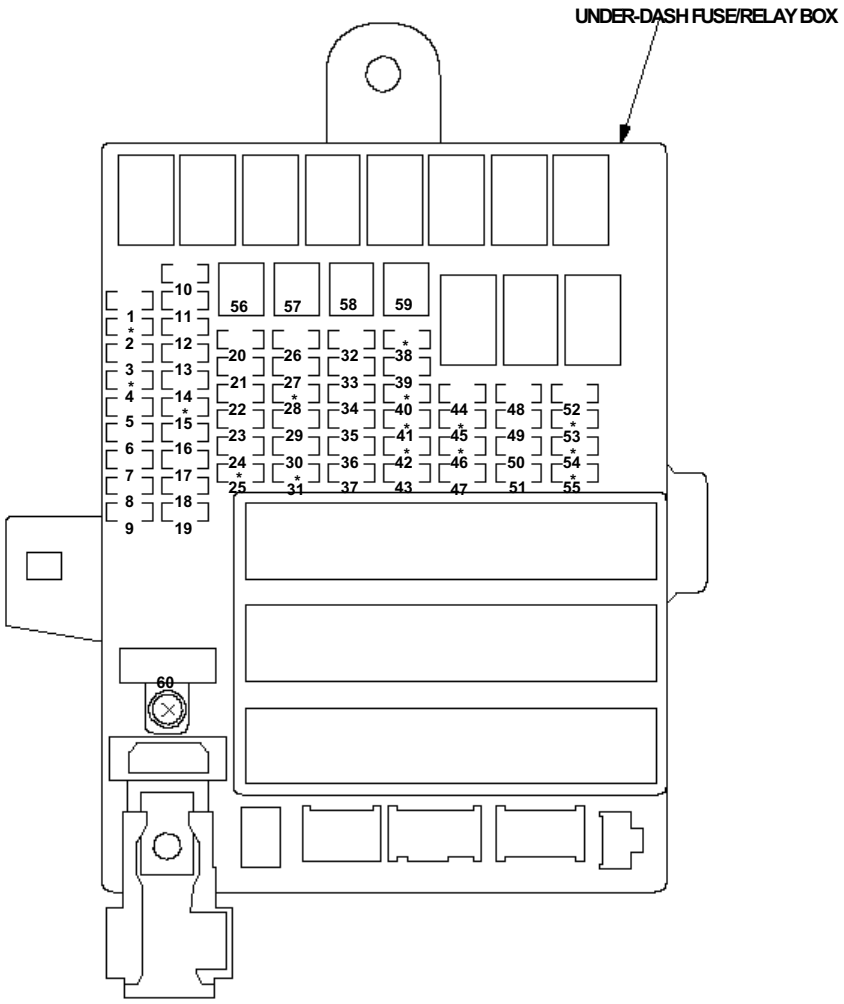
*1: With side airbag
*2: In the auxiliary under-hood relay box
*3: Via brake pedal position switch
*4: With climate control
*5: With HVAC control (Lever type)

Under-dash Fuse/Relay Box

Fuse Number	Amps	Component(s) or Circuit(s) Protected
29	10 A	MICU (+B SMALL LT)
30	30 A	Radiator fan motor (via radiator fan relay)
31	———	Not used
32	10 A	Right headlight (LO)
33	15 A	Ignition coil relay, Ignition coils (via ignition coil relay)
34	10 A	Left headlight (LO)
35	15 A	Front passenger's door lock actuator, Right rear door lock actuator, Tailgate lock actuator
36	15 A	Driver's door lock actuator, Fuel lid lock actuator, Left rear door lock actuator
37	30 A	ABS modulator-control unit (FSR)
38	———	Not used
39	15 A	PGM-FI main relay 1 (FI MAIN), CKP sensor *6, CMP sensor *6, Injectors *6, ECM/PCM (IGP) *6, PGM-FI main relay 2 (FUEL PUMP) *6, Electronic throttle control system (ETCS) control relay *6
40	———	Not used
41	———	Not used
42	———	Not used
43	7.5 A	A/C compressor clutch (via A/C compressor clutch relay)
44	7.5 A	Starter cut relay (ST CUT) (A/T)
45	———	Not used
46	———	Not used
47	30 A	A/C condenser fan motor (via A/C condenser fan relay)
48	10 A	Left headlight (HI)
49	15 A	Front passenger's door lock actuator, Right rear door lock actuator, Tailgate lock actuator
50	15 A	Driver's door lock actuator, Fuel lid lock actuator, Left rear door lock actuator
51	10 A	Right headlight (HI)

Fuse Number	Amps	Component(s) or Circuit(s) Protected
52	15 A	ECM/PCM (IG1ETCS) (via electronic throttle control system (ETCS) control relay)
53	———	Not used
54	———	Not used
55	———	Not used
56	30 A	MICU (IG1 FR WIPER)
57	30 A	Blower motor (via blower motor relay)
58	30 A	ABS modulator-control unit (MTR)
59	20 A	Rear window defogger (via rear window defogger relay)
60	(IGN)50 A	Ignition switch
	———	Not used

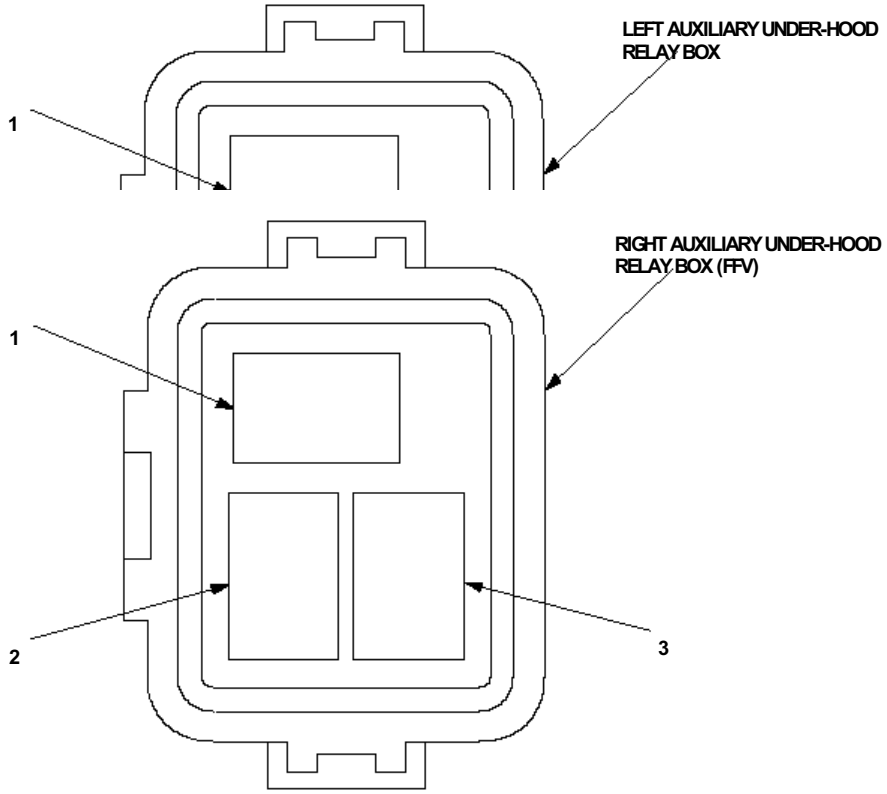
*6: Via PGM-FI main relay 1 (FI MAIN)



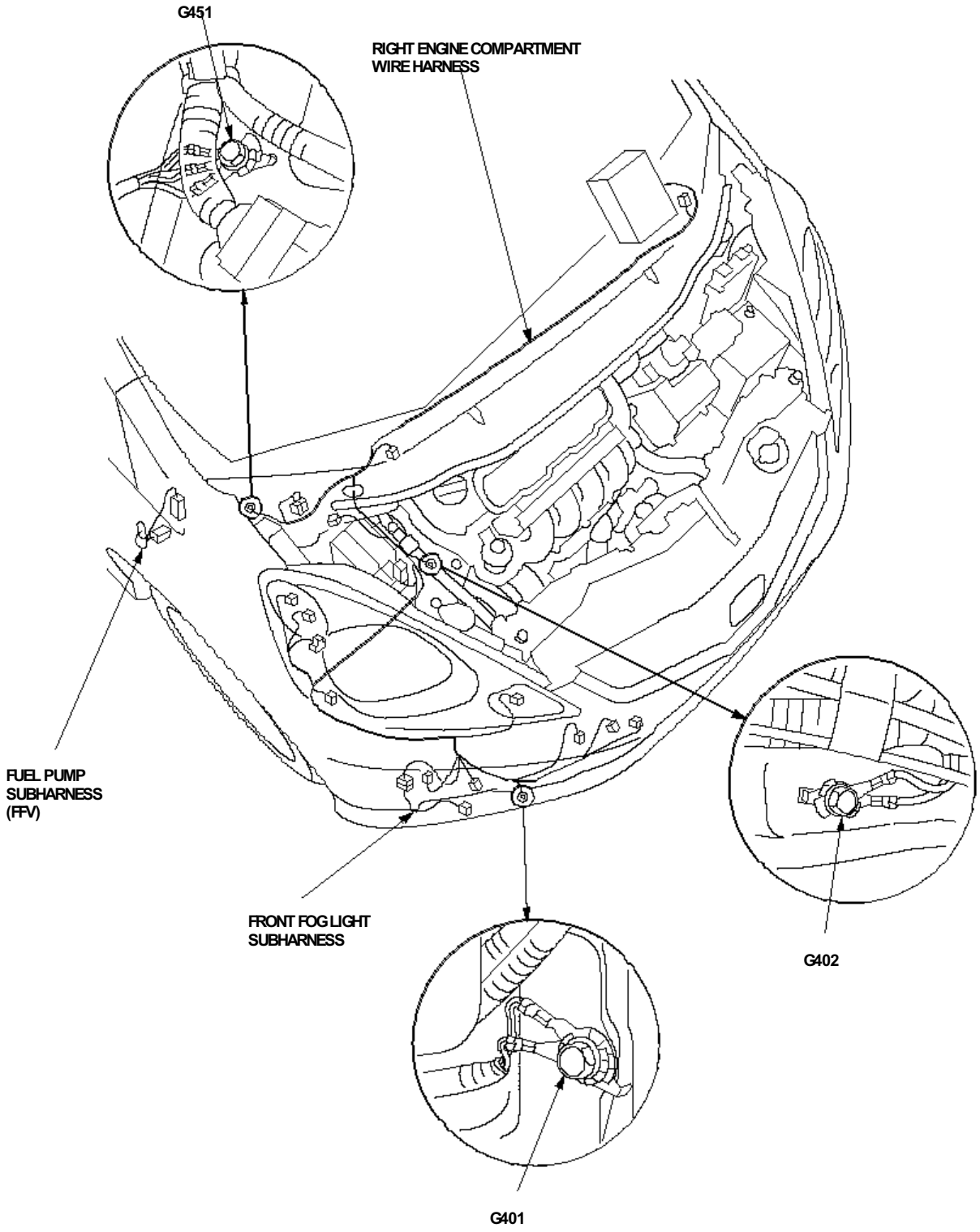
***: Not used**

Left Auxiliary Under-hood Relay Box

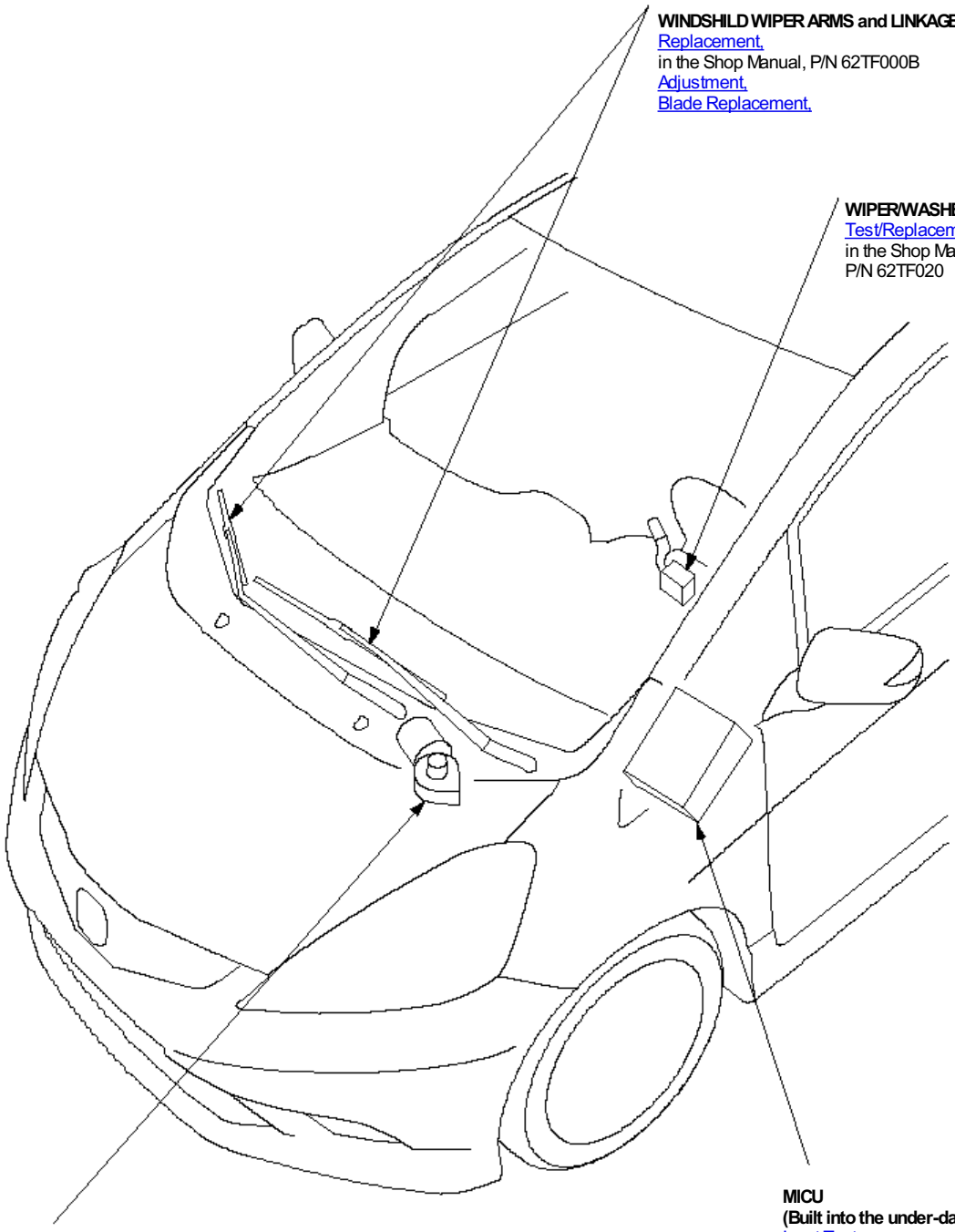
Socket	Ref	Terminal	Connects to
A/C compressor clutch relay	1	4	Left engine compartment wire harness
A/C condenser fan relay	2	4	Left engine compartment wire harness
Radiator fan relay	3	4	Left engine compartment wire harness



Right Engine Compartment Wire Harness, Front Fog Light Subharness, Fuel Pump Subharness Locations



Wipers/Washers Component Location Index - Supplement



WINDSHILD WIPER ARMS and LINKAGE
Replacement,
in the Shop Manual, P/N 62TF000B
Adjustment,
Blade Replacement,

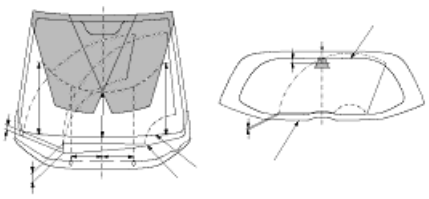
WIPER/WASHER SWITCH
Test/Replacement,
in the Shop Manual Supplement,
P/N 62TF020

MICU
(Built into the under-dash fuse relay box)
Input Test,
in the Shop Manual Supplement,
P/N 62TF020
Replacement,
in the Shop Manual, P/N 62TF000B

WINDSHIELD WIPER MOTOR
Test,
in the Shop Manual, P/N 62TF000B
Replacement,
in the Shop Manual, P/N 62TF000B

Wiper Arm/Nozzle Adjustment

Wiper arms stop position



1. When the wiper arms stop at the automatic stop position, make sure that they are at the standard position.

Windshield

a: Position at about 82 mm (3.0 in.) from the top of cowl cover (A).
b: Position at about 53 mm (1.5 in.) from the top of cowl cover (A).

Rear window

c: Position at about 10 mm (0.4 in.) from the black ceramic area (D).

Washer nozzle position

2. When you turn on the washers, make sure 50 % or more of the washer fluid lands within the splay area. If the splay area is not within the standard positions, adjust the nozzles.

Windshield

d: Position at about 591 mm (23 in.) from the top of the black ceramic area (B) at the lower windshield.
e: Position at about 386 mm (15 in.) from the top of the black ceramic area (B) at the lower windshield.
f: Position at about 591 mm (23 in.) from the top of the black ceramic area (B) at the lower windshield.
g: Position at about 250 mm (9.8 in.) from the windshield center line (C).
h: Position at about 250 mm (9.8 in.) from the windshield center line (C).

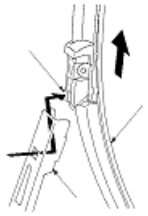
Rear Window

j: Position at about 24.7 mm (1.0 in.) from the top of the black ceramic area (E).

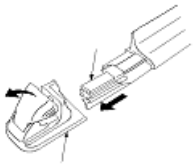
Wiper Blade Replacement

Windshield

NOTE: Always pull up the driver's side wiper blade first.

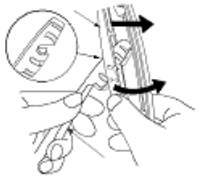


1. Pull up the wiper arms from the windshield.
2. Push the tab (A) and remove the wiper blade (B) from the wiper arm (C).

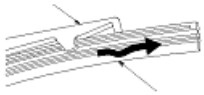


3. Remove the stopper (A), then pull and remove the old rubber (B).
4. Install a new rubber in the reverse order of removal.
5. Install the wiper blades onto the windshield wiper arms in the reverse order of removal.
6. Test by turning on the wipers. If the blades slip, turn off the wipers and seat the attachments more firmly.

Rear Window



1. Turn the wiper blade (A), and remove the lock from the wiper arm (B).



2. Pull the rubber (A) up, and slide it out from the wiper blade (B).
3. Install a new rubber in the reverse order of removal.
4. Install the wiper blade onto the wiper arm in the reverse order of removal.
5. Test the wiper operation. If the blades slip, turn the wiper switch OFF, and reinstall the blades securely.

ECM/PCM Circuit Diagram (cont'd)

ROCKER ARM OIL CONTROL

EVAP CANISTER

No. 1 IGNITION COIL (1)

No. 2 IGNITION COIL (2)

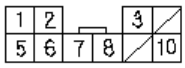
No. 3 IGNITION COIL (3)

No. 4 IGNITION COIL (4)

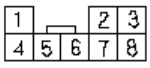
A/F SENSOR (SENSOR 1)

SECONDARY HO2S (SENSOR 2) (6)

UNDER-DASH FUSE/RELAY BOX (K) (1)



UNDER-DASH FUSE/RELAY BOX (N) (2)



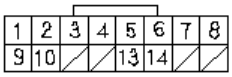
UNDER-DASH FUSE/RELAY BOX (S) (3)

UNDER-DASH FUSE/RELAY BOX (T) (4)

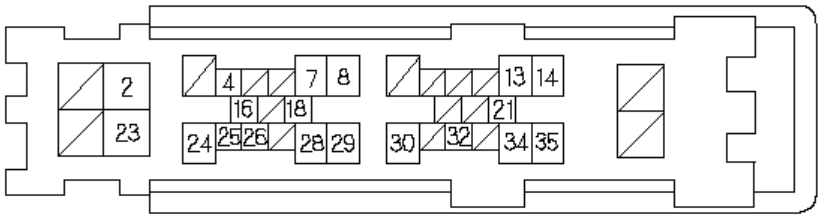
ELD (5)

UNDER-DASH FUSE/RELAY BOX (W) (6)

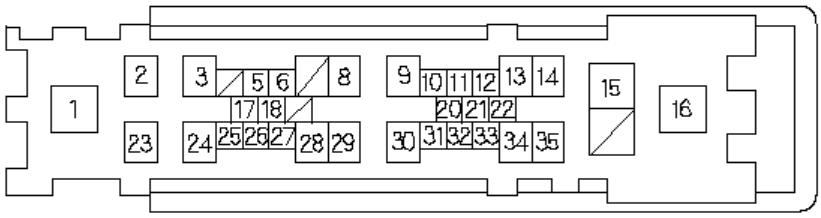
UNDER-DASH FUSE/RELAY BOX (Q) (7)



UNDER-DASH FUSE/RELAY BOX (A) (8)



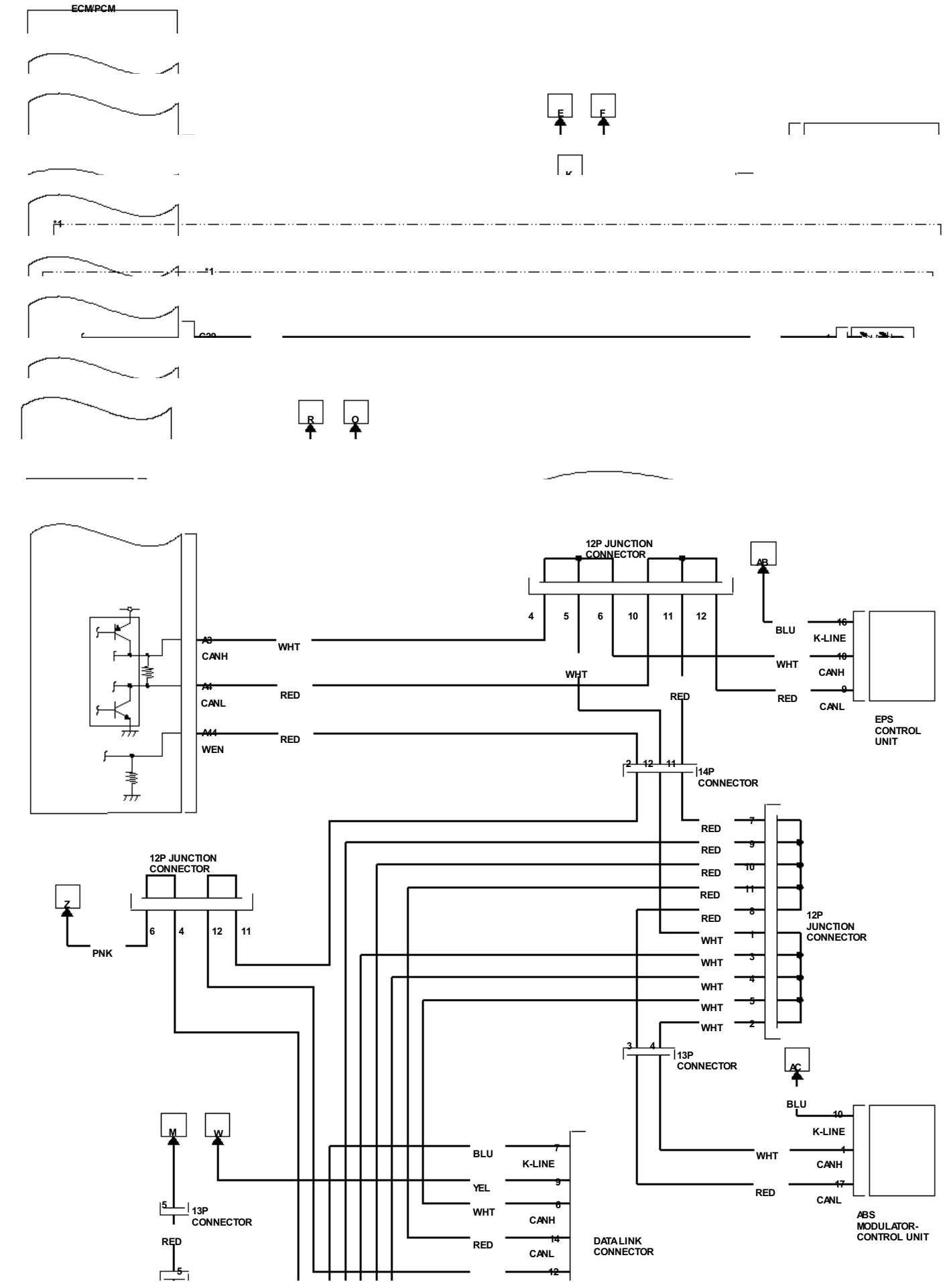
UNDER-DASH FUSE/RELAY BOX (B) (9)

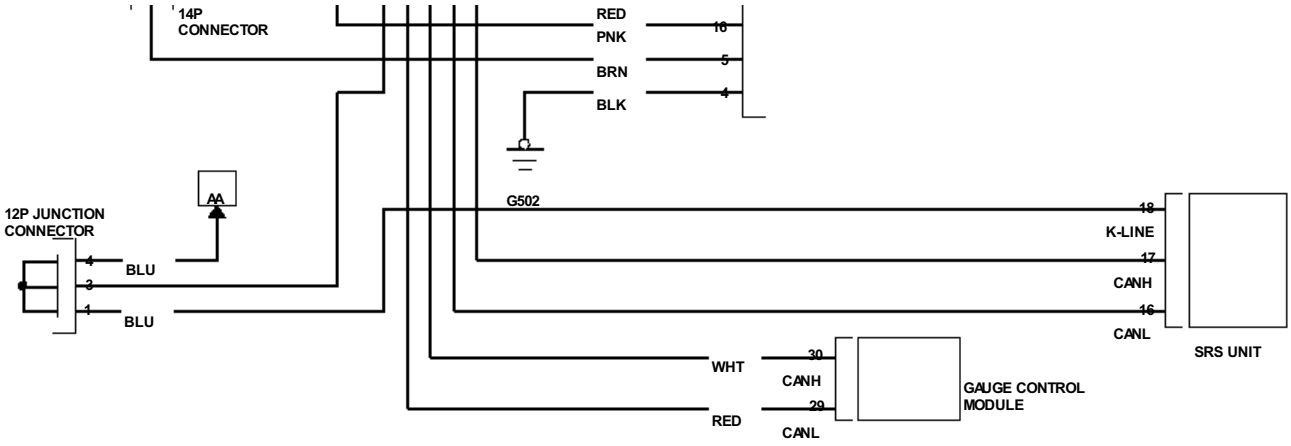


NOTE:
· Connector with male terminals (double outline): view from terminal side
· Connector with female terminals (single outline): view from wire side
*: Connector with female terminals (single outline): view from terminal side

Fuel and Emissions Systems Circuit Diagram

ECM/PCM Circuit Diagram




14P
CONNECTOR
RED
PNK
BRN
BLK
16
5
4
G502
AA
12P JUNCTION
CONNECTOR
4
3
1
BLU
BLU
18
K-LINE
17
CANH
16
CANL
SRS UNIT
WHT
RED
30
CANH
29
CANL
GAUGE CONTROL
MODULE

Engine will not start (MIL works OK, no DTCs set)

Diagnostic procedure

1. Test the battery.
2. Test the starter.
3. Check the fuel pressure.
4. Troubleshoot the fuel pump circuit.

Also check for

- Low compression
- No ignition spark
- Intake vacuum leaks
- Locked up engine
- Broken cam chain
- Fuel contamination

Engine will not start (MIL comes on and stays on, no DTCs set)

Diagnostic procedure

1. Troubleshoot the DLC circuit.

Also check for

- Low compression
- No ignition spark
- Intake vacuum leaks
- Locked up engine
- Broken cam chain
- Fuel contamination
- No power to ECM/PCM
- No ground to ECM/PCM
- Shorted reference voltage

MIL comes on and stays on, or never comes on at all, no DTCs set

Diagnostic procedure

1. Troubleshoot the MIL circuit.

Engine will not start (MIL works OK, no DTCs set, immobilizer indicator stays on or flashes)

Diagnostic procedure

1. Check the immobilizer system.

Engine starts but stalls immediately (MIL works OK, no DTCs set, immobilizer indicator stays on or flashes)

Diagnostic procedure

1. Check the immobilizer system.

Also check for

- Camshaft timing
- Low compression
- Intake vacuum leaks
- Fuel contamination
- Weak spark

Engine is hard starting (MIL works OK, no DTCs set)

Diagnostic procedure

1. Test the battery.
2. Check the fuel pressure.
3. Test the throttle body.

Also check for

- Low compression
- Intake air leaks
- Fuel contamination
- Weak spark

Cold fast idle too low (MIL works OK, no DTCs set)

Diagnostic procedure

1. Do the ECM/PCM idle learn procedure.
2. Check the idle speed.
3. Throttle body cleaning.

Also check for

- Incorrect valve adjustment

Cold fast idle too high (MIL works OK, no DTCs set)

Diagnostic procedure

1. Do the ECM/PCM idle learn procedure.
2. Check the idle speed.
3. Test the throttle body.

Also check for

- Incorrect valve adjustment

After warming up, idle speed is below specifications without load (MIL works OK, no DTCs set)

Diagnostic procedure

1. Troubleshoot the alternator FR signal circuit.
2. Test the throttle body.

Also check for

- Intake vacuum leaks
- Incorrect valve adjustment

After warming up, idle speed is above specifications without load (MIL works OK, no DTCs set)

Diagnostic procedure

1. Troubleshoot the alternator FR signal circuit.
2. Inspect the APP sensor.

Also check for

- Intake vacuum leaks

Idle speed fluctuates (MIL works OK, no DTCs set)

Diagnostic procedure

1. Do the ECM/PCM idle learn procedure.
2. Test the fuel pressure.
3. Except KP (Argentina), KX models: Test the injectors.
4. Troubleshoot the alternator FR signal circuit.
5. Inspect the PCV valve.
6. Test the throttle body.
7. Troubleshoot the A/C signal circuit.
8. Troubleshoot the VTEC system oil pressure.

Also check for

- Fuel contamination
- Intake vacuum leaks

Misfire or rough running (MIL works OK, no DTCs set)

Diagnostic procedure

1. Check the spark plugs.
2. Test the fuel pressure.
3. Test the injectors.
4. Troubleshoot the fuel pump circuit.
5. Troubleshoot the VTEC system oil pressure.

Also check for

- Low compression
- Valve clearance
- Fuel contamination

Fails emission test (MIL works OK, no DTCs set)

Diagnostic procedure

1. Except KP (Argentina), KX models: Inspect the three way catalytic converter (TWC).
2. Except KP (Argentina), KX models: Check the spark plugs.
3. Test the fuel pressure.
4. Except KP (Argentina), KX models: Test the injectors.
5. Check the EVAP system.
6. Troubleshoot the VTEC system oil pressure.

Also check for

- Fuel contamination
- Low compression
- Broken cam chain

Low power (MIL works OK, no DTCs set)

Diagnostic procedure

1. Test the fuel pressure.
2. Check the air cleaner element.
3. Test the throttle body.
4. Except KP (Argentina), KX models: Inspect the three way catalytic converter (TWC).
5. Except KP (Argentina), KX models: Test the injectors.
6. Troubleshoot the VTEC system oil pressure.

Also check for

- Fuel contamination
- Low compression
- Camshaft timing
- Engine oil level

Engine stalls (MIL works OK, no DTCs set)

Diagnostic procedure

1. Do the ECM/PCM idle learn procedure.
2. Test the fuel pressure.
3. Check the idle speed.
4. Troubleshoot the brake pedal position switch signal circuit.
5. Except KP (Argentina), KX models: Check the spark plugs.
6. Troubleshoot the VTEC system oil pressure.

Also check for

- Intake vacuum leaks
- Faulty harness and sensor connections
- Fuel contamination

Difficult to refuel

Diagnostic procedure

1. Inspect the breather line and the suction line.

HDS does not communicate with the ECM/PCM or the vehicle

Diagnostic procedure

1. Troubleshoot the DLC circuit.

Fuel and Emissions Systems Symptom Troubleshooting Index

When the vehicle has one of these symptoms, check for a diagnostic trouble code (DTC) with the HDS. If there is no DTC, do the diagnostic procedure for the symptom, in the sequence listed, until you find the cause.

Symptom	Diagnostic procedure	Also check for
Engine will not start (MIL works OK, no DTCs set)	1.Test the battery. 2.Test the starter. 3.Check the fuel pressure. 4.Troubleshoot the fuel pump circuit.	• Low compression • No ignition spark • Intake vacuum leaks • Locked up engine • Broken cam chain • Fuel contamination
Engine will not start (MIL comes on and stays on, no DTCs set)	Troubleshoot the DLC circuit.	• Low compression • No ignition spark • Intake vacuum leaks • Locked up engine • Broken cam chain • Fuel contamination • No power to ECM/PCM • No ground to ECM/PCM • Shorted reference voltage
MIL comes on and stays on, or never comes on at all, no DTCs set	Troubleshoot the MIL circuit.	
Engine will not start (MIL works OK, no DTCs set, immobilizer indicator stays on or flashes)	Check the immobilizer system.	
Engine starts but stalls immediately (MIL works OK, no DTCs set, immobilizer indicator stays on or flashes)	Check the immobilizer system.	• Camshaft timing • Low compression • Intake vacuum leaks • Fuel contamination • Weak spark
Engine is hard starting (MIL works OK, no DTCs set)	1.Test the battery. 2.Check the fuel pressure. 3.Test the throttle body.	• Low compression • Intake air leaks • Fuel contamination • Weak spark
Cold fast idle too low (MIL works OK, no DTCs set)	1.Do the ECM/PCM idle learn procedure. 2.Check the idle speed. 3.Throttle body cleaning.	Incorrect valve adjustment
Cold fast idle too high (MIL works OK, no DTCs set)	1.Do the ECM/PCM idle learn procedure. 2.Check the idle speed. 3.Test the throttle body.	Incorrect valve adjustment
After warming up, idle speed is below specifications without load (MIL works OK, no DTCs set)	1.Troubleshoot the alternator FR signal circuit. 2.Test the throttle body.	• Intake vacuum leaks • Incorrect valve adjustment
After warming up, idle speed is above specifications without load (MIL works OK, no DTCs set)	1.Troubleshoot the alternator FR signal circuit. 2.Inspect the APP sensor.	Intake vacuum leaks
Idle speed fluctuates (MIL works OK, no DTCs set)	1.Do the ECM/PCM idle learn procedure. 2.Test the fuel pressure. 3.Except KP (Argentina), KX models: Test the injectors. 4.Troubleshoot the alternator FR signal circuit. 5.Inspect the PCV valve. 6.Test the throttle body. 7.Troubleshoot the A/C signal circuit. 8.Troubleshoot the VTEC system oil pressure.	• Fuel contamination • Intake vacuum leaks
Misfire or rough running (MIL works OK, no DTCs set)	1.Check the spark plugs. 2.Test the fuel pressure. 3.Test the injectors. 4.Troubleshoot the fuel pump circuit. 5.Troubleshoot the VTEC system oil pressure.	• Low compression • Valve clearance • Fuel contamination
Fails emission test (MIL works OK, no DTCs set)	1.Except KP (Argentina), KX models: Inspect the three way catalytic converter (TWC). 2.Except KP (Argentina), KX models: Check the spark plugs. 3.Test the fuel pressure. 4.Except KP (Argentina), KX models: Test the injectors. 5.Check the EVAP system. 6.Troubleshoot the VTEC system oil pressure.	• Fuel contamination • Low compression • Broken cam chain
Low power (MIL works OK, no DTCs set)	1.Test the fuel pressure. 2.Check the air cleaner element. 3.Test the throttle body. 4.Except KP (Argentina), KX models: Inspect the three way catalytic converter (TWC). 5.Except KP (Argentina), KX models: Test the injectors. 6.Troubleshoot the VTEC system oil pressure.	• Fuel contamination • Low compression • Camshaft timing • Engine oil level

Symptom	Diagnostic procedure	Also check for
Engine stalls (MIL works OK, no DTCs set)	1. Do the ECM/PCM idle learn procedure. 2. Test the fuel pressure. 3. Check the idle speed. 4. Troubleshoot the brake pedal position switch signal circuit. 5. Except KP (Argentina), KX models: Check the spark plugs. 6. Troubleshoot the VTEC system oil pressure.	• Intake vacuum leaks • Faulty harness and sensor connections • Fuel contamination
Difficult to refuel	Inspect the breather line and the suction line.	
HDS does not communicate with the ECM/PCM or the vehicle	Troubleshoot the DLC circuit.	

Fuel pressure regulator

Item	Measurement	Qualification	Standard or New
Fuel pressure regulator	Pressure with fuel pressure gauge connected		320−370 kPa (3.3−3.8 kgf/cm ^{2} , 47−54 psi)

Fuel tank

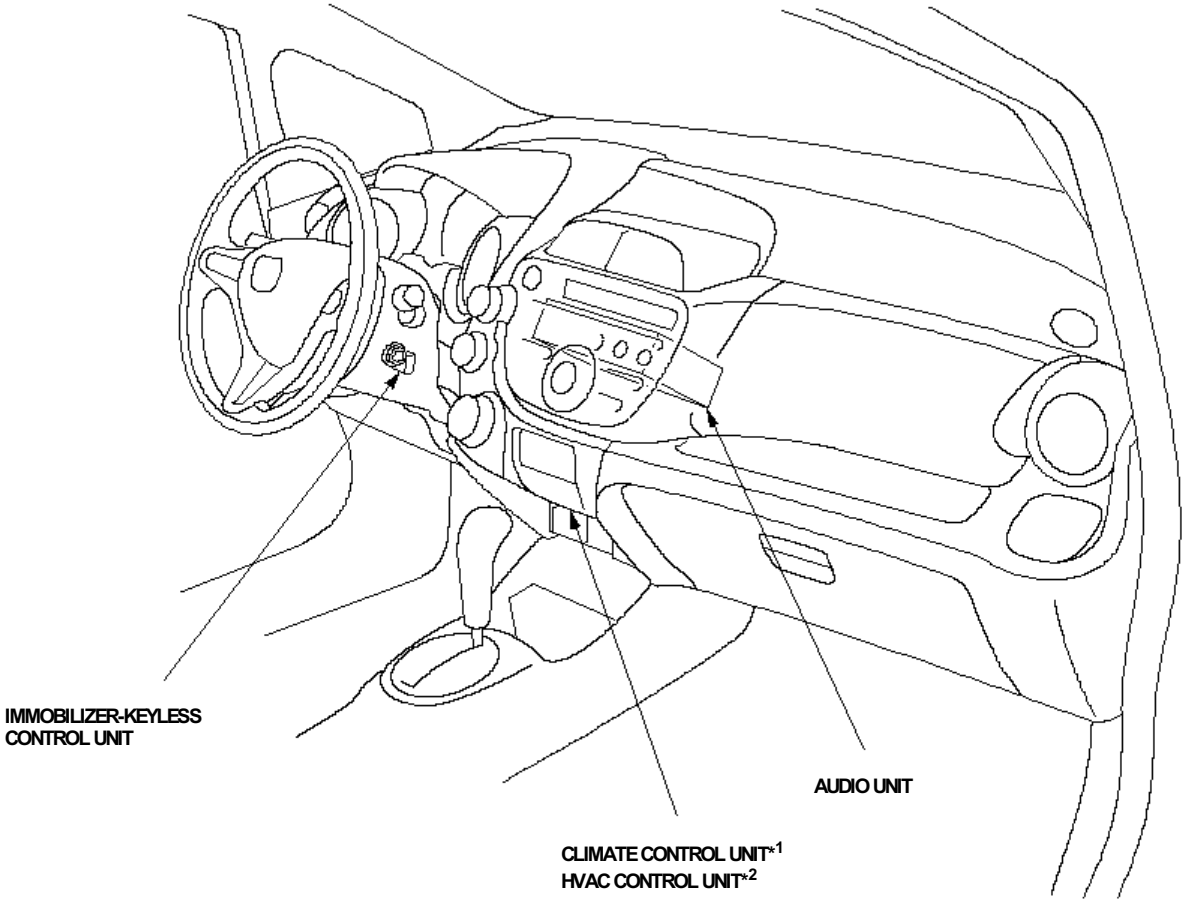
Item	Measurement	Qualification	Standard or New
Fuel tank	Capacity		42 L (11.0 US gal, 9.2 Imp gal)

Engine idle

Item	Measurement	Qualification	Standard or New
Engine idle	Idle speed without load (L13Z1)	M/T (in neutral)	650±50 rpm (min^{-1})
		A/T (in N or P)	700±50 rpm (min^{-1})
	Idle speed without load (L15A7)	M/T (in neutral), A/T (in N or P)	700±50 rpm (min^{-1})
	Idle speed with high electrical load (A/C switch ON, temperature set to max cool, blower fan on High, rear window defogger ON, and headlights on high beam)	M/T (in neutral), A/T (in N or P)	790±50 rpm (min^{-1})
	Idle CO		0.1 % max.

Relay and Control Unit Locations - Dashboard 2

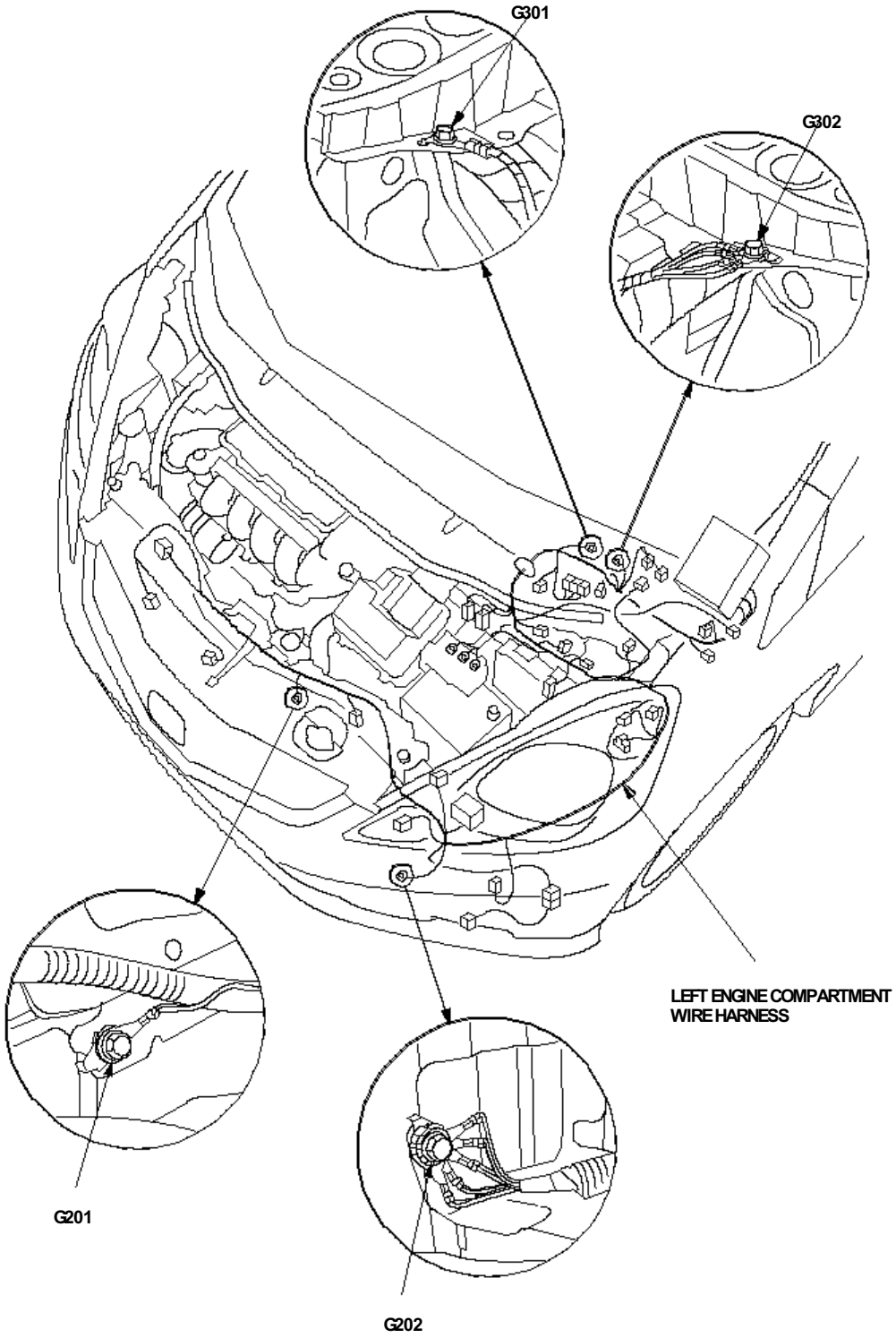
LHD model



*1: With climate control
*2: With HVAC control (push button type)

Left Engine Compartment Wire Harness Locations

LHD model



Brake Booster Replacement

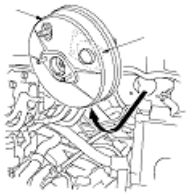
LHD Model

1. Remove the air cleaner cover, and the air cleaner case.
2. Remove the master cylinder.
3. Disconnect the brake booster vacuum hose (A) from the brake booster.

4. Remove the brake lines (A) from the clamp (B).

5. Remove the engine wire harness clamp (A).
6. Remove the driver's dashboard undercover.

7. Remove the lock pin (A) and the joint pin (B), then disconnect the yoke from the brake pedal.
8. Remove the brake booster mounting nuts (C).

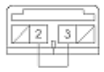


9. Remove the brake booster (A) from the engine compartment.
   NOTICE
   - Be careful not to damage the booster surfaces and threads of the booster stud bolts.
   - Be careful not to bend or damage the brake lines or other components hoses and lines.

   NOTE: Use new booster gasket (B) reassembly.
10. Install the brake booster in the reverse order of removal, and note these items:
    - Install the master cylinder after installing the brake booster.
    - Check the brake pedal height and free play after installing the master cylinder, and adjust it if necessary.
    - Bleed the brake system.

SRS DTC Troubleshooting: 11-1x, 11-2x

DTC 11-1x ("x" can be 0 thru 9 or A thru F):
Open in the Driver's Airbag Inflator (LHD model)
DTC 11-2x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in the Driver's Airbag Inflator (LHD model)
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

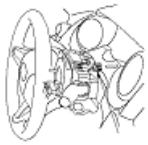
1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 11-1x or 11-2x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect the driver's airbag 4P connector from the cable reel.
7. Install a jumper wire between the No. 2 and the No. 3 terminals of the cable reel 4P connector.
8. Do the battery terminal reconnection procedure.
9. Clear the DTC memory.
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Read the DTC.

    Is DTC 11-1x or 11-2x indicated?
    YES - Go to Step 12 .
    NO - Faulty driver's airbag; replace the driver's airbag. ■
12. Turn the ignition switch to LOCK (0).
13. Do the battery terminal disconnection procedure , then wait for 3 minutes.

---

14. Remove the column cover , then disconnect the dashboard wire harness 4P connector (A) from the cable reel.



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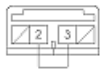
15. Install a jumper wire between the No. 2 and the No. 3 terminals of the dashboard wire harness 4P connector.
16. Do the battery terminal reconnection procedure.



17. Read the DTC.

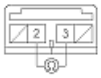
    Is DTC 11-1x or 11-2x indicated?
    YES - Go to Step 18 .
    NO - Open or increased resistance in the cable reel; replace the cable reel. ■
18. Turn the ignition switch to LOCK (0).
19. Do the battery terminal disconnection procedure , then wait for 3 minutes.
20. Remove a jumper wire from the dashboard wire harness 4P connector.
21. Disconnect SRS unit connector A (39P) from the SRS unit.

---

22. Install a jumper wire between the No. 3 and the No. 4 terminals of SRS unit connector A (39P).

---

23. Measure the resistance between the No. 2 and the No. 3 terminals of the dashboard wire harness 4P connector. There should be 0−1.0Ω.



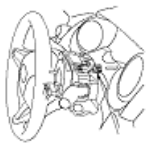
Is the resistance as specified?

YES - Faulty SRS unit or poor connection at SRS unit connector A (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit. ■

NO - Open or increased resistance in the dashboard wire harness; replace the dashboard wire harness.■

SRS DTC Troubleshooting: 11-3x

DTC 11-3x (‘‘x" can be 0 thru 9 or A thru F):
Short to Another Wire or Decreased Resistance in the Driver's Airbag Inflator (LHD model)
NOTE:



- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 11-3x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect the driver's airbag 4P connector from the cable reel.
7. Do the battery terminal reconnection procedure.
8. Clear the DTC memory.
9. Turn the ignition switch to ON (II), then wait for 10 seconds.
10. Read the DTC.

    Is DTC 11-3x indicated?
    YES - Go to Step 11 .
    NO - Faulty driver's airbag; replace the driver's airbag. ■
11. Turn the ignition switch to LOCK (0).
12. Do the battery terminal disconnection procedure , then wait for 3 minutes.
13. Remove the column cover , then disconnect the dashboard wire harness 4P connector (A) from the cable reel.
14. Do the battery terminal reconnection procedure.
15. Clear the DTC memory.
16. Turn the ignition switch to ON (II), then wait for 10 seconds.
17. Read the DTC.

    Is DTC 11-3x indicated?
    YES - Go to Step 18 .
    NO - Short in the cable reel; replace the cable reel. ■
18. Turn the ignition switch to LOCK (0).
19. Do the battery terminal disconnection procedure , then wait for 3 minutes.
20. Disconnect SRS unit connector A (39P) from the SRS unit.
21. Connect an SRS short canceller (070AZ-SAA0100) to the No. 3 and the No. 4 terminals of the SRS unit connector A (39P).

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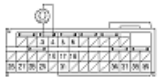
22. Measure the resistance between the No. 3 and the No. 4 terminals of SRS unit connector A (39P). There should be 0−1.0 Ω.



    Is the resistance as specified?
    YES - Short in the dashboard wire harness; replace the dashboard wire harness.■
    NO - Faulty SRS unit; replace the SRS unit. ■

SRS DTC Troubleshooting: 11-8x

DTC 11-8x (“x" can be 0 thru 9 or A thru F):
Short to Power in the Driver's Airbag Inflator (LHD model)
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 11-8x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect SRS unit connector A (39P) from the SRS unit.
7. Connect an SRS short canceller (070AZ-SAA0100) to the No. 3 and the No. 4 terminals of SRS unit connector A (39P).
8. Do the battery terminal reconnection procedure.
9. Turn the ignition switch to ON (II), then wait for 10 seconds.
10. Measure the voltage between the No. 3 and the No. 4 terminals of SRS unit connector A (39P) and body ground. There should be less than 1 V.

    Is the voltage as specified?
    YES - Faulty SRS unit; replace the SRS unit. ■
    NO - Go to Step 11 .
11. Turn the ignition switch to LOCK (0).
12. Do the battery terminal disconnection procedure , then wait for 3 minutes.
13. Disconnect the driver's airbag 4P connector from the cable reel.
14. Do the battery terminal reconnection procedure.
15. Turn the ignition switch to ON (II), then wait for 10 seconds.

---

16. Measure the voltage between the No. 3 and the No. 4 terminals of SRS unit connector A (39P) and body ground. There should be less than 1 V.

    Is the voltage as specified?
    YES - Faulty driver's airbag; replace the driver's airbag. ■
    NO - Go to Step 17 .
17. Turn the ignition switch to LOCK (0).
18. Do the battery terminal disconnection procedure , then wait for 3 minutes.

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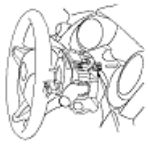
19. Remove the column cover , then disconnect the dashboard wire harness 4P connector (A) from the cable reel.



20. Do the battery terminal reconnection procedure.
21. Turn the ignition switch to ON (II), then wait for 10 seconds.

---

22. Measure the voltage between the No. 3 and the No. 4 terminals of SRS unit connector A (39P) and body ground. There should be less than 1 V.

    Is the voltage as specified?
    YES - Short to power in the cable reel; replace the cable reel. ■
    NO - Short to power in the dashboard wire harness; replace the dashboard wire harness.■

SRS DTC Troubleshooting: 11-9x

DTC 11-9x (“x" can be 0 thru 9 or A thru F):
Short to Ground in the Driver's Airbag Inflator (LHD model)
NOTE:

- Before doing this troubleshooting procedure, review SRS Precautions and Procedures and General Troubleshooting Information.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software and retest.

1. Clear the DTC memory.
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Read the DTC.

   Is DTC 11-9x indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures. If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch to LOCK (0).
5. Do the battery terminal disconnection procedure , then wait for 3 minutes.
6. Disconnect SRS unit connector A (39P) from the SRS unit.
7. Measure the resistance between the No. 3 and the No. 4 terminals of SRS unit connector A (39P) and body ground. There should be 0−1.0 Ω.

   Is the resistance as specified?
   YES - Go to Step 8 .
   NO - Faulty SRS unit; replace the SRS unit. ■
8. Disconnect the driver's airbag 4P connector from the cable reel.

---

9. Measure the resistance between the No. 3 and the No. 4 terminals of SRS unit connector A (39P) and body ground. There should be 0−1.0 Ω.

   Is the resistance as specified?
   YES - Go to Step 10 .
   NO - Faulty driver's airbag; replace the driver's airbag. ■

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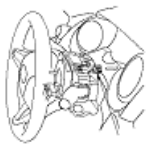
10. Remove the column cover , then disconnect the dashboard wire harness 4P connector (A) from the cable reel.



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11. Measure the resistance between the No. 3 and the No. 4 terminals of SRS unit connector A (39P) and body ground. There should be 0−1.0 Ω.

    Is the resistance as specified?
    YES - Short to ground in the dashboard wire harness: replace the dashboard wire harness.■
    NO - Short to ground in the cable reel; replace the cable reel. ■

Fuel and Emissions System Description - ECM/PCM Inputs and Outputs

ECM/PCM Inputs and Outputs at Connector A (□) (49P)
ECM/PCM Inputs and Outputs at Connector A (□) (49P)
ECM/PCM Inputs and Outputs at Connector A (□) (49P)
ECM/PCM Inputs and Outputs at Connector B (△) (49P)
ECM/PCM Inputs and Outputs at Connector B (△) (49P)
ECM/PCM Inputs and Outputs at Connector B (△) (49P)
ECM/PCM Inputs and Outputs at Connector C (○) (49P)
ECM/PCM Inputs and Outputs at Connector C (○) (49P)

ECM/PCM Replacement

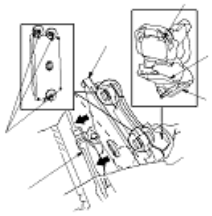
NOTE:

- Make sure the HDS is loaded with the latest software version.
- If you are replacing the ECM/PCM after substituting a known-good ECM/PCM, reinstall the original ECM/PCM, then do this procedure.

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the ECM/PCM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting.
4. Select the READ DATA in the REPLACE ECM MENU with the HDS.
   NOTE: If the READ DATA fails, ask the customer about the fuel grade (alcohol contained level) in the fuel tank (main), then go to Step 5 .
5. Jump the SCS line with the HDS.
6. Turn the ignition switch to LOCK (0).

7. Remove the ECM/PCM cover (A).

8. Remove the battery setting plate, and reposition the battery (D) away from the ECM/PCM.
   NOTE: Do not disconnect the battery terminals.



9. Remove the bolts (E).
10. Disconnect ECM/PCM connectors A, B, and C, then remove the ECM/PCM (E).
    NOTE: ECM/PCM connectors A, B, and C have symbols (A=□, B=△, C=○) embossed on them for identification.
11. Install a known-good ECM/PCM in the reverse order of removal.
12. Turn the ignition switch to ON (II).
    NOTE: DTC P0630 "VIN Not Programmed or Mismatch" may be stored because the VIN has not been programmed into the ECM/PCM; ignore it, and continue this procedure.
13. Manually input the VIN to the ECM/PCM with the HDS.
14. Select the IMMOBI SYSTEM with the HDS.
15. Enter the immobilizer code using the ECM/PCM replacement procedure in the HDS; it allows you to start the engine.
16. Select PGM-FI system and reset the ECM/PCM with the HDS.
17. Update the ECM/PCM if it does not have the latest software.
18. Start the engine.
    - If the engine starts, go to Step 30 .
    - If the engine does not start, go to Step 19 .
19. Select MAIN FUEL TANK ALCOHOL CONTENT in the ADJUSTMENT MENU with the HDS.
20. Select the appropriate ALCOHOL CONTENT in the HDS screen by the customer's information on Step 4 .
    NOTE: If the customer did not remember about it, go to Step 21 .
21. Try to start the engine.
    - If the engine starts, go to Step 30 .
    - If the engine does not start, go to Step 22 .
22. Select LOW ALCOHOL CONTENT and try to start the engine.
    - If the engine starts, go to Step 30 .
    - If the engine does not start, go to Step 23 .
23. Select 50 % ALCOHOL CONTENT and try to start the engine.
    - If the engine starts, go to Step 30 .
    - If the engine does not start, go to Step 24 .
24. Select 90 % ALCOHOL CONTENT and try to start the engine.
    - If the engine starts, go to Step 30 .
    - If the engine does not start, go to Step 25 .
25. Select 100 % ALCOHOL CONTENT and try to start the engine.
    - If the engine starts, go to Step 30 .
    - If the engine does not start, go to Step 26 .
26. Drain the fuel tank.
27. Relieve the fuel pressure.
28. Fill the fuel tank (main) with a gasoline.
29. Select LOW ALCOHOL CONTENT and try to start the engine.
30. Do the ECM/PCM idle learn procedure.
31. Do the CKP pattern learn procedure.

ECM/PCM Update

Special Tools Required

- Honda diagnostic system (HDS)
- Honda interface module (HIM)
- HDS pocket tester

NOTE:

- Use this procedure when you need to update the ECM/PCM at anytime.
- Make sure the HDS/HIM has the latest software version.
- Before you update the ECM/PCM, make sure the battery in the vehicle is fully charged, and connect a jumper battery (not a battery charger) to maintain system voltage.
- Never turn the ignition switch to LOCK (0) or ACC (I) during the update. If there is a problem with the update, leave the ignition switch to ON.
- To prevent ECM/PCM damage, do not operate anything electrical (headlights, audio system, brakes, A/C, power windows, moonroof (if equipped), door locks, etc.) during the update.
- To ensure the latest program is installed, do an ECM/PCM update whenever the ECM/PCM is substituted or replaced.
- You cannot update an ECM/PCM with a program it already has. It will only accept a new program.
- High temperature in the engine compartment might cause the ECM/PCM to become too hot to run the update. If the engine has been running before this procedure, open the hood and cool the engine compartment.
- If you need to diagnose the Honda interface module (HIM) because the HIM's red (#3) light came on or was flashing during the update, leave the ignition switch in the ON (II) position when you disconnect the HIM from the data link connector (DLC). This will prevent ECM/PCM damage.

1. Turn the ignition switch to ON (II), but do not start the engine.
2. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
3. Make sure the HDS communicates with the ECM/PCM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting.
4. Exit the HDS diagnostic system, then select the update mode, and follow the screen prompts to update the ECM/PCM.
5. If the software in the ECM/PCM is the latest, disconnect the HDS/HIM from the DLC, and go back to the procedure that you were doing. If the software in the ECM/PCM is not the latest, follow the instructions on the screen. If prompted to choose the PGM-FI system or the A/T system (A/T), make sure you update both.
   NOTE: If the ECM/PCM update system requires you to cool the ECM/PCM, follow the instructions on screen. If you run into a problem during the update procedure (programming takes over 15 minutes, status bar goes over 100 %, D (A/T) or immobilizer indicator flashes, HDS tablet freezes, etc.), follow these steps to minimize the chance of damaging the ECM/PCM:
   - Leave the ignition switch in the ON (II) position.
   - Connect a jumper battery (do not connect a battery charger).
   - Shut down the HDS.
   - Disconnect the HDS from the DLC.
   - Reboot the HDS.
   - Reconnect the HDS to the DLC, and try the update procedure again.
6. Do the ECM/PCM idle learn procedure.
7. Do the CKP learn procedure.

How to Troubleshoot the Fuel and Emissions Systems

Intermittent Failures

The term ‘‘intermittent failure" means a system may have had a failure, but it checks OK now. If the malfunction indicator lamp (MIL) on the dash does not come on, check for poor connections or loose terminals at all connectors related to the circuit that you are troubleshooting. If the MIL was on but then went out, the original problem may have been intermittent.

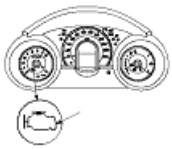
Service Information

Periodically, new ECM/PCM software or new service procedures may become available. Always check online for the latest software or service information related to the DTCs or symptoms you are troubleshooting.

Opens and Shorts

‘‘Open" and ‘‘short" are common electrical terms. An open is a break in a wire or at a connection. A short is an accidental connection of a wire to ground or to another wire. In simple electronics, this usually means something won't work at all. With complex electronics (such as ECMs or PCMs) this can sometimes mean something works, but not the way it's supposed to.

How to Use the HDS (Honda Diagnostic System)



If the MIL (malfunction indicator lamp) has come on

1. Start the engine, and check the MIL (A).

2. If the MIL stays on, connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
3. Turn the ignition switch to ON (II).
4. Make sure the HDS communicates with the ECM/PCM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting.
5. Check the diagnostic trouble code (DTC) and note it. Also check the freeze data and/or on-board snapshot data, and download any data found. Then refer to the indicated DTC's troubleshooting, and begin the appropriate troubleshooting procedure.
   NOTE:
   - Freeze data indicates the engine conditions when the first system malfunction, misfire, or fuel trim malfunction that activated the MIL was detected.
   - The HDS can read the DTC, freeze data, on-board snapshot, current data, and other engine control module (ECM) or powertrain control module (PCM) data.
   - For specific operations, refer to the user's manual that came with the HDS.
6. If no DTCs are found, go to MIL circuit troubleshooting.

If the MIL did not stay on

If the MIL did not stay on but there is a driveability problem, do the symptom troubleshooting.

If you can't duplicate the DTC

Some of the troubleshooting requires you to reset the ECM/PCM and try to duplicate the DTC. If the problem is intermittent and you can't duplicate the code, do not continue through the procedure. To do so will only result in confusion and possibly, a needlessly replaced ECM/PCM.

HDS Clear Command

The ECM/PCM stores various specific data to correct the system even if there is no electrical power such as when the battery negative terminal is disconnected. Stored data based on failed parts should be cleared by using the ‘‘CLEAR COMMAND" of the HDS, if parts are replaced.
The HDS has three kinds of clear commands to meet this purpose. They are clear DTCs, ECM/PCM reset, and CKP pattern clear. DTC clear command erases all stored DTC codes, freeze data, and on-board snapshot. This must be done with the HDS after reproducing the DTC during troubleshooting.
The ECM/PCM reset command erases all stored DTC codes, freeze data, on-board snapshot, and all specific data to correct the system except CKP pattern. If the CKP pattern data in the ECM/PCM was cleared, you must do the CKP pattern learn procedure. The CKP pattern clear command erases only CKP pattern data. This command is for repair of a misfire or the CKP sensor.

Scan Tool Clear Command

If you are using a generic scan tool to clear commands, be aware that there is only one setting for clearing the ECM/PCM, and it clears all commands at the same time (CKP pattern learn, idle learn, freeze data, on-board snapshot, and DTCs). After you clear all commands, you then need to do these procedures, in this order: ECM/PCM idle learn procedure; CKP pattern learn procedure.

DTC Clear

1. Clear the DTC with the HDS while the engine is stopped.
2. Turn the ignition switch to LOCK (0).
3. Turn the ignition switch to ON (II), and wait 30 seconds.
4. Turn the ignition switch to LOCK (0), and disconnect the HDS from the DLC.

ECM/PCM Reset

1. Reset the ECM/PCM with the HDS while the engine is stopped.
2. Turn the ignition switch to LOCK (0).
3. Turn the ignition switch to ON (II), and wait 30 seconds.
4. Turn the ignition switch to LOCK (0), and disconnect the HDS from the DLC.
5. Do the ECM/PCM idle learn procedure.

CKP Pattern Clear/CKP Pattern Learn

Clear/Learn Procedure (with the HDS)

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the ECM/PCM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting.
4. Select CRANK PATTERN in the ADJUSTMENT MENU with the HDS.
5. Select CRANK PATTERN LEARNING with the HDS, and follow the screen prompts.
6. The CKP pattern learn procedure is complete.

Learn Procedure (without the HDS)

1. Start the engine. Hold the engine speed at 3,000 rpm (min^{-1}) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
2. Test-drive the vehicle on a level road: Decelerate (with the throttle fully closed) from an engine speed of 2,500 rpm (min^{-1}) down to 1,000 rpm (min^{-1}) with the A/T in 2 position, or the M/T in 1st gear.
3. Repeat Step 2 several times.
4. Turn the ignition switch to LOCK (0).
5. Turn the ignition switch to ON (II), and wait 30 seconds. The CKP pattern learn procedure is complete.

How to End a Troubleshooting Session (required after any troubleshooting)

1. Reset the ECM/PCM with the HDS.
2. Do the ECM/PCM idle learn procedure.
3. Turn the ignition switch to LOCK (0).
4. Disconnect the HDS from the DLC.
   NOTE: The ECM/PCM is part of the immobilizer system. If you replace the ECM/PCM, it will have a different immobilizer code. In order for the engine to start, you must rewrite the immobilizer code with the HDS (immobilizer system section).

How to Troubleshoot Circuits at the ECM/PCM Connectors

NOTE: The ECM/PCM stays on up to about 15 minutes after the ignition switch is turned to LOCK (0). Jumping the SCS line after turning the ignition switch to LOCK (0) cancels this function. Disconnecting the ECM/PCM during this function, without jumping the SCS line first, can damage the ECM/PCM.

1. Jump the SCS line with the HDS.
2. Disconnect ECM/PCM connectors A, B, and C.
   NOTE: ECM/PCM connectors A, B, and C have symbols (A=□, B=△, C=○) embossed on them for identification.

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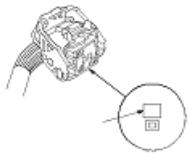
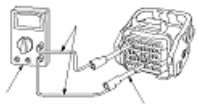
3. When diagnosis/troubleshooting is done at the ECM/PCM connector, use the terminal test port (A) above the terminal you need to check.



4. Connect one side of the patch cord (A) terminals to a commercially available digital multimeter (B), and connect the other side of the patch cord terminals to a commercially available banana jack (Pomona Electronics Tool No. 3563 or equivalent) (C).



5. Gently contact the pin probe (male) at test port from the terminal side. Do not force the tips into the terminals.

NOTICE

- For accurate results, always use the pin probe (male).
- To prevent damage to the connector terminals, do not insert test equipment probes, paper clips, or other substitutes as they can damage the terminals. Damaged terminals cause a poor connection and an incorrect measurement.
- Do not puncture the insulation on a wire. Punctures can cause poor or intermittent electrical connections.

Substituting the ECM/PCM

Special Tools Required

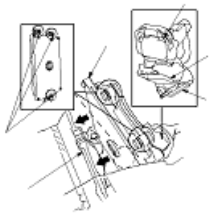
- Honda diagnostic system (HDS)
- Honda interface module (HIM)
- HDS pocket tester

NOTE: Use this procedure when you have to substitute a known-good ECM/PCM during troubleshooting procedure.

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the ECM/PCM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting.
4. Select the READ DATA in the REPLACE ECM/PCM MENU with the HDS.
   NOTE: If the READ DATA fails, ask the customer about the fuel grade (alcohol contained level) in the fuel tank (main), and go to Step 5 .
5. Jump the SCS line with the HDS.
6. Turn the ignition switch to LOCK (0).

7. Remove the ECM/PCM cover (A).

8. Remove the battery setting plate, and reposition the battery (D) away from the ECM/PCM.
   NOTE: Do not disconnect the battery terminals.



9. Remove the bolts (E).
10. Disconnect ECM/PCM connectors A, B, and C, then remove the ECM/PCM (F).
    NOTE: ECM/PCM connectors A, B, and C have symbols (A=□, B=△, C=○) embossed on them for identification.
11. Install a known-good ECM/PCM in the reverse order of removal.
12. Turn the ignition switch to ON (II).
    NOTE: DTC P0630 "VIN Not Programmed or Mismatch" may be stored because the VIN has not been programmed into the ECM/PCM; ignore it, and continue this procedure.
13. Manually input the VIN to the ECM/PCM with the HDS.
14. Select the IMMOBI SYSTEM with the HDS.
15. Enter the immobilizer code using the ECM/PCM replacement procedure in the HDS; it allows you to start the engine.
16. Reset the ECM/PCM with the HDS.
17. Update the ECM/PCM if it does not have the latest software.
18. Start the engine.
    - If the engine starts, go to Step 30 .
    - If the engine does not start, go to Step 19 .
19. Select MAIN FUEL TANK ALCOHOL CONTENT in the ADJUSTMENT MENU with the HDS.
20. Select the appropriate ALCOHOL CONTENT in the HDS screen by the customer's information on Step 4 .
    NOTE: If the customer did not remember about it, go to Step 21 .
21. Try to start the engine.
    - If the engine starts, go to Step 30 .
    - If the engine does not start, go to Step 22 .
22. Select LOW ALCOHOL CONTENT and try to start the engine.
    - If the engine starts, go to Step 30 .
    - If the engine does not start, go to Step 23 .
23. Select 50 % ALCOHOL CONTENT and try to start the engine.
    - If the engine starts, go to Step 30 .
    - If the engine does not start, go to Step 24 .
24. Select 90 % ALCOHOL CONTENT and try to start the engine.
    - If the engine starts, go to Step 30 .
    - If the engine does not start, go to Step 25 .
25. Select 100 % ALCOHOL CONTENT and try to start the engine.
    - If the engine starts, go to Step 30 .
    - If the engine does not start, go to Step 26 .
26. Drain the fuel tank.
27. Relieve the fuel pressure.
28. Fill the fuel tank (main) with a gasoline.
29. Select LOW ALCOHOL CONTENT and try to start the engine.
30. Do the ECM/PCM idle learn procedure.
31. Do the CKP pattern learn procedure.

OBD Status

The OBD status shows the current system status of each DTC and all of the parameters. This function is used to see if the repair was successfully completed. The results of diagnostic tests for the DTC are displayed as:

- PASSED: The on board diagnosis is successfully finished.
- FAILED: The on board diagnosis has finished but failed.
- EXECUTING: The vehicle is in enable criteria conditions for the DTC and the on board diagnosis is running.
- NOT COMPLETED: The on board diagnosis was running but is out for the enable conditions for the DTC.
- OUT OF CONDITION: The vehicle has stayed out of the enable conditions for the DTC.

DTC Troubleshooting: P0102 (50)

DTC P0102:
MAF Sensor Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II), and wait 2 seconds.
2. Check the MAF SENSOR in the DATA LIST with the HDS.

   Is about 0 gm/s, or 0.1 V or less indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAF sensor and the ECM/PCM.■
3. Check the No. 12 ALTERNATOR (10 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?
   YES - Go to Step 4 .
   NO - Repair short in the wire between the MAF sensor and the No. 12 ALTERNATOR (10 A) fuse. Also replace the No. 12 ALTERNATOR (10 A) fuse, then go to Step 20 .
4. Turn the ignition switch to LOCK (0).
5. Disconnect the MAF sensor/IAT sensor 5P connector.
6. Turn the ignition switch to ON (II).
7. Measure the voltage between MAF sensor/IAT sensor 5P connector terminal No. 5 and body ground.

   Is there battery voltage?
   YES - Go to Step 8 .
   NO - Repair open in the wire between the No. 12 ALTERNATOR (10 A) fuse and the MAF sensor, then go to Step 20 .
8. Turn the ignition switch to LOCK (0).

---

9. Measure the resistance between MAF sensor/IAT sensor 5P connector terminal No. 3 and body ground.

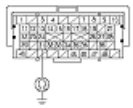
   Is there 190−210 kΩ?
   YES - Go to Step 14 .
   NO - Go to Step 10 .

10. Jump the SCS line with the HDS.
11. Disconnect ECM/PCM connector B (49P).

---

12. Check for continuity between ECM/PCM connector terminal B31 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the ECM/PCM (B31) and the MAF sensor, then go to Step 21 .
    NO - Go to Step 13 .



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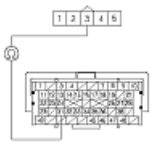
13. Check for continuity between MAF sensor/IAT sensor 5P connector terminal No. 3 and ECM/PCM connector terminal B31.



Is there continuity?
YES - Go to Step 26 .
NO - Repair open in the wire between the ECM/PCM (B31) and the MAF sensor, then go to Step 21 .

14. Substitute a known-good MAF sensor/IAT sensor.
15. Reconnect all connectors.
16. Turn the ignition switch to ON (II).
17. Clear the DTC with the HDS.
18. Start the engine. Hold the engine speed at 2,000 rpm (min^{-1}) without load (A/T in P or N, M/T in neutral).
19. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0102 indicated?
YES - Go to Step 27 .
NO - Replace the original MAF sensor/IAT sensor, then go to Step 20 .

20. Turn the ignition switch to LOCK (0).
21. Reconnect all connectors.
22. Turn the ignition switch to ON (II).
23. Reset the ECM/PCM with the HDS.
24. Do the ECM/PCM idle learn procedure.
25. Check for Temporary DTCs or DTCs with the HDS.

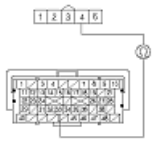
Is DTC P0102 indicated?
YES - Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

26. Reconnect all connectors.
27. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
28. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0102 indicated?
YES - Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0103 (50)

DTC P0103:
MAF Sensor Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.



1. Turn the ignition switch to ON (II), and wait 2 seconds.
2. Check the MAF SENSOR in the DATA LIST with the HDS.

   Is about 202 gm/s, or 4.89 V or more indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAF sensor and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Jump the SCS line with the HDS.
5. Disconnect the MAF sensor/IAT sensor 5P connector.
6. Disconnect ECM/PCM connector B (49P).
7. Check for continuity between MAF sensor/IAT sensor 5P connector terminal No. 4 and ECM/PCM connector terminal B33.

   Is there continuity?
   YES - Go to Step 8 .
   NO - Repair open in the wire between the ECM/PCM (B33) and the MAF sensor, then go to Step 15 .
8. Reconnect ECM/PCM connector B (49P).

---

9. Connect MAF sensor/IAT sensor 5P connector terminals No. 3 and No. 4 with a jumper wire.
10. Turn the ignition switch to ON (II).

11. Clear the DTC with the HDS.
12. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0103 indicated?
    YES - Go to Step 20 .
    NO - Go to Step 13 .
13. Turn the ignition switch to LOCK (0).
14. Replace the MAF sensor/IAT sensor.
15. Reconnect all connectors.
16. Turn the ignition switch to ON (II).
17. Reset the ECM/PCM with the HDS.
18. Do the ECM/PCM idle learn procedure.
19. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0103 indicated?
    YES - Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
20. Reconnect all connectors.
21. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
22. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0103 indicated?
    YES - Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0107 (3)

DTC P0107:
MAP Sensor Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check the MAP SENSOR in the DATA LIST with the HDS.

   Is about 3 kPa (26 mmHg, 1.0 in.Hg), or 0.23 V or less indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the MAP sensor 3P connector.
5. Turn the ignition switch to ON (II).
6. Check the MAP SENSOR in the DATA LIST with the HDS.

   Is about 3 kPa (26 mmHg, 1.0 in.Hg), or 0.23 V or less indicated?
   YES - Go to Step 12 .
   NO - Go to Step 7 .
7. Measure the voltage between MAP sensor 3P connector terminals No. 1 and No. 3.

   Is there about 5 V?
   YES - Go to Step 16 .
   NO - Go to Step 8 .
8. Turn the ignition switch to LOCK (0).
9. Jump the SCS line with the HDS.
10. Disconnect ECM/PCM connector C (49P).

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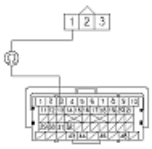
11. Check for continuity between ECM/PCM connector terminal C13 and MAP sensor 3P connector terminal No. 1.

    Is there continuity?
    YES - Go to Step 23 .
    NO - Repair open in the wire between the ECM/PCM (C13) and the MAP sensor, then go to Step 18 .
12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.
14. Disconnect ECM/PCM connector C (49P).

15. Check for continuity between MAP sensor 3P connector terminal No. 2 and body ground.

Is there continuity?

YES - Repair short in the wire between the ECM/PCM (C11) and the MAP sensor, then go to Step 18 .

NO - Go to Step 23 .

16. Turn the ignition switch to LOCK (0).
17. Replace the MAP sensor.
18. Reconnect all connectors.
19. Turn the ignition switch to ON (II).
20. Reset the ECM/PCM with the HDS.
21. Do the ECM/PCM idle learn procedure.
22. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0107 indicated?

YES - Check for poor connections or loose terminals at the MAP sensor and the ECM/PCM, then go to Step 1 .

NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

23. Reconnect all connectors.
24. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
25. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0107 indicated?

YES - Check for poor connections or loose terminals at the MAP sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .

NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0108 (3)

DTC P0108:
MAP Sensor Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check the MAP SENSOR in the DATA LIST with the HDS.

   Is about 160 kPa (1,197 mmHg, 47.1 in.Hg), or 4.49 V or more indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the MAP sensor 3P connector.
5. Connect MAP sensor 3P connector terminals No. 2 and No. 3 with a jumper wire.
6. Turn the ignition switch to ON (II).
7. Check the MAP SENSOR in the DATA LIST with the HDS.

   Is about 160 kPa (1,197 mmHg, 47.1 in.Hg), or 4.49 V or more indicated?
   YES - Go to Step 8 .
   NO - Go to Step 20 .
8. Turn the ignition switch to LOCK (0).
9. Remove the jumper wire from the MAP sensor 3P connector.
10. Turn the ignition switch to ON (II).

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11. Measure the voltage between MAP sensor 3P connector terminals No. 1 and No. 3.

    Is there about 5 V?
    YES - Go to Step 16 .
    NO - Go to Step 12 .
12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.
14. Disconnect ECM/PCM connector C (49P).

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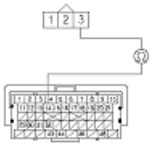
15. Check for continuity between ECM/PCM connector terminal C14 and MAP sensor 3P connector terminal No. 3.



    Is there continuity?
    YES - Go to Step 27 .
    NO - Repair open in the wire between the ECM/PCM (C14) and the MAP sensor, then go to Step 22 .
16. Turn the ignition switch to LOCK (0).
17. Jump the SCS line with the HDS.
18. Disconnect ECM/PCM connector C (49P).

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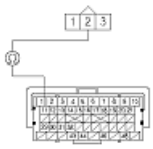
19. Check for continuity between ECM/PCM connector terminal C11 and MAP sensor 3P connector terminal No. 2.



Is there continuity?
YES - Go to Step 27 .
NO - Repair open in the wire between the ECM/PCM (C11) and the MAP sensor, then go to Step 22 .

20. Turn the ignition switch to LOCK (0).
21. Replace the MAP sensor.
22. Reconnect all connectors.
23. Turn the ignition switch to ON (II).
24. Reset the ECM/PCM with the HDS.
25. Do the ECM/PCM idle learn procedure.
26. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0108 indicated?
YES - Check for poor connections or loose terminals at the MAP sensor and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

27. Reconnect all connectors.
28. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
29. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0108 indicated?
YES - Check for poor connections or loose terminals at the MAP sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0112 (10)

DTC P0112:
IAT Sensor Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check the IAT SENSOR in the DATA LIST with the HDS.

   Is about 180 °C (356 °F) or more, or 0.08 V or less indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the IAT sensor and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the MAF sensor/IAT sensor 5P connector.
5. Turn the ignition switch to ON (II).
6. Check the IAT SENSOR in the DATA LIST with the HDS.

   Is about 180 °C (356 °F) or more, or 0.08 V or less indicated?
   YES - Go to Step 7 .
   NO - Go to Step 11 .
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector B (49P).
10. Check for continuity between MAF sensor/IAT sensor 5P connector terminal No. 2 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the IAT sensor and the ECM/PCM (B32), then go to Step 13 .
    NO - Go to Step 18 .
11. Turn the ignition switch to LOCK (0).
12. Replace the MAF sensor/IAT sensor.
13. Reconnect all connectors.
14. Turn the ignition switch to ON (II).
15. Reset the ECM/PCM with the HDS.
16. Do the ECM/PCM idle learn procedure.
17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0112 indicated?
    YES - Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
18. Reconnect all connectors.
19. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
20. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0112 indicated?
    YES - Check for poor connections or loose terminals at the IAT sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0113 (10)

DTC P0113:
IAT Sensor Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check the IAT SENSOR in the DATA LIST with the HDS.

   Is about −40 °C (−40 °F) or less, or 4.90 V or higher indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the IAT sensor and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the MAF sensor/IAT sensor 5P connector.
5. Connect MAF sensor/IAT sensor 5P connector terminals No. 1 and No. 2 with a jumper wire.
6. Turn the ignition switch to ON (II).
7. Check the IAT SENSOR in the DATA LIST with the HDS.

   Is about −40 °C (−40 °F) or less, or 4.90 V or higher indicated?
   YES - Go to Step 8 .
   NO - Go to Step 20 .
8. Turn the ignition switch to LOCK (0).
9. Remove the jumper wire from the MAF sensor/IAT sensor 5P connector.
10. Turn the ignition switch to ON (II).

---

11. Measure the voltage between MAF sensor/IAT sensor 5P connector terminal No. 2 and body ground.

    Is there about 5 V?
    YES - Go to Step 12 .
    NO - Go to Step 16 .
12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.
14. Disconnect ECM/PCM connector B (49P).

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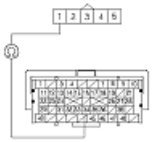
15. Check for continuity between MAF sensor/IAT sensor 5P connector terminal No. 1 and ECM/PCM connector terminal B34.



    Is there continuity?
    YES - Go to Step 27 .
    NO - Repair open in the wire between the ECM/PCM (B34) and the IAT sensor, then go to Step 22 .
16. Turn the ignition switch to LOCK (0).
17. Jump the SCS line with the HDS.
18. Disconnect ECM/PCM connector B (49P).

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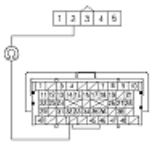
19. Check for continuity between MAF sensor/IAT sensor 5P connector terminal No. 2 and ECM/PCM connector terminal B32.



Is there continuity?

YES - Go to Step 27 .

NO - Repair open in the wire between the ECM/PCM (B32) and the IAT sensor, then go to Step 22 .

20. Turn the ignition switch to LOCK (0).
21. Replace the MAF sensor/IAT sensor.
22. Reconnect all connectors.
23. Turn the ignition switch to ON (II).
24. Reset the ECM/PCM with the HDS.
25. Do the ECM/PCM idle learn procedure.
26. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0113 indicated?

YES - Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the ECM/PCM, then go to Step 1 .

NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

27. Reconnect all connectors.
28. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
29. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0113 indicated?

YES - Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .

NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0117 (6)

DTC P0117:
ECT Sensor 1 Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check ECT SENSOR 1 in the DATA LIST with the HDS.

   Is about 180 °C (356 °F) or more, or 0.08 V or less indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1 and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the ECT sensor 1 2P connector.
5. Turn the ignition switch to ON (II).
6. Check ECT SENSOR 1 in the DATA LIST with the HDS.

   Is about 180 °C (356 °F) or more, or 0.08 V or less indicated?
   YES - Go to Step 7 .
   NO - Go to Step 11 .
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector B (49P).
10. Check for continuity between ECT sensor 1 2P connector terminal No. 1 and body ground.

    Is there continuity?
    YES - Repair short in the wire between ECT sensor 1 and the ECM/PCM (B24), then go to Step 13 .
    NO - Go to Step 18 .
11. Turn the ignition switch to LOCK (0).
12. Replace ECT sensor 1.
13. Reconnect all connectors.
14. Turn the ignition switch to ON (II).
15. Reset the ECM/PCM with the HDS.
16. Do the ECM/PCM idle learn procedure.
17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0117 indicated?
    YES - Check for poor connections or loose terminals at ECT sensor 1 and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
18. Reconnect all connectors.
19. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
20. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0117 indicated?
    YES - Check for poor connections or loose terminals at ECT sensor 1 and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0118 (6)

DTC P0118:
ECT Sensor 1 Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check ECT SENSOR 1 in the DATA LIST with the HDS.

   Is about −40 °C (−40 °F) or less, or 4.90 V or higher indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1 and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the ECT sensor 1 2P connector.
5. Connect ECT sensor 1 2P connector terminals No. 1 and No. 2 with a jumper wire.
6. Turn the ignition switch to ON (II).
7. Check ECT SENSOR 1 in the DATA LIST with the HDS.

   Is about −40 °C (−40 °F) or less, or 4.90 V or higher indicated?
   YES - Go to Step 8 .
   NO - Go to Step 20 .
8. Turn the ignition switch to LOCK (0).
9. Remove the jumper wire from ECT sensor 1 2P connector.
10. Turn the ignition switch to ON (II).

---

11. Measure the voltage between ECT sensor 1 2P connector terminal No. 1 and body ground.

    Is there about 5 V?
    YES - Go to Step 12 .
    NO - Go to Step 16 .
12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.
14. Disconnect ECM/PCM connector B (49P).

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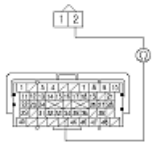
15. Check for continuity between ECT sensor 1 2P connector terminal No. 2 and ECM/PCM connector terminal B34.



    Is there continuity?
    YES - Go to Step 27 .
    NO - Repair open in the wire between the ECM/PCM (B34) and ECT sensor 1, then go to Step 22 .
16. Turn the ignition switch to LOCK (0).
17. Jump the SCS line with the HDS.
18. Disconnect ECM/PCM connector B (49P).

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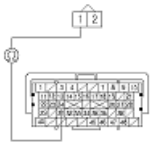
19. Check for continuity between ECT sensor 1 2P connector terminal No. 1 and ECM/PCM connector terminal B24.



Is there continuity?
YES - Go to Step 27 .
NO - Repair open in the wire between the ECM/PCM (B24) and ECT sensor 1, then go to Step 22 .

20. Turn the ignition switch to LOCK (0).
21. Replace ECT sensor 1.
22. Reconnect all connectors.
23. Turn the ignition switch to ON (II).
24. Reset the ECM/PCM with the HDS.
25. Do the ECM/PCM idle learn procedure.
26. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0118 indicated?
YES - Check for poor connections or loose terminals at ECT sensor 1 and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

27. Reconnect all connectors.
28. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
29. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0118 indicated?
YES - Check for poor connections or loose terminals at ECT sensor 1 and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0122 (7)

DTC P0122:
TP Sensor A Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check TP SENSOR A in the DATA LIST with the HDS.

   Is there about 0.3 V or less?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM.■
4. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC P0122 and P0222 indicated at the same time?
   YES - Go to Step 10 .
   NO - Go to Step 5 .
5. Turn the ignition switch to LOCK (0).
6. Disconnect the throttle body 6P connector.
7. Jump the SCS line with the HDS.
8. Disconnect ECM/PCM connector C (49P).
9. Check for continuity between throttle body 6P connector terminal No. 1 and body ground.

   Is there continuity?
   YES - Repair short in the wire between the throttle body and the ECM/PCM (C20), then go to Step 18 .
   NO - Go to Step 23 .

---

10. Measure the voltage between throttle body 6P connector terminal No. 2 and body ground.

    Is there about 5 V?
    YES - Go to Step 16 .
    NO - Go to Step 11 .
11. Turn the ignition switch to LOCK (0).
12. Jump the SCS line with the HDS.
13. Disconnect ECM/PCM connector C (49P).
14. Disconnect the throttle body 6P connector.

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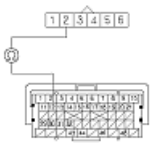
15. Check for continuity between ECM/PCM connector terminal C12 and throttle body 6P connector terminal No. 2.



Is there continuity?
YES - Go to Step 23 .
NO - Repair open in the wire between the throttle body and the ECM/PCM (C12), then go to Step 18 .

16. Turn the ignition switch to LOCK (0).
17. Replace the throttle body.
18. Reconnect all connectors.
19. Turn the ignition switch to ON (II).
20. Reset the ECM/PCM with the HDS.
21. Do the ECM/PCM idle learn procedure.
22. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0122 indicated?
YES - Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

23. Reconnect all connectors.
24. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
25. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0122 indicated?
YES - Check for poor connections or loose terminals at TP sensor A and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0123 (7)

DTC P0123:
TP Sensor A Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check TP SENSOR A in the DATA LIST with the HDS.

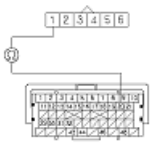
   Is there about 4.8 V or more?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM.■
4. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC P0123 and P0223 indicated at the same time?
   YES - Go to Step 13 .
   NO - Go to Step 5 .
5. Turn the ignition switch to LOCK (0).
6. Disconnect the throttle body 6P connector.
7. Turn the ignition switch to ON (II).
8. Measure the voltage between throttle body 6P connector terminal No. 1 and body ground.

   Is there about 5 V?
   YES - Go to Step 18 .
   NO - Go to Step 9 .
9. Turn the ignition switch to LOCK (0).
10. Jump the SCS line with the HDS.
11. Disconnect ECM/PCM connector C (49P).

---

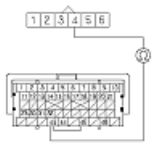
12. Check for continuity between ECM/PCM connector terminal C20 and throttle body 6P connector terminal No. 1.

    Is there continuity?
    YES - Go to Step 25 .
    NO - Repair open in the wire between the throttle body and the ECM/PCM (C20), then go to Step 20 .
13. Turn the ignition switch to LOCK (0).
14. Disconnect the throttle body 6P connector.
15. Jump the SCS line with the HDS.
16. Disconnect ECM/PCM connector C (49P).

---

17. Check for continuity between ECM/PCM connector terminal C43 and throttle body 6P connector terminal No. 4.



Is there continuity?
YES - Go to Step 25 .
NO - Repair open in the wire between the throttle body and the ECM/PCM (C43), then go to Step 20 .

18. Turn the ignition switch to LOCK (0).

19. Replace the throttle body.

20. Reconnect all connectors.

21. Turn the ignition switch to ON (II).

22. Reset the ECM/PCM with the HDS.

23. Do the ECM/PCM idle learn procedure.

24. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0123 indicated?
YES - Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

25. Reconnect all connectors.

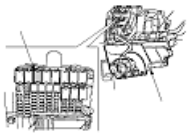
26. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.

27. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0123 indicated?
YES - Check for poor connections or loose terminals at TP sensor A and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0135 (41)

DTC P0135:
A/F Sensor (Sensor 1) Heater Circuit Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0135 indicated?
   YES - Go to Step 5.
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1), A/F sensor relay, and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Check the No. 26 A/F SENSOR (10A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?
   YES - Go to Step 7.
   NO - Go to Step 21.
7. Open the fuse lid (A), then remove the A/F sensor relay (B) from the under-dash fuse/relay box.
8. Test the A/F sensor relay.

   Is the A/F sensor relay OK?
   YES - Go to Step 9.
   NO - Replace the A/F sensor relay, then go to Step 25.
9. Disconnect the A/F sensor (Sensor 1) 4P connector.

---

10. At sensor side, measure the resistance between A/F sensor (Sensor 1) 4P connector terminals No. 3 and No. 4.

    Is there 1.9–2.7 Ω at room temperature?
    YES - Go to Step 11.
    NO - Go to Step 24.

---

11. At sensor side, check for continuity between A/F sensor (Sensor 1) 4P connector terminals No. 2 and No. 3, and between terminals No. 2 and No. 4 individually.

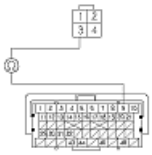
    Is there continuity?
    YES - Go to Step 24.
    NO - Go to Step 12.

12. Jump the SCS line with the HDS.
13. Disconnect ECM/PCM connector C (49P).

---

14. Check for continuity between A/F sensor (Sensor 1) 4P connector terminal No. 3 and ECM/PCM connector terminal C9.

    Is there continuity?
    YES - Go to Step 15.
    NO - Repair open in the wire between the ECM/PCM (C9) and the A/F sensor (Sensor 1), then go to Step 25.



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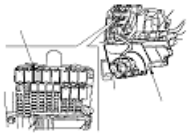
15. Open the fuse lid (A), then remove the A/F sensor relay (B) from the under-dash fuse/relay box.



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16. Connect A/F sensor (Sensor 1) 4P connector terminal No. 4 to body ground with a jumper wire.

---

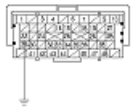
17. Check for continuity between A/F sensor relay 4P connector terminal No. 1 and body ground.

Is there continuity?
YES - Go to Step 18 .
NO - Repair open in the wire between the A/F sensor (Sensor 1) and the A/F sensor relay, then go to Step 25 .

18. Disconnect ECM/PCM connector A (49P).

---

19. Connect ECM/PCM connector terminal A22 to body ground with a jumper wire.



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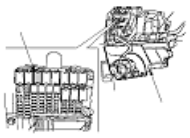
20. Check for continuity between A/F sensor relay 4P connector terminal No. 3 and body ground.

Is there continuity?
YES - Go to Step 31 .
NO - Repair open in the wire between the ECM/PCM (A22) and the A/F sensor relay, then go to Step 25 .

---

21. Open the fuse lid (A), then remove the A/F sensor relay (B) from the under-dash fuse/relay box.
22. Disconnect the A/F sensor (Sensor 1) 4P connector.



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23. Check for continuity between A/F sensor (Sensor 1) 4P connector terminal No. 4 and body ground.

Is there continuity?

YES - Repair short in the wire between the A/F sensor relay and the A/F sensor (Sensor 1). Also replace the No. 26 A/F SENSOR (10 A) fuse, then go to Step 25 .

NO - Replace the under-dash fuse/relay box, then go to Step 25 .

24. Replace the A/F sensor (Sensor 1).

25. Reconnect all connectors.

26. Turn the ignition switch to ON (II).

27. Reset the ECM/PCM with the HDS.

28. Do the ECM/PCM idle learn procedure.

29. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0135 indicated?

YES - Check for poor connections or loose terminals at the A/F sensor (Sensor 1), A/F sensor relay, and the ECM/PCM, then go to Step 1 .

NO - Go to Step 30 .

30. Monitor the OBD STATUS for DTC P0135 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 26 , go to the indicated DTC's troubleshooting.■

NO - If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1), A/F sensor relay, and the ECM/PCM, then go to Step 1 . If the screen indicates NOT COMPLETED, go to Step 28 .

31. Reconnect all connectors.

32. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.

33. Start the engine.

34. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0135 indicated?

YES - Check for poor connections or loose terminals at the A/F sensor (Sensor 1), A/F sensor relay, and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 33 . If the ECM/PCM was substituted, go to Step 1 .

NO - Go to Step 35 .

35. Monitor the OBD STATUS for DTC P0135 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs were indicated in Step 34 , go to the indicated DTC's troubleshooting.■

NO - If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1), PGM-FI subrelay, and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 30 . If the ECM/PCM was substituted, go to Step 1 . If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC Troubleshooting: P0137 (63)

DTC P0137:
Secondary HO2S (Sensor 2) Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
4. Check the HO2S S2 in the DATA LIST with the HDS.

   Does the voltage stay at 0.05 V or less?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the secondary HO2S (Sensor 2) 4P connector.
7. Turn the ignition switch to ON (II).
8. Check the HO2S S2 in the DATA LIST with the HDS.

   Does the voltage stay at 0.05 V or less?
   YES - Go to Step 9 .
   NO - Go to Step 14 .
9. Turn the ignition switch to LOCK (0).
10. Remove the cowl cover and under cowl-cover.
11. Jump the SCS line with the HDS.
12. Disconnect ECM/PCM connector B (49P).
13. Check for continuity between secondary HO2S (Sensor 2) 4P connector terminal No. 2 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the ECM/PCM (B36) and the secondary HO2S (Sensor 2), then go to Step 16 .
    NO - Go to Step 24 .
14. Turn the ignition switch to LOCK (0).
15. Replace the secondary HO2S (Sensor 2).
16. Reconnect all connectors.
17. Turn the ignition switch to ON (II).
18. Reset the ECM/PCM with the HDS.
19. Do the ECM/PCM idle learn procedure.
20. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
21. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 70 °C (158 °F)
    - A/T in D (M/T in 4th gear)
    - Engine speed between 1,500–3,000 rpm (min^{-1})
    - Drive about 1 minute or more
22. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0137 indicated?
    YES - Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM, then go to Step 1 .
    NO - Go to Step 23 .
23. Monitor the OBD STATUS for DTC P0137 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?
    YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 22 , go to the indicated DTC's troubleshooting.■
    NO - If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM, then go to Step 1 . If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 20 .
24. Reconnect all connectors.

25. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.

26. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.

27. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 70 °C (158 °F)
    - A/T in D (M/T in 4th gear)
    - Engine speed between 1,500−3,000 rpm (min^{-1})
    - Drive 1 minute or more

28. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0137 indicated?

    YES - Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 26. If the ECM/PCM was substituted, go to Step 1.

    NO - Go to Step 29.

29. Monitor the OBD STATUS for DTC P0137 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs were indicated in Step 28, go to the indicated DTC's troubleshooting.■

    NO - If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 26. If the ECM/PCM was substituted, go to Step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 26.

DTC Troubleshooting: P0138 (63)

DTC P0138:
Secondary HO2S (Sensor 2) Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
4. Check the HO2S S2 in the DATA LIST with the HDS.

   Does the voltage stay at 1.27 V or more?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Remove the cowl cover and under cowl-cover.
7. Disconnect the secondary HO2S (Sensor 2) 4P connector.
8. Connect secondary HO2S (Sensor 2) 4P connector terminals No. 1 and No. 2 with a jumper wire.
9. Turn the ignition switch to ON (II).
10. Check the HO2S S2 in the DATA LIST with the HDS.

    Does the voltage stay at 1.27 V or more?
    YES - Go to Step 11 .
    NO - Go to Step 20 .
11. Turn the ignition switch to LOCK (0).
12. Remove the jumper wire from the secondary HO2S (Sensor 2) 4P connector.

---

13. Connect secondary HO2S (Sensor 2) 4P connector terminal No. 2 to body ground with a jumper wire.
14. Turn the ignition switch to ON (II).

15. Check the HO2S S2 in the DATA LIST with the HDS.

    Does the voltage stay at 1.27 V or more?
    YES - Go to Step 16 .
    NO - Repair open in the wire between the ECM/PCM (B34) and the secondary HO2S (Sensor 2), then go to Step 22 .
16. Turn the ignition switch to LOCK (0).
17. Jump the SCS line with the HDS.
18. Disconnect ECM/PCM connector B (49P).

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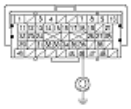
19. Check for continuity between ECM/PCM connector terminal B36 and body ground.



Is there continuity?

YES - Go to Step 30 .

NO - Repair open in the wire between the ECM/PCM (B36) and the secondary HO2S (Sensor 2), then go to Step 22 .

20. Turn the ignition switch to LOCK (0).
21. Replace the secondary HO2S (Sensor 2).
22. Reconnect all connectors.
23. Turn the ignition switch to ON (II).
24. Reset the ECM/PCM with the HDS.
25. Do the ECM/PCM idle learn procedure.
26. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
27. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 70 °C (158 °F)
    - A/T in D (M/T in 4th gear)
    - Engine speed between 1,500−3,000 rpm (min $^{-1}$)
    - Drive about 1 minute or more
28. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0138 indicated?

YES - Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM, then go to Step 1 .

NO - Go to Step 29 .

29. Monitor the OBD STATUS for DTC P0138 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 28 , go to the indicated DTC's troubleshooting.■

NO - If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM, then go to Step 1 . If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 26 .

30. Reconnect all connectors.
31. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
32. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
33. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 70 °C (158 °F)
    - A/T in D (M/T in 4th gear)
    - Engine speed between 1,500−3,000 rpm (min $^{-1}$)
    - Drive about 1 minute or more
34. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0138 indicated?

YES - Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 32 . If the ECM/PCM was substituted, go to Step 1 .

NO - Go to Step 35 .

35. Monitor the OBD STATUS for DTC P0138 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs were indicated in Step 34 , go to the indicated DTC's troubleshooting.■

NO - If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 32 . If the ECM/PCM was substituted, go to Step 1 . If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 30 .

DTC Troubleshooting: P0141 (65)

DTC P0141:
Secondary HO2S (Sensor 2) Heater Circuit Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0141 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Check the No. 12 ALTERNATOR (10 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?
   YES - Go to Step 7 .
   NO - Repair short in the wire between the secondary HO2S (Sensor 2) and the No. 12 ALTERNATOR (10 A) fuse. Also replace the No. 12 ALTERNATOR (10 A) fuse, then go to Step 23 .
7. Remove the cowl cover and under cowl-cover panel.
8. Disconnect the secondary HO2S (Sensor 2) 4P connector.
9. At the secondary HO2S (Sensor 2) side, measure the resistance between secondary HO2S (Sensor 2) 4P connector terminals No. 3 and No. 4.

   Is there 5.4–7.3 Ω at room temperature?
   YES - Go to Step 10 .
   NO - Go to Step 22 .

---

10. At the secondary HO2S (Sensor 2) side, check for continuity between body ground and secondary HO2S (Sensor 2) 4P connector terminals No. 3 and No. 4 individually.

    Is there continuity?
    YES - Go to Step 22 .
    NO - Go to Step 11 .
11. Turn the ignition switch to ON (II).

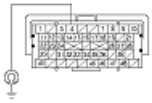
---

12. Measure the voltage between secondary HO2S (Sensor 2) 4P connector terminals No. 3 and No. 4.

    Is there battery voltage?
    YES - Go to Step 13 .
    NO - Go to Step 17 .
13. Turn the ignition switch to LOCK (0).
14. Jump the SCS line with the HDS.
15. Disconnect ECM/PCM connector B (49P).

---

16. Check for continuity between ECM/PCM connector terminal B4 and body ground.



    Is there continuity?
    YES - Repair short in the wire between the ECM/PCM (B4) and the secondary HO2S (Sensor 2), then go to Step 23 .
    NO - Go to Step 29 .

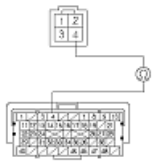
---

17. Measure the voltage between secondary HO2S (Sensor 2) 4P connector terminal No. 3 and body ground.

    Is there battery voltage?
    YES - Go to Step 18 .
    NO - Repair open in the wire between the secondary HO2S (Sensor 2) and the No. 12 ALTERNATOR (10 A) fuse, then go to Step 23 .
18. Turn the ignition switch to LOCK (0).
19. Jump the SCS line with the HDS.
20. Disconnect ECM/PCM connector B (49P).

---

21. Check for continuity between ECM/PCM connector terminal B4 and secondary HO2S (Sensor 2) 4P connector terminal No. 4.



Is there continuity?
YES - Go to Step 29 .
NO - Repair open in the wire between the ECM/PCM (B4) and the secondary HO2S (Sensor 2), then go to Step 23 .

22. Replace the secondary HO2S (Sensor 2).

23. Reconnect all connectors.

24. Turn the ignition switch to ON (II).

25. Reset the ECM/PCM with the HDS.

26. Do the ECM/PCM idle learn procedure.

27. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0141 indicated?
YES - Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM, then go to Step 1 .
NO - Go to Step 28 .

28. Monitor the OBD STATUS for DTC P0141 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 27 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM, then go to Step 1 . If the screen indicates NOT COMPLETED, keep idling until a result comes on.

29. Reconnect all connectors.

30. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.

31. Start the engine, and let it idle.

32. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0141 indicated?
YES - Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 31 . If the ECM/PCM was substituted, go to Step 1 .
NO - Go to Step 33 .

33. Monitor the OBD STATUS for DTC P0141 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs were indicated in Step 32 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 31 . If the ECM/PCM was substituted, go to Step 1 . If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC Troubleshooting: P0201 (71), P0202 (72), P0203 (73), P0204 (74)

DTC P0201:
No. 1 Cylinder Injector Circuit Malfunction
DTC P0202:
No. 2 Cylinder Injector Circuit Malfunction
DTC P0203:
No. 3 Cylinder Injector Circuit Malfunction
DTC P0204:
No. 4 Cylinder Injector Circuit Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle for 20 seconds.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0201, P0202, P0203, or P0204 indicated?
   YES - Go to Step 5.
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the injectors and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the injector 2P connector from problem cylinder.
7. At the injector side, measure the resistance between injector 2P connector terminals No. 1 and No. 2.

   Is there 9.78–10.82 Ω?
   YES - Go to Step 8.
   NO - Go to Step 18.
8. Turn the ignition switch to ON (II).

---

9. Measure the voltage between the injector 2P connector terminal No. 1 and body ground.

   Is there battery voltage?
   YES - Go to Step 10.
   NO - Repair open in the wire between the injector and PGM-FI main relay 1, the go to Step 19.

10. Turn the ignition switch to LOCK (0).

---

11. Check for continuity between body ground and the appropriate injector connector terminal (see table).

PROBLEM CYLINDER	DTC	WIRE COLOR
No. 1	P0201	BRN
No. 2	P0202	RED
No. 3	P0203	BLU
No. 4	P0204	YEL

   Is there continuity?
   YES - Go to Step 12.
   NO - Go to Step 15.
12. Jump the SCS line with the HDS.
13. Disconnect ECM/PCM connector C (49P).

---

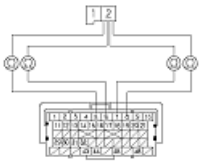
14. Check for continuity between body ground and the appropriate injector connector terminal (see table).

PROBLEM CYLINDER	DTC	WIRE COLOR
No. 1	P0201	BRN
No. 2	P0202	RED
No. 3	P0203	BLU
No. 4	P0204	YEL

   Is there continuity?
   YES - Repair short in the wire between the ECM/PCM and the injector, then go to Step 19.
   NO - Go to Step 24.
15. Jump the SCS line with the HDS.
16. Disconnet ECM/PCM connector C (49P).

---

17. Check for continuity between appropriate injector 2P conenctor terminal No. 2 and the appropriate ECM/PCM connector terminal of the problem cylinder (see table).



PROBLEM CYLINDER	DTC	ECM/PCM TERMINAL	WIRE COLOR
No. 1	P0201	C5	BRN
No. 2	P0202	C6	RED
No. 3	P0203	C7	BLU
No. 4	P0204	C8	YEL

Is there continuity?

YES - Go to Step 24 .

NO - Repair open in the wire between the ECM/PCM and the injector, then go to Step 19 .

18. Replace the problem injector.
19. Reconnect all connectors.
20. Turn the ignition switch to ON (II).
21. Reset the ECM/PCM with the HDS.
22. Do the ECM/PCM idle learn procedure.
23. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0201, P0202, P0203, or P0204 indicated?

YES - Check for poor connections or loose terminals at the injector and the ECM/PCM, then go to Step 1 .

NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

24. Reconnect all connectors.
25. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
26. Start the engine, and let it idle for 20 seconds.
27. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0201, P0202, P0203, or P0204 indicated?

YES - Check for poor connections or loose terminals at the injector and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 26 . If the ECM/PCM was substituted, go to Step 1 .

NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0222 (7)

DTC P0222:
TP Sensor B Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check TP SENSOR B in the DATA LIST with the HDS.

   Is there about 0.3 V or less?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM.■
4. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC P0122 and P0222 indicated at the same time?
   YES - Go to Step 10 .
   NO - Go to Step 5 .
5. Turn the ignition switch to LOCK (0).
6. Disconnect the throttle body 6P connector.
7. Jump the SCS line with the HDS.
8. Disconnect ECM/PCM connector C (49P).
9. Check for continuity between throttle body 6P connector terminal No. 3 and body ground.

   Is there continuity?
   YES - Repair short in the wire between the throttle body and the ECM/PCM (C21), then go to Step 18 .
   NO - Go to Step 23 .

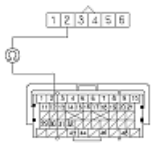
---

10. Measure the voltage between throttle body 6P connector terminal No. 2 and body ground.

    Is there about 5 V?
    YES - Go to Step 16 .
    NO - Go to Step 11 .
11. Turn the ignition switch to LOCK (0).
12. Jump the SCS line with the HDS.
13. Disconnect ECM/PCM connector C (49P).
14. Disconnect the throttle body 6P connector.

---

15. Check for continuity between ECM/PCM connector terminal C12 and throttle body 6P connector terminal No. 2.



Is there continuity?
YES - Go to Step 23 .
NO - Repair open in the wire between the throttle body and the ECM/PCM (C12), then go to Step 18 .

16. Turn the ignition switch to LOCK (0).
17. Replace the throttle body.
18. Reconnect all connectors.
19. Turn the ignition switch to ON (II).
20. Reset the ECM/PCM with the HDS.
21. Do the ECM/PCM idle learn procedure.
22. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0222 indicated?
YES - Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

23. Reconnect all connectors.
24. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
25. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0222 indicated?
YES - Check for poor connections or loose terminals at TP sensor B and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0223 (7)

DTC P0223:
TP Sensor B Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check TP SENSOR B in the DATA LIST with the HDS.

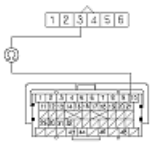
   Is there about 4.8 V or more?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM.■
4. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC P0123 and P0223 indicated at the same time?
   YES - Go to Step 13 .
   NO - Go to Step 5 .
5. Turn the ignition switch to LOCK (0).
6. Disconnect the throttle body 6P connector.
7. Turn the ignition switch to ON (II).
8. Measure the voltage between throttle body 6P connector terminal No. 3 and body ground.

   Is there about 5 V?
   YES - Go to Step 18 .
   NO - Go to Step 9 .
9. Turn the ignition switch to LOCK (0).
10. Jump the SCS line with the HDS.
11. Disconnect ECM/PCM connector C (49P).

---

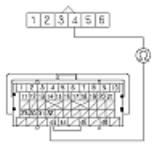
12. Check for continuity between ECM/PCM connector terminal C21 and throttle body 6P connector terminal No. 3.

    Is there continuity?
    YES - Go to Step 25 .
    NO - Repair open in the wire between the throttle body and the ECM/PCM (C21), then go to Step 20 .
13. Turn the ignition switch to LOCK (0).
14. Disconnect the throttle body 6P connector.
15. Jump the SCS line with the HDS.
16. Disconnect ECM/PCM connector C (49P).

---

17. Check for continuity between ECM/PCM connector terminal C43 and throttle body 6P connector terminal No. 4.



Is there continuity?
YES - Go to Step 25 .
NO - Repair open in the wire between the throttle body and the ECM/PCM (C43), then go to Step 20 .

18. Turn the ignition switch to LOCK (0).

19. Replace the throttle body.

20. Reconnect all connectors.

21. Turn the ignition switch to ON (II).

22. Reset the ECM/PCM with the HDS.

23. Do the ECM/PCM idle learn procedure.

24. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0223 indicated?
YES - Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

25. Reconnect all connectors.

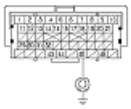
26. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.

27. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0223 indicated?
YES - Check for poor connections or loose terminals at TP sensor B and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0325 (23)

DTC P0325:
Knock Sensor Circuit Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.



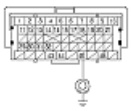
1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed 3,000 rpm (min $^{-1}$) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
4. Hold the engine speed between 3,000−4,000 rpm (min $^{-1}$) for at least 10 seconds.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0325 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the knock sensor and the ECM/PCM.■
6. Turn the ignition switch to LOCK (0).
7. Jump the SCS line with the HDS.
8. Disconnect the knock sensor 1P connector.
9. Disconnect ECM/PCM connector C (49P).
10. Check for continuity between ECM/PCM connector terminal C46 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the ECM/PCM (C46) and the knock sensor, then go to Step 14 .
    NO - Go to Step 11 .

11. Connect the knock sensor 1P connector terminal to body ground with a jumper wire.

12. Check for continuity between ECM/PCM connector terminal C46 and body ground.



Is there continuity?
YES - Go to Step 13 .
NO - Repair open in the wire between the ECM/PCM (C46) and the knock sensor, then go to Step 14 .

13. Replace the knock sensor.

14. Reconnect all connectors.

15. Turn the ignition switch to ON (II).

16. Reset the ECM/PCM with the HDS.

17. Do the ECM/PCM idle learn procedure.

18. Hold the engine speed between 3,000−4,000 rpm (min $^{-1}$) for at least 10 seconds.

19. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0325 indicated?
YES - Go to Step 21 .
NO - Go to Step 20 .

20. Monitor the OBD STATUS for DTC P0325 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 19 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the knock sensor and the ECM/PCM, then go to Step 1 . If the screen indicates NOT COMPLETED, go to Step 18 and recheck.

21. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.

22. Hold the engine speed between 3,000−4,000 rpm (min $^{-1}$) for at least 10 seconds.

23. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0325 indicated?

YES - Check for poor connections or loose terminals at the knock sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 22 . If the ECM/PCM was substituted, go to Step 1 .
NO - Go to Step 24 .

24. Monitor the OBD STATUS for DTC P0325 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs were indicated in Step 23 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the knock sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 22 . If the ECM/PCM was substituted, go to Step 1 . If the screen indicates NOT COMPLETED, go to Step 22 .

DTC Troubleshooting: P0335 (4)

DTC P0335:
CKP Sensor No Signal
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0335 indicated?
   YES - Go to Step 5.
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the CKP sensor and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the CKP sensor 3P connector.
7. Turn the ignition switch to ON (II).
8. Measure the voltage between CKP sensor 3P connector terminal No. 1 and body ground.

   Is there battery voltage?
   YES - Go to Step 9.
   NO - Repair open in the wire between the CKP sensor and PGM-FI main relay 1, then go to Step 19.

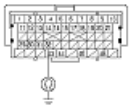
9. Measure the voltage between CKP sensor 3P connector terminal No. 3 and body ground.

   Is there about 5 V?
   YES - Go to Step 10.
   NO - Go to Step 11.

10. Measure the voltage between CKP sensor 3P connector terminals No. 1 and No. 2.

    Is there battery voltage?
    YES - Go to Step 17.
    NO - Repair open in the wire between the CKP sensor and G101, then go to Step 19.
11. Turn the ignition switch to LOCK (0).
12. Jump the SCS line with the HDS.
13. Disconnect ECM/PCM connector C (49P).

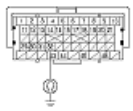
14. Check for continuity between ECM/PCM connector terminal C32 and body ground.



    Is there continuity?
    YES - Repair short in the wire between the ECM/PCM (C32) and the CKP sensor, then go to Step 19.
    NO - Go to Step 15.

15. Connect CKP sensor 3P connector terminal No. 3 to body ground with a jumper wire.

16. Check for continuity between ECM/PCM connector terminal C32 and body ground.



Is there continuity?
YES - Go to Step 26 .
NO - Repair open in the wire between the ECM/PCM (C32) and the CKP sensor, then go to Step 19 .

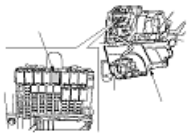
17. Turn the ignition switch to LOCK (0).
18. Replace the CKP sensor.
19. Reconnect all connectors.
20. Turn the ignition switch to ON (II).
21. Reset the ECM/PCM with the HDS.
22. Clear the crank pattern with the HDS.
23. Do the ECM/PCM idle learn procedure.
24. Do the CKP pattern learn procedure.
25. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0335 indicated?
YES - Check for poor connections or loose terminals at the CKP sensor and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

26. Reconnect all connectors.
27. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
28. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0335 indicated?
YES - Check for poor connections or loose terminals at the CKP sensor and the ECM/PCM, then go to Step 1 . If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0351 (71), P0352 (72), P0353 (73), P0354 (74)



DTC P0351:
No. 1 Cylinder Ignition Coil Circuit Malfunction
DTC P0352:
No. 2 Cylinder Ignition Coil Circuit Malfunction
DTC P0353:
No. 3 Cylinder Ignition Coil Circuit Malfunction
DTC P0354:
No. 4 Cylinder Ignition Coil Circuit Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0351, P0352, P0353, and/or P0354 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ignition coil and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Exchange the ignition coil from the problem cylinder with one from another cylinder.
7. Start the engine.
8. Check for Temporary DTCs or DTCs with the HDS.

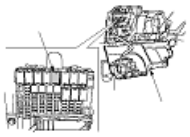
   Is DTC indicated at the exchanged cylinder position?
   YES - Replace the faulty ignition coil, then go to Step 25 .
   NO - Go to Step 9 .
9. Turn the ignition switch to LOCK (0).
10. Check the No. 33 IGNITION COIL (15 A) fuse in the under-dash fuse/relay box.

    Is the fuse OK?
    YES - Go to Step 11 .
    NO - Go to Step 12 .
11. Open the fuse lid (A), then test the ignition coil relay (B) in the under-dash fuse/relay box.

    Is the ignition coil relay OK?
    YES - Go to Step 15 .
    NO - Replace the ignition coil relay, then go to Step 25 .

---

12. Open the fuse lid (A), then remove the ignition coil relay (B) from the under-dash fuse/relay box.
13. Disconnect all ignition coil 3P connectors.



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14. Check for continuity between No. 1 ignition coil 3P connector terminal No. 3 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the ignition coils and the ignition coil relay. Also replace the No. 33 IGNITION COIL (15 A) fuse, then go to Step 25 .
    NO - Check the under-dash fuse/relay box, and replace it if needed, then go to Step 25 .
15. Reinstall the ignition coil relay.
16. Disconnect the ignition coil 3P connector from the problem cylinder.
17. Turn the ignition switch to ON (II).

---

18. Measure the voltage between ignition coil 3P connector terminal No. 3 of the problem cylinder and body ground (see table).

PROBLEM CYLINDER	DTC
No. 1	P0351
No. 2	P0352
No. 3	P0353
No. 4	P0354

Is there battery voltage?

YES - Go to Step 19 .

NO - Repair open in the wire between the ignition coil and the ignition coil relay, then go to Step 25 .

19. Turn the ignition switch to LOCK (0).

---

20. Check for continuity between ignition coil 3P connector terminal No. 2 of the problem cylinder and body ground (see table).

PROBLEM CYLINDER	DTC
No. 1	P0351
No. 2	P0352
No. 3	P0353
No. 4	P0354

Is there continuity?

YES - Go to Step 21 .

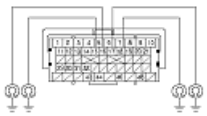
NO - Repair open in the wire between the ignition coil and G101, then go to Step 25 .

21. Jump the SCS line with the HDS.

22. Disconnect ECM/PCM connector C (49P).

---

23. Check for continuity between body ground and the appropriate ECM/PCM connector terminal of the problem cylinder (see table).



PROBLEM CYLINDER	DTC	ECM/PCM TERMINAL	WIRE COLOR
No. 1	P0351	C15	WHT
No. 2	P0352	C16	WHT/GRN
No. 3	P0353	C17	WHT/BLK
No. 4	P0354	C18	WHT/BLU

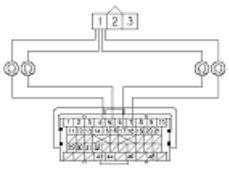
Is there continuity?

YES - Repair short in the wire between the ECM/PCM and the ignition coil, then go to Step 25 .

NO - Go to Step 24 .

---

24. Check for continuity between appropriate ignition coil 3P connector terminal No. 1 and the appropriate ECM/PCM connector terminal of the problem cylinder (see table).



PROBLEM CYLINDER	DTC	ECM/PCM TERMINAL	WIRE COLOR
No. 1	P0351	C15	WHT
No. 2	P0352	C16	WHT/GRN
No. 3	P0353	C17	WHT/BLK
No. 4	P0354	C18	WHT/BLU

Is there continuity?

YES - Go to Step 31 .

NO - Repair open in the wire between the ECM/PCM and the ignition coil, then go to Step 25 .

25. Turn the ignition switch to LOCK (0).
26. Reconnect all connectors.
27. Turn the ignition switch to ON (II).
28. Reset the ECM/PCM with the HDS.
29. Do the ECM/PCM idle learn procedure.
30. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0351, P0352, P0353, and/or P0354 indicated?

YES - Check for poor connections or loose terminals at the ignition coil and the ECM/PCM, then go to Step 1 .

NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

31. Reconnect all connectors.
32. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
33. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0351, P0352, P0353, and/or P0354 indicated?

YES - Check for poor connections or loose terminals at the ignition coil and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .

NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0365 (8)

DTC P0365:
CMP Sensor No Signal
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0365 indicated?
   YES - Go to Step 5.
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the CMP sensor and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the CMP sensor 3P connector.
7. Turn the ignition switch to ON (II).
8. Measure the voltage between CMP sensor 3P connector terminal No. 3 and body ground.

   Is there battery voltage?
   YES - Go to Step 9.
   NO - Repair open in the wire between the CMP sensor and PGM-FI main relay 1, then go to Step 18.

---

9. Measure the voltage between CMP sensor 3P connector terminal No. 1 and body ground.

   Is there about 5 V?
   YES - Go to Step 10.
   NO - Go to Step 11.

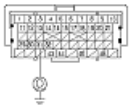
---

10. Measure the voltage between CMP sensor 3P connector terminals No. 2 and No. 3.

    Is there battery voltage?
    YES - Go to Step 16.
    NO - Repair open in the wire between the CMP sensor and G101, then go to Step 18.
11. Turn the ignition switch to LOCK (0).
12. Jump the SCS line with the HDS.
13. Disconnect ECM/PCM connector C (49P).

---

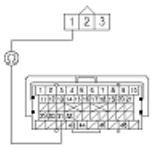
14. Check for continuity between ECM/PCM connector terminal C31 and body ground.



    Is there continuity?
    YES - Repair short in the wire between the ECM/PCM (C31) and the CMP sensor, then go to Step 18.
    NO - Go to Step 15.

---

15. Check for continuity between CMP sensor 3P connector terminal No. 1 and ECM/PCM connector terminal C31.



Is there continuity?
YES - Go to Step 23 .
NO - Repair open in the wire between the ECM/PCM (C31) and the CMP sensor, then go to Step 18 .

16. Turn the ignition switch to LOCK (0).

17. Replace the CMP sensor.

18. Reconnect all connectors.

19. Turn the ignition switch to ON (II).

20. Reset the ECM/PCM with the HDS.

21. Do the ECM/PCM idle learn procedure.

22. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0365 indicated?
YES - Check for poor connections or loose terminals at the CMP sensor and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

23. Reconnect all connectors.

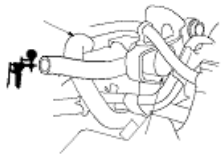
24. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.

25. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0365 indicated?
YES - Check for poor connections or loose terminals at the CMP sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0443 (92)

DTC P0443:
EVAP Canister Purge Valve Circuit Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0443 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EVAP canister purge valve and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0), and allow the engine to cool below 60 °C (140 °F).
6. Disconnect the vacuum hose (A) from the EVAP canister purge valve (B) in the engine compartment, and connect a vacuum pump/gauge to the hose.
7. Start the engine, and let it idle.

   Is there vacuum?
   YES - Go to Step 8 .
   NO - Go to Step 14 .
8. Turn the ignition switch to LOCK (0).
9. Disconnect the EVAP canister purge valve 2P connector.

---

10. Check for continuity between EVAP canister purge valve 2P connector terminal No. 2 and body ground.

    Is there continuity?
    YES - Go to Step 11 .
    NO - Go to Step 23 .
11. Jump the SCS line with the HDS.
12. Disconnect ECM/PCM connector B (49P).

---

13. Check for continuity between EVAP canister purge valve 2P connector terminal No. 2 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the EVAP canister purge valve and the ECM/PCM (B3), then go to Step 24 .
    NO - Go to Step 30 .
14. Turn the ignition switch to LOCK (0).
15. Disconnect the EVAP canister purge valve 2P connector.
16. Turn the ignition switch to ON (II).

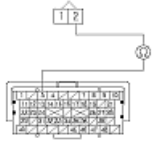
---

17. Measure the voltage between EVAP canister purge valve 2P connector terminal No. 1 and body ground.

    Is there battery voltage?
    YES - Go to Step 18 .
    NO - Repair open in the wire between the EVAP canister purge valve and the No. 12 ALTERNATOR (10 A) fuse in the under-dash fuse/relay box, then go to Step 24 .
18. Turn the ignition switch to LOCK (0).
19. Jump the SCS line with the HDS.
20. Disconnect ECM/PCM connector B (49P).

---

21. Check for continuity between ECM/PCM connector terminal B3 and EVAP canister purge valve 2P connector terminal No. 2.

    Is there continuity?
    YES - Go to Step 22 .
    NO - Repair open in the wire between the EVAP canister purge valve and the ECM/PCM (B3), then go to Step 24 .

---

22. Measure the resistance between EVAP canister purge valve 2P connector terminals No. 1 and No. 2.

Is there about 25 Ω at room temperature?
YES - Go to Step 30 .
NO - Go to Step 23 .

23. Replace the EVAP canister purge valve.

24. Reconnect all connectors.

25. Turn the ignition switch to ON (II).

26. Reset the ECM/PCM with the HDS.

27. Do the ECM/PCM idle learn procedure.

28. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0443 indicated?
YES - Check for poor connections or loose terminals at the EVAP canister purge valve and the ECM/PCM, then go to Step 1 .
NO - Go to Step 29 .

29. Monitor the OBD STATUS for DTC P0443 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 28 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the EVAP canister purge valve and the ECM/PCM, then go to Step 1 . If the screen indicates EXECUTING, OUT OF CONDITION, or NOT COMPLETED, keep idling until a result comes on.

30. Reconnect all connectors.

31. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.

32. Start the engine.

33. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0443 indicated?
YES - Check for poor connections or loose terminals at the EVAP canister purge valve and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 32 . If the ECM/PCM was substituted, go to Step 1 .
NO - Go to Step 34 .

34. Monitor the OBD STATUS for DTC P0443 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs were indicated in Step 23 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the EVAP canister purge valve and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 32 . If the ECM/PCM was substituted, go to Step 1 . If the screen indicates EXECUTING, OUT OF CONDITION, or NOT COMPLETED, keep idling until a result comes on.

DTC Troubleshooting: P0462

DTC P0462:
Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

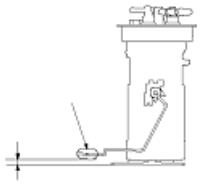
1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS, and wait 5 seconds.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0462 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the gauge control module and the fuel gauge sending unit.■
4. Turn the ignition switch to LOCK (0).
5. Remove the center console.
6. Remove the access panel from the floor.
7. Disconnect the fuel tank unit 4P connector.
8. Turn the ignition switch to ON (II).
9. Clear the DTC with the HDS, and wait 5 seconds.
10. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0463 indicated?
    YES - Replace the fuel gauge sending unit, then go to Step 22 .
    NO - Go to Step 11 .
11. Turn the ignition switch to LOCK (0).
12. Remove the gauge control module.
13. Disconnect the gauge control module 32P connector.
14. Check for continuity between fuel tank unit 4P connector terminal No. 1 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the gauge control module (signal line) and the fuel gauge sending unit, then go to Step 23 .
    NO - Go to Step 15 .
15. Reconnect the gauge control module 32P connector.
16. Remove the fuel tank unit.
17. Connect the fuel tank unit 4P connector.
18. Turn the ignition switch to ON (II).
19. Clear the DTC with the HDS.

20. Set the float (A) to the E position (B).



21. Check the fuel gauge.

    Does the gauge move to the empty position?
    YES - Go to Step 29 .
    NO - Replace the gauge control module, then go to Step 22 .

22. Turn the ignition switch to LOCK (0).

23. Reconnect all connectors.

24. Install the parts in the reverse order of removal.

25. Turn the ignition switch to ON (II).

26. Reset the ECM/PCM with the HDS.

27. Do the ECM/PCM idle learn procedure.

28. Check for Temporary DTCs or DTCs with the HDS.

    Are any Temporary DTCs or DTCs indicated?
    YES - If DTC P0462 is indicated, check for poor connections or loose terminals at the gauge control module and the fuel gauge sending unit, then go to Step 1 . If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.
    NO - Troubleshooting is complete.■

29. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.

30. Check for Temporary DTCs or DTCs with the HDS.

    Are any Temporary DTCs or DTCs indicated?
    YES - If DTC P0462 is indicated, check for poor connections or loose terminals at the gauge control module and the fuel gauge sending unit, then go to Step 1 . If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. ■

DTC Troubleshooting: P0463

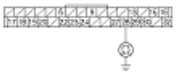
DTC P0463:
Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS, and wait 5 seconds.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0463 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the gauge control module and the fuel gauge sending unit.■
4. Turn the ignition switch to LOCK (0).
5. Remove the center console.
6. Remove the access panel from the floor.
7. Disconnect the fuel tank unit 4P connector.
8. Connect fuel tank unit 4P connector terminal No. 3 to body ground with a jumper wire.
9. Remove the gauge control module.
10. Disconnect the gauge control module 32P connector.

---

11. Check for continuity between gauge control module 32P connector terminal No. 28 and body ground.



    Is there continuity?
    YES - Go to Step 12 .
    NO - Repair open in the wire between the gauge control module (GND line) and the fuel gauge sending unit, then go to Step 24 .

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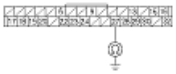
12. Connect fuel tank unit 4P connector terminal No. 1 to body ground with a jumper wire.

---

13. Check for continuity between gauge control module 32P connector terminal No. 27 and body ground.

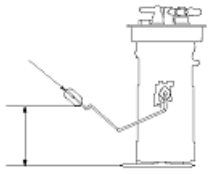


    Is there continuity?
    YES - Go to Step 14 .
    NO - Repair open in the wire between the gauge control module (signal line) and the fuel gauge sending unit, then go to Step 24 .
14. Remove the jumper wire from the fuel tank unit 4P connector.
15. Remove the fuel tank unit.
16. Test the fuel gauge sending unit.

    Is the fuel gauge sending unit OK?
    YES - Go to Step 17 .
    NO - Replace the fuel gauge sending unit, then go to Step 23 .
17. Reconnect the fuel tank unit 4P connector.
18. Reconnect the gauge control module 32P connector.
19. Turn the ignition switch to ON (II).
20. Clear the DTC with the HDS.

---

21. Set the float (A) to the F position (B).



22. Check the fuel gauge.

    Does the gauge move to the full position?
    YES - Go to Step 30 .
    NO - Replace the gauge control module , then go to Step 23 .

23. Turn the ignition switch to LOCK (0).

24. Reconnect all connectors.

25. Install the parts in the reverse order of removal.

26. Turn the ignition switch to ON (II).

27. Reset the ECM/PCM with the HDS.

28. Do the ECM/PCM idle learn procedure.

29. Check for Temporary DTCs or DTCs with the HDS.

    Are any Temporary DTCs or DTCs indicated?
    YES - If DTC P0463 is indicated, check for poor connections or loose terminals at the gauge control module and the fuel gauge sending unit, then go to Step 1 . If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.
    NO - Troubleshooting is complete.■

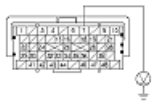
30. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.

31. Check for Temporary DTCs or DTCs with the HDS.

    Are any Temporary DTCs or DTCs indicated?
    YES - If DTC P0463 is indicated, check for poor connections or loose terminals at the gauge control module and the fuel gauge sending unit, then go to Step 1 . If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. ■

DTC Troubleshooting: P0563

DTC P0563:
ECM/PCM Power Source Circuit Unexpected Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.



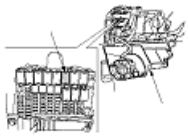
1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Wait 10 seconds.
5. Turn the ignition switch to ON (II).
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0563 indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at PGM-FI main relay 1 and the ECM/PCM.■
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).
10. Measure the voltage between ECM/PCM connector terminal A7 and body ground.

    Is there battery voltage?
    YES - Go to Step 13 .
    NO - Go to Step 11 .

---

11. Open the fuse lid (A), then remove PGM-FI main relay 1 (B) from the under-dash fuse/relay box.



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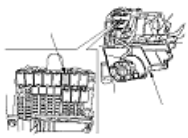
12. Check for continuity between ECM/PCM connector terminal A7 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the ECM/PCM (A7) and PGM-FI main relay 1, then go to Step 16 .
    NO - Go to Step 15 .

---

13. Open the fuse lid (A), then remove PGM-FI main relay 1 (B) from the under-dash fuse/relay box.



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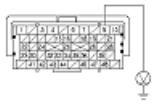
14. Measure the voltage between ECM/PCM connector terminal A9 and body ground.



Is there battery voltage?

YES - Repair short to power in the wire between the ECM/PCM (A9) and PGM-FI main relay 1, then go to Step 16 .

NO - Go to Step 15 .

15. Test PGM-FI main relay 1.

Is PGM-FI main relay 1 OK?

YES - Go to Step 23 .

NO - Replace PGM-FI main relay 1, then go to Step 16 .

16. Reconnect all connectors.

17. Turn the ignition switch to ON (II).

18. Reset the ECM/PCM with the HDS.

19. Do the ECM/PCM idle learn procedure.

20. Turn the ignition switch to LOCK (0).

21. Wait 10 seconds.

22. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0563 indicated?

YES - Check for poor connections or loose terminals at PGM-FI main relay 1 and the ECM/PCM, then go to Step 1 .

NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

23. Reconnect all connectors.

24. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.

25. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0563 indicated?

YES - Check for poor connections or loose terminals at PGM-FI main relay 1 and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 20 . If the ECM/PCM was substituted, go to Step 1 .

NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0602 (196)

DTC P0602:
ECM/PCM Programming Error
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.
- This DTC is indicated when an ECM/PCM update is not completed.
- Do not turn the ignition switch to LOCK (0) or ACC (I) while updating the ECM/PCM. If you turn the ignition switch to LOCK (0) or ACC (I) before completion, the ECM/PCM can be damaged.

1. Do the ECM/PCM update procedure.

2. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0602 indicated?
   YES - Replace the original ECM/PCM. ■
   NO - The update is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0606 (0)

DTC P0606:
ECM/PCM Processor Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Wait 40 seconds.
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0606 indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time.■
7. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
8. Turn the ignition switch to LOCK (0).
9. Turn the ignition switch to ON (II).
10. Wait 40 seconds.
11. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0606 indicated?
    YES - If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 8 . If the ECM/PCM was substituted, go to Step 1 .
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P062F (131)

DTC P062F:
ECM/PCM Internal Control Module Keep Alive Memory (KAM) Error
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P062F indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time.■
4. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P062F indicated?
   YES - If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
   NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0630 (139)

DTC P0630:
VIN Not Programmed or Mismatch
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.
- This DTC is stored only when the ECM/PCM does not have the VIN information of the vehicle. Use the HDS to input the missing VIN information.

1. Turn the ignition switch to ON (II).
2. Check the VIN with the HDS.

   Does the HDS show the vehicle's VIN?
   YES - Go to Step 5 .
   NO - Go to Step 3 .
3. Input the VIN to the ECM/PCM with the HDS.

   Does the screen show COMPLETE?
   YES - Go to Step 5 .
   NO - Go to Step 4 .
4. Check for DTCs with the HDS.

   Is DTC P062F indicated?
   YES - Go to the DTC P062F troubleshooting. ■
   NO - Go to Step 9 .
5. Clear the DTC with the HDS.
6. Turn the ignition switch to LOCK (0).
7. Turn the ignition switch to ON (II), and wait 5 seconds.
8. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0630 indicated?
   YES - Go to Step 9 .
   NO - Intermittent failure, the system is OK at this time.■
9. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
10. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0630 indicated?
    YES - If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0685 (135)

DTC P0685:
ECM/PCM Power Control Circuit/Internal Circuit Malfunction
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.
- If the problem doesn't return after you clear the DTC, or it this DTC is stored intermittently, check for loose terminals at the IGP line connectors before replacing the ECM/PCM.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, then let it idle for 30 seconds.
4. Turn the ignition switch to LOCK (0).
5. Start the engine, then let it idle for 30 seconds.
6. Turn the ignition switch to LOCK (0).
7. Turn the ignition switch to ON (II).
8. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0685 indicated?
   YES - Go to Step 9 .
   NO - Intermittent failure, the system is OK at this time.■
9. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
10. Start the engine, then let it idle for 30 seconds.
11. Turn the ignition switch to LOCK (0).
12. Start the engine, then let it idle for 30 seconds.
13. Turn the ignition switch to LOCK (0).
14. Turn the ignition switch to ON (II).
15. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0685 indicated?
    YES - If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 10 . If the ECM/PCM was substituted, go to Step 1 .
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0720 (122)

DTC P0720:
Output Shaft (Countershaft) Speed Sensor Circuit Malfunction (M/T model)
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (in neutral) until the radiator fan comes on, then let it idle.
2. Test-drive for several minutes.
3. Check the C SHAFT SPD in the DATA LIST with the HDS.

   Is any vehicle speed indicated?
   YES - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the output shaft (countershaft) speed sensor and the ECM.■
   NO - Go to Step 4 .
4. Turn the ignition switch to LOCK (0).
5. Disconnect the output shaft (countershaft) speed sensor 3P connector.
6. Turn the ignition switch to ON (II).
7. Measure the voltage between output shaft (countershaft) speed sensor 3P connector terminal No. 1 and body ground.

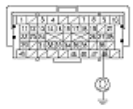
   Is there about 5 V?
   YES - Go to Step 8 .
   NO - Repair open in the wire between the ECM (C13) and the output shaft (countershaft) speed sensor, then go to Step 18 .

8. Measure the voltage between output shaft (countershaft) speed sensor 3P connector terminal No. 2 and body ground.

   Is there about 5 V?
   YES - Go to Step 9 .
   NO - Go to Step 10 .

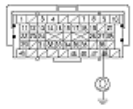
9. Measure the voltage between output shaft (countershaft) speed sensor 3P connector terminals No. 1 and No. 3.

   Is there about 5 V?
   YES - Go to Step 16 .
   NO - Repair open in the wire between the ECM (C14) and the output shaft (countershaft) speed sensor, then go to Step 18 .
10. Turn the ignition switch to LOCK (0).
11. Jump the SCS line with the HDS.
12. Disconnect ECM connector B (49P).
13. Check for continuity between ECM connector terminal B38 and body ground.



    Is there continuity?
    YES - Repair short in the wire between the ECM (B38) and the output shaft (countershaft) speed sensor, then go to Step 18 .
    NO - Go to Step 14 .
14. Connect output shaft (countershaft) speed sensor 3P connector terminal No. 2 to body ground with a jumper wire.

15. Check for continuity between ECM connector terminal B38 and body ground.



Is there continuity?
YES - Go to Step 25 .
NO - Repair open in the wire between the ECM (B38) and the output shaft (countershaft) speed sensor, then go to Step 18 .

16. Turn the ignition switch to LOCK (0).
17. Replace the output shaft (countershaft) speed sensor.
18. Reconnect all connectors.
19. Turn the ignition switch to ON (II).
20. Reset the ECM with the HDS.
21. Do the ECM idle learn procedure.
22. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 80 °C (176 °F)
    - Transmission in 5th gear
    - ENGINE SPEED between 2,000−3,000 rpm (min $^{-1}$)
    - Drive for several minutes, then decelerate (with the throttle fully closed) for 8 seconds
23. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0720 indicated?
YES - Check for poor connections or loose terminals at the output shaft (countershaft) speed sensor and the ECM, then go to Step 1 .
NO - Go to Step 24 .

24. Monitor the OBD STATUS for DTC P0720 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 23 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the output shaft (countershaft) speed sensor and the ECM, then go to Step 1 . If the screen indicates NOT COMPLETED, go to Step 22 .

25. Reconnect all connectors.
26. Update the ECM if it does not have the latest software, or substitute a known-good ECM.
27. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 80 °C (176 °F)
    - Transmission in 5th gear
    - ENGINE SPEED between 2,000−3,000 rpm (min $^{-1}$)
    - Drive for several minutes, then decelerate (with the throttle fully closed) for 8 seconds
28. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0720 indicated?
YES - Check for poor connections or loose terminals at the output shaft (countershaft) speed sensor and the ECM. If the ECM was updated, substitute a known-good ECM, then go to Step 27 . If the ECM was substituted, go to Step 1 .
NO - Go to Step 29 .

29. Monitor the OBD STATUS for DTC P0720 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM. If any other Temporary DTCs or DTCs were indicated in Step 28 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the output shaft (countershaft) speed sensor and the ECM. If the ECM was updated, substitute a known-good ECM, then go to Step 27 . If the ECM was substituted, go to Step 1 . If the screen indicates NOT COMPLETED, go to Step 27 .

DTC Troubleshooting: P102A (120)

DTC P102A:
Subfuel Solenoid Circuit Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with HDS.
3. Start the engine.
4. Select SUBFUEL SOLENOID ON in the INSPECTION MENU with the HDS.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P102A indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the subfuel solenoid, the subfuel pump relay, and the ECM/PCM.■
6. Turn the ignition switch to LOCK (0).
7. Remove the subfuel pump relay from the relay holder.
8. Test the subfuel pump relay.

   Is the subfuel pump relay OK?
   YES - Go to Step 9 .
   NO - Replace the subfuel pump relay, then go to Step 34 .
9. Check the SUBFUEL PUMP (15 A) fuse in the auxiliary under-dash fuse holder.

   Is the fuse OK?
   YES - Go to Step 13 .
   NO - Go to Step 10 .
10. Disconnect the SUBFUEL PUMP (15 A) fuse from the auxiliary under-dash fuse holder.
11. Disconnect the subfuel solenoid 2P connector.
12. Check for continuity between subfuel solenoid 2P connector terminal No. 1 and body ground.

    Is there continuity?
    YES -
    - Repair short in the wire between the subfuel pump, the subfuel pump relay, and the subfuel solenoid. Also replace the SUBFUEL PUMP (15 A) fuse, then go to Step 34 .
    - Check the subfuel pump, and replace it if necessary. Also replace the SUBFUEL PUMP (15 A) fuse, then go to Step 34 .

    NO - Repair short in the wire between the SUBFUEL PUMP (15 A) fuse and the subfuel pump relay. Also replace the SUBFUEL PUMP (15 A) fuse, then go to Step 34 .
13. Reconnect the subfuel pump relay to the auxiliary under-hood relay box.
14. Disconnect the subfuel solenoid 2P connector.

---

15. Turn the ignition switch to ON (II), and measure the voltage between subfuel solenoid 2P connector terminal No. 1 and body ground within 2 seconds.

    Is there battery voltage?
    YES - Go to Step 22 .
    NO - Go to Step 16 .
16. Turn the ignition switch to LOCK (0).
17. Remove the subfuel pump relay (A) from the auxiliary under-hood relay box.
18. Jump the SCS line with the HDS.
19. Disconnect ECM/PCM connector A (49P).

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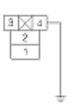
20. Connect subfuel pump relay 4P connector terminal No. 3 to body ground with a jumper wire.



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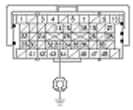
21. Check for continuity between ECM/PCM connector terminal A33 and body ground.



Is there continuity?

YES -
- Repair open in the wire between the subfuel pump relay and the subfuel solenoid, then go to Step 34 .
- Repair open in the wire between the SUBFUEL PUMP (15 A) fuse and the subfuel pump relay, then go to Step 34 .

NO - Repair open in the wire between the ECM/PCM (A33) and the subfuel pump relay, then go to Step 34 .

22. Turn the ignition switch to LOCK (0).

---

23. At the subfuel solenoid side, measure the resistance between subfuel solenoid 2P connector terminals No. 1 and No. 2.

Is there about 9.78−10.82 Ω at room temperature?

YES - Go to Step 24 .

NO - Go to Step 32 .

---

24. At the subfuel solenoid side, check for continuity between body ground and subfuel solenoid 2P connector terminals No. 1 and No. 2 individually.

Is there continuity?

YES - Go to Step 32 .

NO - Go to Step 25 .

25. Jump the SCS line with the HDS.

26. Disconnect ECM/PCM connector C (49P).

---

27. Check for continuity between subfuel solenoid 2P connector terminal No. 2 and body ground.

Is there continuity?

YES - Repair short in the wire between the ECM/PCM (C19) and the subfuel solenoid, then go to Step 34 .

NO - Go to Step 28 .

28. Turn the ignition switch to ON (II).

---

29. Measure the voltage between subfuel solenoid 2P connector terminal No. 2 and body ground.

Is there battery voltage?

YES - Repair short to power in the wire between the ECM/PCM (C19) and the subfuel solenoid, then go to Step 33 .

NO - Go to Step 30 .

30. Turn the ignition switch to LOCK (0).

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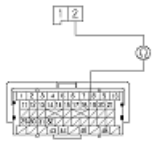
31. Check for continuity between subfuel solenoid 2P connector terminal No. 2 and ECM/PCM connector terminal C19.



Is there continuity?
YES - Go to Step 41 .
NO - Repair open in the wire between the ECM/PCM (C19) and the subfuel solenoid, then go to Step 34 .

32. Replace the subfuel solenoid.
33. Turn the ignition switch to LOCK (0).
34. Reconnect all connectors.
35. Turn the ignition switch to ON (II).
36. Reset the ECM/PCM with the HDS.
37. Do the ECM/PCM idle learn procedure.
38. Start the engine.
39. Select SUBFUEL SOLENOID ON in the INSPECTION MENU with the HDS.
40. Check for Temporary DTCs or DTCs with the HDS.

Are any Temporary DTCs or DTCs indicated?
YES - If DTC P102A is indicated, check for poor connections or loose terminals at the subfuel solenoid, the subfuel pump relay, and the ECM/PCM, then go to Step 1 . If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.
NO - Troubleshooting is complete.■

41. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
42. Start the engine.
43. Select SUBFUEL SOLENOID ON in the INSPECTION MENU with the HDS.
44. Check for Temporary DTCs or DTCs with the HDS.

Are any Temporary DTCs or DTCs indicated?
YES - If DTC P102A is indicated, check for poor connections or loose terminals at the subfuel solenoid, the subfuel pump relay, and the ECM/PCM, then go to Step 1 . If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. ■

DTC Troubleshooting: P1109 (13)

DTC P1109:
BARO Sensor Circuit Out of Range High
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

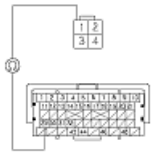
1. Reset the ECM/PCM with the HDS.
2. Start the engine.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1109 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time.■
4. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1109 indicated?
   YES - If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
   NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P1157 (48)

DTC P1157:
A/F Sensor (Sensor 1) Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

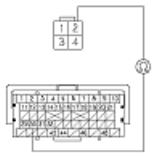


1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and wait 1 minute.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1157 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Jump the SCS line with the HDS.
7. Disconnect the A/F sensor (Sensor 1) 4P connector.
8. Disconnect ECM/PCM connector C (49P).
9. Check for continuity between A/F sensor (Sensor 1) 4P connector terminal No. 1 and ECM/PCM connector terminal C29.

   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wire between the ECM/PCM (C29) and the A/F sensor (Sensor 1), then go to Step 12 .

10. Check for continuity between A/F sensor (Sensor 1) 4P connector terminal No. 2 and ECM/PCM connector terminal C30.



Is there continuity?
YES - Go to Step 11 .
NO - Repair open in the wire between the ECM/PCM (C30) and the A/F sensor (Sensor 1), then go to Step 12 .

11. Replace the A/F sensor (Sensor 1).
12. Reconnect all connectors.
13. Turn the ignition switch to ON (II).
14. Reset the ECM/PCM with the HDS.
15. Do the ECM/PCM idle learn procedure.
16. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P1157 indicated?
YES - Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to Step 1 . If the connector and terminal fits are OK, go to Step 18 .
NO - Go to Step 17 .

17. Monitor the OBD STATUS for DTC P1157 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 16 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to Step 1 . If the screen indicates NOT COMPLETED, go to Step 15 .

18. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
19. Start the engine, and let it idle.
20. Check for Temporary DTCs or DTCs with the HDS.

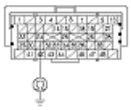
Is DTC P1157 indicated?
YES - If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 19 . If the ECM/PCM was substituted, go to Step 1 .
NO - Go to Step 21 .

21. Monitor the OBD STATUS for DTC P1157 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs were indicated in Step 20 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, go to Step 1 . If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 19 . If the ECM/PCM was substituted, go to Step 1 . If the screen indicates NOT COMPLETED, let the until a result comes on.

DTC Troubleshooting: P1297

DTC P1297:
ELD Circuit Low Voltage



NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check the ELD in the DATA LIST with the HDS.

   Is 72 A or more indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ELD and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the ELD 3P connector.
5. Turn the ignition switch to ON (II).
6. Check the ELD in the DATA LIST with the HDS.

   Is 72 A or more indicated?
   YES - Go to Step 7 .
   NO - Go to Step 11 .
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).
10. Check for continuity between ECM/PCM connector terminal A24 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the ECM/PCM (A24) and the ELD, then go to Step 13 .
    NO - Go to Step 20 .
11. Turn the ignition switch to LOCK (0).
12. Replace the ELD.
13. Reconnect all connectors.
14. Turn the ignition switch to ON (II).
15. Reset the ECM/PCM with the HDS.
16. Do the ECM/PCM idle learn procedure.
17. Start the engine.
18. Turn on the headlights.
19. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1297 indicated?
    YES - Check for poor connections or loose terminals at the ELD and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
20. Reconnect all connectors.
21. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
22. Start the engine.
23. Turn on the headlights.
24. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1297 indicated?
    YES - Check for poor connections or loose terminals at the ELD and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 22 . If the ECM/PCM was substituted, go to Step 1 .
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P1298

DTC P1298:
ELD Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check the ELD in the DATA LIST with the HDS.

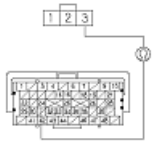
   Is 0.2 A or less indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ELD and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the ELD 3P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between ELD 3P connector terminal No. 1 and body ground.

   Is there battery voltage?
   YES - Go to Step 7 .
   NO - Check the No. 22 METER (7.5 A) fuse in the under-dash fuse/relay box. If the fuse is OK, repair open in the wire between the No. 22 METER (7.5 A) fuse and the ELD, then go to Step 12 .
7. Jump the SCS line with the HDS.
8. Disconnect ECM/PCM connector A (49P).

---

9. Check for continuity between ELD 3P connector terminal No. 3 and ECM/PCM connector terminal A24.

   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wire between the ECM/PCM (A24) and the ELD, then go to Step 12 .



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10. Check for continuity between ELD 3P connector terminal No. 2 and body ground.

    Is there continuity?
    YES - Go to Step 11 .
    NO - Repair open in the wire between the ELD and G501, then go to Step 12 .

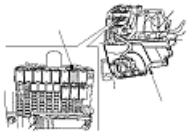
11. Replace the ELD.
12. Reconnect all connectors.
13. Turn the ignition switch to ON (II).
14. Reset the ECM/PCM with the HDS.
15. Do the ECM/PCM idle learn procedure.
16. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1298 indicated?
    YES - Go to Step 17 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
17. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
18. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1298 indicated?
    YES - Check for poor connections or loose terminals at the ELD and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P1658 (40)

DTC P1658:
ETCS Control Relay ON Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.



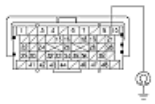
1. Turn the ignition switch to ON (II).
2. Do the ETCS TEST in the INSPECTION MENU with the HDS.

   Is the RELAY circuit OK?
   YES - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ETCS control relay and the ECM/PCM.■
   NO - Go to Step 3 .
3. Turn the ignition switch to LOCK (0).
4. Open the fuse lid (A), then remove the ETCS control relay (B) from the under-dash fuse/relay box.
5. Test the ETCS control relay.

   Is the ETCS control relay OK?
   YES - Go to Step 6 .
   NO - Replace the ETCS control relay, then go to Step 13 .
6. Jump the SCS line with the HDS.
7. Disconnect ECM/PCM connector A (49P).

---

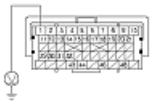
8. Check for continuity between ECM/PCM connector terminal A21 and body ground.



   Is there continuity?
   YES - Repair short in the wire between the ECM/PCM (A21) and the ETCS control relay, then go to Step 13 .
   NO - Go to Step 9 .
9. Disconnect ECM/PCM connector C (49P).
10. Turn the ignition switch to ON (II).

---

11. Measure the voltage between ECM/PCM connector terminal C1 and body ground.



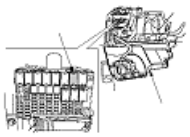
    Is there battery voltage?
    YES - Repair short to power in the wire between the ECM/PCM (C1) and the ETCS control relay, then go to Step 12 .
    NO - Go to Step 18 .
12. Turn the ignition switch to LOCK (0).
13. Reconnect all connectors.
14. Turn the ignition switch to ON (II).
15. Reset the ECM/PCM with the HDS.
16. Do the ECM/PCM idle learn procedure.
17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1658 indicated?
    YES - Check for poor connections or loose terminals at the ETCS control relay and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
18. Turn the ignition switch to LOCK (0).
19. Reconnect all connectors.
20. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
21. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1658 indicated?
    YES - Check for poor connections or loose terminals at the ETCS control relay and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P1659 (40)

DTC P1659:
Electronic Throttle Control System (ETCS) Control Relay OFF Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1659 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ETCS control relay and the ECM/PCM.■
4. Turn the ignition switch to LOCK (0).
5. Check the No. 52 ETCS (15 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?
   YES - Go to Step 6 .
   NO - Go to Step 19 .
6. Open the fuse lid (A), then remove the ETCS control relay (B) from the under-dash fuse/relay box.
7. Test the ETCS control relay.

   Is the ETCS control relay OK?
   YES - Go to Step 8 .
   NO - Replace the ETCS control relay, then go to Step 25 .
8. Turn the ignition switch to ON (II).

---

9. Measure the voltage between ETCS control relay 4P connector terminal No. 3 and body ground.

   Is there battery voltage?
   YES - Go to Step 10 .
   NO - Replace the under-dash fuse/relay box, then go to Step 24 .

---

10. Measure the voltage between ETCS control relay 4P connector terminal No. 2 and body ground.

    Is there battery voltage?
    YES - Go to Step 11 .
    NO - Replace the under-dash fuse/relay box, then go to Step 24 .
11. Turn the ignition switch to LOCK (0).
12. Jump the SCS line with the HDS.
13. Disconnect ECM/PCM connector C (49P).

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14. Connect ETCS control relay 4P connector terminal No. 1 to body ground with the jumper wire.

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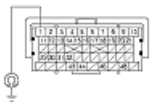
15. Check for continuity between ECM/PCM connector terminal C1 and body ground.

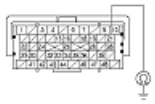


    Is there continuity?
    YES - Go to Step 16 .
    NO - Repair open in the wire between the ECM/PCM (C1) and the ETCS control relay, then go to Step 25 .
16. Disconnect ECM/PCM connector A (49P).

---

17. Connect ETCS control relay 4P connector terminal No. 4 to body ground with the jumper wire.

18. Check for continuity between ECM/PCM connector terminal A21 and body ground.



Is there continuity?
YES - Go to Step 30 .
NO - Repair open in the wire between the ECM/PCM (A21) and the ETCS control relay, then go to Step 25 .

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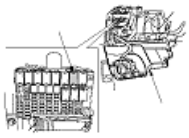
19. Open the fuse lid (A), then remove the ETCS control relay (B) from the under-dash fuse/relay box.
20. Jump the SCS line with the HDS.
21. Disconnect ECM/PCM connector C (49P).



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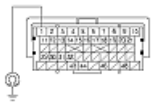
22. Check for continuity between ECM/PCM connector terminal C1 and body ground.



Is there continuity?
YES - Repair short in the wire between the ECM/PCM (C1) and the ETCS control relay, then go to Step 25 .
NO - Go to Step 23 .

---

23. Check for continuity between ETCS control relay 4P connector terminal No. 2 and body ground.

Is there continuity?
YES - Replace the under-hood fuse/relay box, then go to Step 25 .
NO - Go to Step 30 .
24. Turn the ignition switch to LOCK (0).
25. Reconnect all connectors.
26. Turn the ignition switch to ON (II).
27. Reset the ECM/PCM with the HDS.
28. Do the ECM/PCM idle learn procedure.
29. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P1659 indicated?
YES - Check for poor connections or loose terminals at the ETCS control relay and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

30. Reconnect all connectors.
31. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
32. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P1659 indicated?
YES - Check for poor connections or loose terminals at the ETCS control relay and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P1683 (40)

DTC P1683:
Throttle Valve Default Position Spring Performance Problem

⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch to ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm (min^{-1}) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
4. Turn the ignition switch to LOCK (0), and wait 10 seconds.
5. Turn the ignition switch to ON (II).
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1683 indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM.■
7. Turn the ignition switch to LOCK (0).
8. Remove the air cleaner.
9. Push the throttle valve closed as shown.
10. Release the throttle valve.

    Does the throttle valve return?
    YES - Clean the throttle body, then go to Step 12 .
    NO - Go to Step 11 .
11. Replace the throttle body.
12. Turn the ignition switch to ON (II).
13. Reset the ECM/PCM with the HDS.
14. Do the ECM/PCM idle learn procedure.
15. Turn the ignition switch to LOCK (0), and wait 10 seconds.
16. Turn the ignition switch to ON (II).
17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1683 indicated?
    YES - If the throttle body was cleaned, go to Step 11 . If the throttle body was replaced, check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P1684 (40)

DTC P1684:
Throttle Valve Return Spring Performance Problem

⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch to ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm (min^{-1}) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
4. Turn the ignition switch to LOCK (0), and wait 10 seconds.
5. Turn the ignition switch to ON (II).
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1684 indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM.■
7. Turn the ignition switch to LOCK (0).
8. Remove the air cleaner.
9. Push the throttle valve open as shown.
10. Release the throttle valve.

    Does the throttle valve return?
    YES - Clean the throttle body, then go to Step 12 .
    NO - Go to Step 11 .
11. Replace the throttle body.
12. Turn the ignition switch to ON (II).
13. Reset the ECM/PCM with the HDS.
14. Do the ECM/PCM idle learn procedure.
15. Turn the ignition switch to LOCK (0), and wait 10 seconds.
16. Turn the ignition switch to ON (II).
17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1684 indicated?
    YES - If the throttle body was cleaned, go to Step 11 . If the throttle body was replaced, check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P16BC

DTC P16BC:
Alternator FR Terminal Circuit/IGP Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Check for poor connections or loose terminals at the alternator 4P connector.

   Are the connections and terminals OK?
   YES - Go to Step 2 .
   NO - Repair the connector or terminals, then go to Step 18 .

2. Check the alternator mounting surfaces for corrosion.

   Are the mounting surfaces corroded?
   YES - Remove the alternator. Clean all of its mounting surface and reinstall the alternator, then go to Step 18 .
   NO - Go to Step 3 .

3. Turn the ignition switch to ON (II).
4. Clear the DTC with the HDS.
5. Start the engine.
6. Check under these conditions:
   - A/C on
   - Temperature control at maximum cool
   - Blower fan at maximum speed
   - Rear window defogger on
   - Headlights on high beam
7. Hold the engine speed 2,000 rpm (min $^{-1}$) (A/T in P or N, M/T in neutral) for 1 minute.
8. Check for Temporary DTCs or DTCs with the HDS.

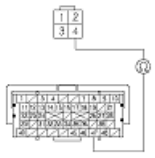
   Is DTC P16BC indicated?
   YES - Go to Step 9 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the alternator.■
9. Turn the ignition switch to LOCK (0).
10. Disconnect the alternator 4P connector.
11. Turn the ignition switch to ON (II).
12. Measure the voltage between alternator 4P connector terminal No. 1 and body ground.

    Is there battery voltage?
    YES - Go to Step 13 .
    NO - Repair open in the wire between the alternator (IG1 line) and the No. 12 ALTERNATOR (10 A) fuse in the under-dash fuse/relay box, then go to Step 18 .

13. Measure the voltage between alternator 4P connector terminal No. 4 and body ground.

    Is there about 5 V?
    YES - Replace the alternator, then go to Step 18 .
    NO - Go to Step 14 .
14. Turn the ignition switch to LOCK (0).
15. Jump the SCS line with the HDS.
16. Disconnect ECM/PCM connector B (49P).

17. Check for continuity between alternator 4P connector terminal No. 4 and ECM/PCM connector terminal B47.



Is there continuity?

YES - Go to Step 27 .

NO - Repair open in the wire between the ECM/PCM (B47) and the alternator, then go to Step 18 .

18. Turn the ignition switch to LOCK (0).
19. Reconnect all connectors.
20. Turn the ignition switch to ON (II).
21. Reset the ECM/PCM with the HDS.
22. Do the ECM/PCM idle learn procedure.
23. Start the engine.
24. Check under these conditions:
    - A/C on
    - Temperature control at maximum cool
    - Blower fan at maximum speed
    - Rear window defogger on
    - Headlights on high beam
25. Hold the engine speed at 2,000 rpm (min $^{-1}$) (A/T in P or N, M/T in neutral) for 1 minute.
26. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P16BC indicated?

YES - Check for poor connections or loose terminals at the alternator and the ECM/PCM, then go to Step 1 .

NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

27. Reconnect all connectors.
28. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
29. Start the engine.
30. Check under these conditions:
    - A/C on
    - Temperature control at maximum cool
    - Blower fan at maximum speed
    - Rear window defogger on
    - Headlights on high beam
31. Hold the engine speed 2,000 rpm (min $^{-1}$) (A/T in P or N, M/T in neutral) for 1 minute.
32. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P16BC indicated?

YES - Check for poor connections or loose terminals at the alternator and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 29 . If the ECM/PCM was substituted, go to Step 1 .

NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2101 (40)

DTC P2101:
ETCS Malfunction

⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch to ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

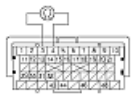
1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Do the ETCS TEST in the INSPECTION MENU with the HDS.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2101 indicated?
   YES - Go to Step 7 .
   NO - Go to Step 5 .
5. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
   - ENGINE SPEED
   - VSS
   - APP SENSOR A
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2101 indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then clean the throttle body. ■
7. Turn the ignition switch to LOCK (0).
8. Remove the air cleaner.
9. Turn the ignition switch to ON (II).
10. Clear the DTC with the HDS.
11. Do the ETCS TEST in the INSPECTION MENU with the HDS.
12. Visually check the throttle valve operation.

    Does the throttle valve operate smoothly?
    YES - Clean the throttle body, then go to Step 22 and recheck. If DTC P2101 is indicated, go to Step 19 .
    NO - Go to Step 13 .
13. Turn the ignition switch to LOCK (0).
14. Disconnect the throttle body 6P connector.
15. Jump the SCS line with the HDS.
16. Disconnect ECM/PCM connector C (49P).
17. Connect throttle body 6P connector terminals No. 5 and No. 6 with a jumper wire.

18. Check for continuity between ECM/PCM connector terminals C3 and C4.



Is there continuity?
YES - Go to Step 27 .
NO - Repair open in the wires between the throttle body and the ECM/PCM (C3, C4), then go to Step 21 .

19. Turn the ignition switch to LOCK (0).

20. Replace the throttle body.

21. Reconnect all connectors.

22. Turn the ignition switch to ON (II).

23. Reset the ECM/PCM with the HDS.

24. Do the ECM/PCM idle learn procedure.

25. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
    - ENGINE SPEED
    - VSS
    - APP SENSOR A

26. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2101 indicated?
YES - Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then clean the throttle body, and go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

27. Reconnect all connectors.

28. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.

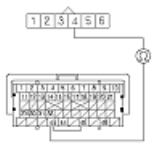
29. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
    - ENGINE SPEED
    - VSS
    - APP SENSOR A

30. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2101 indicated?
YES - Check for poor connections or loose terminals at the throttle body and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 28 . If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2118 (40)

DTC P2118:
Throttle Actuator Current Range/Performance Problem
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Slowly press the accelerator pedal to the floor.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2118 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Jump the SCS line with the HDS.
7. Disconnect the throttle body 6P connector.
8. Disconnect ECM/PCM connector C (49P).
9. Check for continuity between ECM/PCM connector terminal C43 and throttle body 6P connector terminal No. 4.

   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wire between the throttle body and the ECM/PCM (C43), then go to Step 14 .

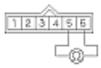
10. Check for continuity between throttle body 6P connector terminals No. 5 and No. 6.

    Is there continuity?
    YES - Repair short in the wires between throttle body 6P connector terminals No. 5 (ETCS− line) and No. 6 (ETCS+ line), then go to Step 14 .
    NO - Go to Step 11 .

11. Check for continuity between body ground and throttle body 6P connector terminals No. 5 and No. 6 individually.

    Is there continuity?
    YES - Repair short in the wire between the throttle body 6P connector and body ground, then go to Step 14 .
    NO - Go to Step 12 .

12. At the throttle body side, measure the resistance between throttle body 6P connector terminals No. 5 and No. 6 with the throttle fully closed.



Is there about 1.0 Ω or less?
YES - Go to Step 13 .
NO - Go to Step 22 .

13. Replace the throttle body.
14. Reconnect all connectors.
15. Turn the ignition switch to ON (II).
16. Reset the ECM/PCM with the HDS.
17. Do the ECM/PCM idle learn procedure.
18. Turn the ignition switch to LOCK (0).
19. Turn the ignition switch to ON (II).
20. Slowly press the accelerator pedal to the floor.
21. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2118 indicated?
YES - Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

22. Reconnect all connectors.
23. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
24. Turn the ignition switch to LOCK (0).
25. Turn the ignition switch to ON (II).
26. Slowly press the accelerator pedal to the floor.
27. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2118 indicated?
YES - Check for poor connections or loose terminals at the throttle body and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 24 . If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2122 (37)

DTC P2122:
APP Sensor A (TP Sensor D) Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check APP SENSOR A in the DATA LIST with the HDS.

   Is there about 0.2 V or less?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at APP sensor A and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between APP sensor 6P connector terminals No. 1 and No. 2.

   Is there about 5 V?
   YES - Go to Step 7 .
   NO - Go to Step 17 .
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).

---

10. Check for continuity between APP sensor 6P connector terminal No. 3 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the ECM/PCM (A18) and APP sensor A, then go to Step 24 .
    NO - Go to Step 11 .

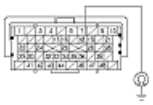
---

11. Connect APP sensor 6P connector terminal No. 3 to body ground with a jumper wire.

---

12. Check for continuity between ECM/PCM connector terminal A18 and body ground.

    Is there continuity?
    YES - Go to Step 13 .
    NO - Repair open in the wire between the ECM/PCM (A18) and APP sensor A, then go to Step 24 .
13. Reconnect ECM/PCM connector A (49P).



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14. Connect APP sensor 6P connector terminals No. 1 and No. 3 with a jumper wire.
15. Turn the ignition switch to ON (II).
16. Check APP SENSOR A in the DATA LIST with the HDS.

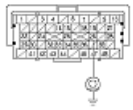
    Is there about 0.2 V or less?
    YES - Go to Step 29 .
    NO - Go to Step 22 .
17. Turn the ignition switch to LOCK (0).
18. Jump the SCS line with the HDS.
19. Disconnect ECM/PCM connector A (49P).

---

20. Connect APP sensor 6P connector terminal No. 1 to body ground with a jumper wire.

---

21. Check for continuity between ECM/PCM connector terminal A26 and body ground.



Is there continuity?

YES - Go to Step 29 .
NO - Repair open in the wire between the ECM/PCM (A26) and APP sensor A, then go to Step 24 .

22. Turn the ignition switch to LOCK (0).
23. Replace the accelerator pedal module.
24. Reconnect all connectors.
25. Turn the ignition switch to ON (II).
26. Reset the ECM/PCM with the HDS.
27. Do the ECM/PCM idle learn procedure.
28. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2122 indicated?

YES - Check for poor connections or loose terminals at APP sensor A and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

29. Turn the ignition switch to LOCK (0).
30. Reconnect all connectors.
31. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
32. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2122 indicated?

YES - Check for poor connections or loose terminals at APP sensor A and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2123 (37)

DTC P2123:
APP Sensor A (TP Sensor D) Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check APP SENSOR A in the DATA LIST with the HDS.

   Is there about 4.9 V or more?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at APP sensor A and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between APP sensor 6P connector terminals No. 1 and No. 2.

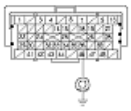
   Is there about 5 V?
   YES - Go to Step 12 .
   NO - Go to Step 7 .
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).

---

10. Connect APP sensor 6P connector terminal No. 2 to body ground with a jumper wire.

---

11. Check for continuity between ECM/PCM connector terminal A36 and body ground.

    Is there continuity?
    YES - Go to Step 19 .
    NO - Repair open in the wire between the ECM/PCM (A36) and APP sensor A, then go to Step 14 .
12. Turn the ignition switch to LOCK (0).
13. Replace the accelerator pedal module.
14. Reconnect all connectors.
15. Turn the ignition switch to ON (II).
16. Reset the ECM/PCM with the HDS.
17. Do the ECM/PCM idle learn procedure.
18. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2123 indicated?
    YES - Check for poor connections or loose terminals at APP sensor A and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
19. Reconnect all connectors.
20. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
21. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2123 indicated?
    YES - Check for poor connections or loose terminals at APP sensor A and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2127 (37)

DTC P2127:
APP Sensor B (TP Sensor E) Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check APP SENSOR B in the DATA LIST with the HDS.

   Is there about 0.2 V or less?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at APP sensor B and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between APP sensor 6P connector terminals No. 4 and No. 5.

   Is there about 5 V?
   YES - Go to Step 7 .
   NO - Go to Step 17 .
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).

---

10. Check for continuity between APP sensor 6P connector terminal No. 6 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the ECM/PCM (A19) and APP sensor B, then go to Step 24 .
    NO - Go to Step 11 .

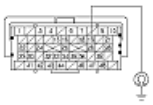
---

11. Connect APP sensor 6P connector terminal No. 6 to body ground with a jumper wire.

---

12. Check for continuity between ECM/PCM connector terminal A19 and body ground.

    Is there continuity?
    YES - Go to Step 13 .
    NO - Repair open in the wire between the ECM/PCM (A19) and APP sensor B, then go to Step 24 .
13. Reconnect ECM/PCM connector A (49P).



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14. Connect APP sensor 6P connector terminals No. 4 and No. 6 with a jumper wire.
15. Turn the ignition switch to ON (II).
16. Check APP SENSOR B in the DATA LIST with the HDS.

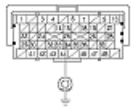
    Is there about 0.2 V or less?
    YES - Go to Step 29 .
    NO - Go to Step 22 .
17. Turn the ignition switch to LOCK (0).
18. Jump the SCS line with the HDS.
19. Disconnect ECM/PCM connector A (49P).

---

20. Connect APP sensor 6P connector terminal No. 4 to body ground with a jumper wire.

---

21. Check for continuity between ECM/PCM connector terminal A25 and body ground.



Is there continuity?

YES - Go to Step 29 .
NO - Repair open in the wire between the ECM/PCM (A25) and APP sensor B, then go to Step 24 .

22. Turn the ignition switch to LOCK (0).
23. Replace the accelerator pedal module.
24. Reconnect all connectors.
25. Turn the ignition switch to ON (II).
26. Reset the ECM/PCM with the HDS.
27. Do the ECM/PCM idle learn procedure.
28. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2127 indicated?

YES - Check for poor connections or loose terminals at APP sensor B and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

29. Turn the ignition switch to LOCK (0).
30. Reconnect all connectors.
31. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
32. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2127 indicated?

YES - Check for poor connections or loose terminals at APP sensor B and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2128 (37)

DTC P2128:
APP Sensor B (TP Sensor E) Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check APP SENSOR B in the DATA LIST with the HDS.

   Is there about 4.9 V or more?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals APP sensor B and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between APP sensor 6P connector terminals No. 4 and No. 5.

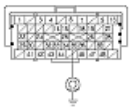
   Is there about 5 V?
   YES - Go to Step 12 .
   NO - Go to Step 7 .
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).

---

10. Connect APP sensor 6P connector terminal No. 5 to body ground with a jumper wire.

---

11. Check for continuity between ECM/PCM connector terminal A35 and body ground.



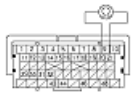
   Is there continuity?
   YES - Go to Step 19 .
   NO - Repair open in the wire between the ECM/PCM (A35) and APP sensor B, then go to Step 14 .
12. Turn the ignition switch to LOCK (0).
13. Replace the accelerator pedal module.
14. Reconnect all connectors.
15. Turn the ignition switch to ON (II).
16. Reset the ECM/PCM with the HDS.
17. Do the ECM/PCM idle learn procedure.
18. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2128 indicated?
   YES - Check for poor connections or loose terminals at APP sensor B and the ECM/PCM, then go to Step 1 .
   NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
19. Reconnect all connectors.
20. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
21. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2128 indicated?
   YES - Check for poor connections or loose terminals at APP sensor B and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
   NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2135 (7)

DTC P2135:
TP Sensor A/B Incorrect Voltage Correlation



⚠CAUTION
Do not insert your fingers into the installed throttle body when you turn the ignition switch to ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

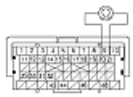
1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Do the ETCS TEST in the INSPECTION MENU with the HDS.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2135 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the intake air duct from the throttle body.
7. Turn the ignition switch to ON (II).
8. Clear the DTC with the HDS.
9. Visually check the throttle valve operation.

   Does the valve temporarily move to its fully closed position?
   YES - Go to Step 16 .
   NO - Go to Step 10 .
10. Turn the ignition switch to LOCK (0).
11. Jump the SCS line with the HDS.
12. Disconnect ECM/PCM connector C (44P).
13. Check for continuity between ECM/PCM connector terminals C20 and C21.

    Is there continuity?
    YES - Go to Step 14 .
    NO - Go to Step 23 .
14. Disconnect the throttle body 6P connector.

15. Check for continuity between ECM/PCM connector terminals C20 and C21.



Is there continuity?

YES - Repair short in the wire between the ECM/PCM connector terminals C20 (TPSA line) and C21 (TPSB line), then go to Step 18 .

NO - Go to Step 16 .

16. Turn the ignition switch to LOCK (0).
17. Replace the throttle body.
18. Reconnect all connectors.
19. Turn the ignition switch to ON (II).
20. Reset the ECM/PCM with the HDS.
21. Do the ECM/PCM idle learn procedure.
22. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2135 indicated?

YES - Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to Step 1 .

NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

23. Reconnect all connectors.
24. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
25. Check for Temporary DTCs or DTCs with the HDS.

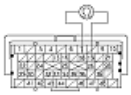
Is DTC P2135 indicated?

YES - Check for poor connections or loose terminals at the throttle body and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .

NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2138 (37)

DTC P2138:
APP Sensor A/B (TP Sensor D/E) Incorrect Voltage Correlation
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.



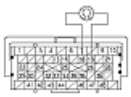
1. Turn the ignition switch to ON (II).
2. Clear the DTC with HDS.
3. Press the accelerator pedal to the floor.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2138 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the APP sensor and the ECM/PCM.■
5. Check APP SENSOR A and APP SENSOR B in the DATA LIST with the HDS.

   Are they the same voltage?
   YES - Go to Step 6 .
   NO - Go to Step 12 .
6. Turn the ignition switch to LOCK (0).
7. Jump the SCS line with the HDS.
8. Disconnect ECM/PCM connector A (49P).
9. Check for continuity between ECM/PCM connector terminals A18 and A19.

   Is there continuity?
   YES - Go to Step 10 .
   NO - Go to Step 22 .
10. Disconnect the APP sensor 6P connector.

11. Check for continuity between ECM/PCM connector terminals A18 and A19.



Is there continuity?

YES - Repair short in the wires between ECM/PCM connector terminals A18 (APSA line) and A19 (APSB line), then go to Step 14 .

NO - Go to Step 13 .

12. Turn the ignition switch to LOCK (0).
13. Replace the accelerator pedal module.
14. Reconnect all connectors.
15. Turn the ignition switch to ON (II).
16. Reset the ECM/PCM with the HDS.
17. Do the ECM/PCM idle learn procedure.
18. Turn the ignition switch to LOCK (0).
19. Turn the ignition switch to ON (II).
20. Press the accelerator pedal to the floor.
21. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2138 indicated?

YES - Check for poor connections or loose terminals at APP sensor A/B and the ECM/PCM, then go to Step 1 .

NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

22. Reconnect all connectors.
23. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
24. Turn the ignition switch to LOCK (0).
25. Turn the ignition switch to ON (II).
26. Press the accelerator pedal to the floor.
27. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2138 indicated?

YES - Check for poor connections or loose terminals at APP sensor A/B and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 23 . If the ECM/PCM was substituted, go to Step 1 .

NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2176 (40)

DTC P2176:
Throttle Actuator Control System Idle Position Not Learned

⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch to ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.
- If DTC P2135 is stored at the same time as DTC P2176, troubleshoot DTC P2135 first, then recheck for DTC P2176.

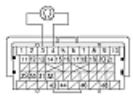
1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II), and wait 10 seconds.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2176 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then clean the throttle body. ■
6. Turn the ignition switch to LOCK (0).
7. Remove the air cleaner.
8. Turn the ignition switch to ON (II).
9. Clear the DTC with the HDS.
10. Visually check the throttle valve operation while performing the ETCS TEST in the INSPECTION MENU with the HDS.

    Does the throttle valve move to its fully closed position?
    YES - Go to Step 11 .
    NO - Go to Step 12 .
11. Check for sludge or carbon on the throttle valve.

    Is there sludge or carbon on the throttle valve?
    YES - Clean the throttle body, then go to Step 21 .
    NO - Go to Step 18 .
12. Turn the ignition switch to LOCK (0).
13. Disconnect the throttle body 6P connector.
14. Jump the SCS line with the HDS.
15. Disconnect ECM/PCM connector C (49P).
16. Connect throttle body 6P connector terminals No. 5 and No. 6 with a jumper wire.

17. Check for continuity between ECM/PCM connector terminals C3 and C4.



Is there continuity?
YES - Go to Step 27 .
NO - Repair open in the wires between the throttle body and the ECM/PCM (C3, C4), then go to Step 20 .

18. Turn the ignition switch to LOCK (0).
19. Replace the throttle body.
20. Reconnect all connectors.
21. Turn the ignition switch to ON (II).
22. Reset the ECM/PCM with the HDS.
23. Do the ECM/PCM idle learn procedure.
24. Turn the ignition switch to LOCK (0).
25. Turn the ignition switch to ON (II), and wait 10 seconds.
26. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2176 indicated?
YES - Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then clean the throttle body, and go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

27. Reconnect all connectors.
28. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
29. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2176 indicated?
YES - Check for poor connections or loose terminals at the throttle body and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2184 (192)

DTC P2184:
ECT Sensor 2 Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check ECT SENSOR 2 in the DATA LIST with the HDS.

   Is about 180 °C (356 °F) or more, or 0.08 V or less indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 2 and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the ECT sensor 2 2P connector.
5. Turn the ignition switch to ON (II).
6. Check ECT SENSOR 2 in the DATA LIST with the HDS.

   Is about 180 °C (356 °F) or more, or 0.08 V or less indicated?
   YES - Go to Step 7 .
   NO - Go to Step 11 .
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).
10. Check for continuity between ECT sensor 2 2P connector terminal No. 2 and body ground.

    Is there continuity?
    YES - Repair short in the wire between ECT sensor 2 and the ECM/PCM (A34), then go to Step 13 .
    NO - Go to Step 18 .
11. Turn the ignition switch to LOCK (0).
12. Replace ECT sensor 2.
13. Reconnect all connectors.
14. Turn the ignition switch to ON (II).
15. Reset the ECM/PCM with the HDS.
16. Do the ECM/PCM idle learn procedure.
17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2184 indicated?
    YES - Check for poor connections or loose terminals at ECT sensor 2 and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
18. Reconnect all connectors.
19. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
20. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2184 indicated?
    YES - Check for poor connections or loose terminals at ECT sensor 2 and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2185 (192)

DTC P2185:
ECT Sensor 2 Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check ECT SENSOR 2 in the DATA LIST with the HDS.

   Is about −40 °C (−40 °F) or less, or 4.90 V or more indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 2 and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the ECT sensor 2 2P connector.
5. Connect ECT sensor 2 2P connector terminals No. 1 and No. 2 with a jumper wire.
6. Turn the ignition switch to ON (II).
7. Check ECT SENSOR 2 in the DATA LIST with the HDS.

   Is about −40 °C (−40 °F) or less, or 4.90 V or more indicated?
   YES - Go to Step 8 .
   NO - Go to Step 20 .
8. Turn the ignition switch to LOCK (0).
9. Remove the jumper wire from ECT sensor 2 2P connector.
10. Turn the ignition switch to ON (II).

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11. Measure the voltage between ECT sensor 2 2P connector terminal No. 2 and body ground.

    Is there about 5 V?
    YES - Go to Step 12 .
    NO - Go to Step 16 .
12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.
14. Disconnect ECM/PCM connector A (49P).

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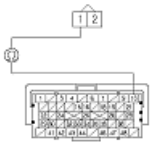
15. Check for continuity between ECT sensor 2 2P connector terminal No. 1 and ECM/PCM connector terminal A10.



    Is there continuity?
    YES - Go to Step 27 .
    NO - Repair open in the wire between the ECM/PCM (A10) and ECT sensor 2, then go to Step 22 .
16. Turn the ignition switch to LOCK (0).
17. Jump the SCS line with the HDS.
18. Disconnect ECM/PCM connector A (49P).

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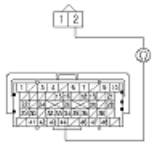
19. Check for continuity between ECT sensor 2 2P connector terminal No. 2 and ECM/PCM connector terminal A34.



Is there continuity?
YES - Go to Step 27 .
NO - Repair open in the wire between the ECM/PCM (A34) and ECT sensor 2, then go to Step 22 .

20. Turn the ignition switch to LOCK (0).
21. Replace ECT sensor 2.
22. Reconnect all connectors.
23. Turn the ignition switch to ON (II).
24. Reset the ECM/PCM with the HDS.
25. Do the ECM/PCM idle learn procedure.
26. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2185 indicated?
YES - Check for poor connections or loose terminals at ECT sensor 2 and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

27. Reconnect all connectors.
28. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
29. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2185 indicated?
YES - Check for poor connections or loose terminals at ECT sensor 2 and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2228 (13)

DTC P2228:
BARO Sensor Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check the BARO SENSOR in the DATA LIST with the HDS.

   Is about 43 kPa (323 mmHg, 12.7 in.Hg), or 1.3 V or less indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time.■
3. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2228 indicated?
   YES - Check for poor connections or loose terminals at the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
   NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2229 (13)

DTC P2229:
BARO Sensor Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

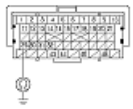
1. Turn the ignition switch to ON (II).
2. Check the BARO SENSOR in the DATA LIST with the HDS.

   Is about 160 kPa (1,200 mmHg, 47.2 in.Hg), or 4.5 V or more indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time.■
3. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2229 indicated?
   YES - Check for poor connections or loose terminals at the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
   NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2238 (48)

DTC P2238:
A/F Sensor (Sensor 1) AFS+ Line Low Voltage



NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2238 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM.■
4. Turn the ignition switch to LOCK (0).
5. Jump the SCS line with the HDS.
6. Remove the cowl cover and under cowl-cover panel.
7. Disconnect the A/F sensor (Sensor 1) 4P connector.
8. Disconnect ECM/PCM connector C (49P).
9. Check for continuity between ECM/PCM connector terminal C29 and body ground.

   Is there continuity?
   YES - Repair short in the wire between the ECM/PCM (C29) and the A/F sensor (Sensor 1), then go to Step 11 .
   NO - Go to Step 10 .
10. Replace the A/F sensor (Sensor 1).
11. Reconnect all connectors.
12. Turn the ignition switch to ON (II).
13. Reset the ECM/PCM with the HDS.
14. Do the ECM/PCM idle learn procedure.
15. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2238 indicated?
    YES - Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to Step 1 . If the connector and terminal fits are OK, go to Step 17 .
    NO - Go to Step 16 .
16. Monitor the OBD STATUS for DTC P2238 in the DTCs MENU with the HDS.

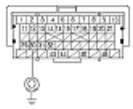
    Does the screen indicate PASSED?
    YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 15 , go to the indicated DTC's troubleshooting.■
    NO - If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to Step 1 . If the screen indicates NOT COMPLETED, go to Step 13 .
17. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
18. Start the engine, and let it idle.
19. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2238 indicated?
    YES - If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 18 . If the ECM/PCM was substituted, go to Step 1 .
    NO - Go to Step 20 .
20. Monitor the OBD STATUS for DTC P2238 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?
    YES - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs were indicated in Step 19 , go to the indicated DTC's troubleshooting.■
    NO - If the screen indicates FAILED, go to Step 1 . If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 18 . If the ECM/PCM was substituted, go to Step 1 . If the screen indicates NOT COMPLETED, keep idling until a result come on.

DTC Troubleshooting: P2252 (48)

DTC P2252:
A/F Sensor (Sensor 1) AFS− Line Low Voltage



NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2252 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Jump the SCS line with the HDS.
7. Remove the cowl cover and under cowl-cover panel.
8. Disconnect the A/F sensor (Sensor 1) 4P connector.
9. Disconnect ECM/PCM connector C (49P).
10. Check for continuity between ECM/PCM connector terminal C30 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the ECM/PCM (C30) and the A/F sensor (Sensor 1), then go to Step 12 .
    NO - Go to Step 11 .
11. Replace the A/F sensor (Sensor 1).
12. Reconnect all connectors.
13. Turn the ignition switch to ON (II).
14. Reset the ECM/PCM with the HDS.
15. Do the ECM/PCM idle learn procedure.
16. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2252 indicated?
    YES - Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to Step 1 . If the connector and terminal fits are OK, go to Step 18 .
    NO - Go to Step 17 .
17. Monitor the OBD STATUS for DTC P2252 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?
    YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 16 , go to the indicated DTC's troubleshooting.■
    NO - If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to Step 1 . If the screen indicates NOT COMPLETED, go to Step 14 .
18. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
19. Start the engine, and let it idle.
20. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2252 indicated?
    YES - If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 19 . If the ECM/PCM was substituted, go to Step 1 .
    NO - Go to Step 21 .
21. Monitor the OBD STATUS for DTC P2252 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?
    YES - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs were indicated in Step 20 , go to the indicated DTC's troubleshooting.■
    NO - If the screen indicates FAILED, go to Step 1 . If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 19 . If the ECM/PCM was substituted, go to Step 1 . If the screen indicates NOT COMPLETED, keep idling until a result come on.

DTC Troubleshooting: P2610 (132)

DTC P2610:
ECM/PCM Ignition Off Internal Timer Performance Problem
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2610 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time.■
4. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2610 indicated?
   YES - If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
   NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2648 (21)

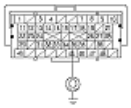
DTC P2648:
Rocker Arm Oil Control Solenoid Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Select the VTEC TEST in the INSPECTION MENU with in the HDS.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2648 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the rocker arm oil control solenoid 2P connector.
7. Measure the resistance between the rocker arm oil control solenoid 2P connector terminals No. 1 and No. 2.

   Is there 14−30 Ω at room temperature?
   YES - Go to Step 8 .
   NO - Go to Step 11 .
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector B (49P).

10. Check for continuity between ECM/PCM connector terminal B35 and body ground.



Is there continuity?
YES - Repair short in the wire between the ECM/PCM (B35) and the rocker arm oil control solenoid, then go to Step 12 .
NO - Go to Step 19 .

11. Replace the rocker arm oil control valve.
12. Reconnect all connectors.
13. Turn the ignition switch to ON (II).
14. Reset the ECM/PCM with the HDS.
15. Do the ECM/PCM idle learn procedure.
16. Do the VTEC TEST in the INSPECTION MENU with the HDS.
17. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2648 indicated?
YES - Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM, then go to Step 1 .
NO - Go to Step 18 .

18. Monitor the OBD STATUS for DTC P2648 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 17 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM, then go to Step 1 . If the screen indicates NOT COMPLETED, go to Step 16 .

19. Reconnect all connectors.
20. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
21. Do the VTEC TEST in the INSPECTION MENU with the HDS.
22. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2648 indicated?
YES - Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 21 . If the ECM/PCM was substituted, go to Step 1 .
NO - Go to Step 23 .

23. Monitor the OBD STATUS for DTC P2648 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs were indicated in Step 22 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 21 . If the ECM/PCM was substituted, go to Step 1 . If the screen indicates NOT COMPLETED, go to Step 21 .

DTC Troubleshooting: P2649 (21)

DTC P2649:
Rocker Arm Oil Control Solenoid Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
4. Check for Temporary DTCs or DTCs with the HDS.

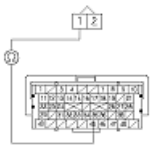
   Is DTC P2649 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the rocker arm oil control solenoid 2P connector.
7. At the solenoid side, measure the resistance between rocker arm oil control solenoid 2P connector terminals No. 1 and No. 2.

   Is there 14−30 Ω at room temperature?
   YES - Go to Step 8 .
   NO - Go to Step 11 .

8. Check for continuity between rocker arm oil control solenoid 2P connector terminal No. 2 and body ground.

   Is there continuity?
   YES - Go to Step 9 .
   NO - Repair open in the wire between the rocker arm oil control solenoid and G101, then go to Step 13 .
9. Jump the SCS line with the HDS.
10. Disconnect ECM/PCM connector B (49P).

11. Check for continuity between ECM/PCM connector terminal B35 and rocker arm oil control solenoid 2P connector terminal No. 1.



Is there continuity?
YES - Go to Step 19 .
NO - Repair open in the wire between the ECM/PCM (B35) and the rocker arm oil control solenoid, then go to Step 13 .

12. Replace the rocker arm oil control valve.
13. Reconnect all connectors.
14. Turn the ignition switch to ON (II).
15. Reset the ECM/PCM with the HDS.
16. Do the ECM/PCM idle learn procedure.
17. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2649 indicated?
YES - Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM, then go to Step 1 .
NO - Go to Step 18 .

18. Monitor the OBD STATUS for DTC P2649 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 17 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, go to Step 1 and recheck. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

19. Reconnect all connectors.
20. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
21. Start the engine, and let it idle.
22. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2649 indicated?
YES - Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 21 . If the ECM/PCM was substituted, go to Step 1 .
NO - Go to Step 23 .

23. Monitor the OBD STATUS for DTC P2649 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs were indicated in Step 21 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 21 . If the ECM/PCM was substituted, go to Step 1 . If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC Troubleshooting: U0029 (126)

DTC U0029:
F-CAN Malfunction (BUS-OFF (ECM/PCM))
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

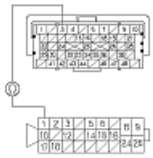
1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC U0029 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time.■
4. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC U0029 indicated?
   YES - If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
   NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: U0121 - PGM-FI System

DTC U0121:
F-CAN Malfunction (ECM/PCM-ABS Modulator-Control Unit)
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.



1. Turn the ignition switch to ON (II).
2. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC U0029 and U0121 indicated at the same time?
   YES - Go to the troubleshooting for DTC U0029.■
   NO - Go to Step 3 .
3. Clear the DTC with the HDS.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC U0121 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ABS modulator-control unit, and the ECM/PCM.■
5. Check for communication to the ABS system with the HDS.

   Does the HDS communicate with the ABS modulator-control unit?
   YES - Go to Step 6 .
   NO - Go to the DLC circuit troubleshooting. ■
6. Turn the ignition switch to LOCK (0).
7. Jump the SCS line with the HDS.
8. Disconnect the ABS modulator-control unit 25P connector.
9. Disconnect ECM/PCM connector A (49P).
10. Check for continuity between ECM/PCM connector terminal A3 and ABS modulator-control unit 25P connector terminal No. 1.

    Is there continuity?
    YES - Go to Step 11 .
    NO - Repair open in the wire between the ECM/PCM (A3) and the ABS modulator-control unit, then go to Step 12 .

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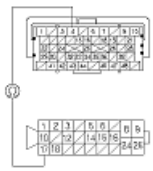
11. Check for continuity between ECM/PCM connector terminal A4 and ABS modulator-control unit 25P connector terminal No. 17.

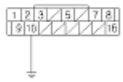


    Is there continuity?
    YES - Substitute a known-good ABS modulator-control unit, then go to Step 12 and recheck. If DTC U0121 is not indicated after substitution, replace the original ABS modulator-control unit, then go to Step 12 .
    NO - Repair open in the wire between the ECM/PCM (A4) and the ABS modulator-control unit, then go to Step 12 .
12. Reconnect all connectors.
13. Turn the ignition switch to ON (II).
14. Reset the ECM/PCM with the HDS.
15. Do the ECM/PCM idle learn procedure.
16. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC U0122 indicated?
    YES - Check for poor connections or loose terminals at the gauge control module, the ABS modulator-control unit, and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: U0131

DTC U0131:
F-CAN Malfunction (ECM/PCM-EPS Control Unit)
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.



1. Turn the ignition switch to ON (II).
2. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC U0029 and U0131 indicated at the same time?
   YES - Go to the troubleshooting for DTC U0029.■
   NO - Go to Step 3 .
3. Clear the DTC with the HDS.
4. Check for Temporary DTCs or DTCs with the HDS.

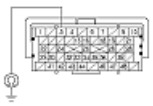
   Is DTC U0131 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EPS control unit and the ECM/PCM.■
5. Check for communication to the EPS system with the HDS.

   Does the HDS communicate with the EPS control unit?
   YES - Go to Step 6 .
   NO - Go to the DLC circuit troubleshooting. ■
6. Turn the ignition switch to LOCK (0).
7. Jump the SCS line with the HDS.
8. Disconnect EPS control unit connector C (16P).
9. Disconnect ECM/PCM connector A (49P).
10. Connect EPS control unit connector terminal C10 to body ground with a jumper wire.

---

11. Check for continuity between ECM/PCM connector terminal A3 and body ground.

    Is there continuity?
    YES - Go to Step 12 .
    NO - Repair open in the wire between the ECM/PCM (A3) and the EPS control unit, then go to Step 14 .



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12. Connect EPS control unit connector terminal C9 to body ground with a jumper wire.

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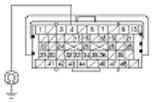
13. Check for continuity between ECM/PCM connector terminal A4 and body ground.

    Is there continuity?
    YES - Substitute a known-good EPS control unit, then go to Step 14 and recheck. If DTC U0131 is not indicated after substitution, replace the original EPS control unit, then go to Step 14 .
    NO - Repair open in the wire between the ECM/PCM (A4) and the EPS control unit, then go to Step 14 .



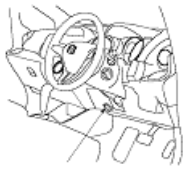
14. Reconnect all connectors.
15. Turn the ignition switch to ON (II).
16. Reset the ECM/PCM with the HDS.
17. Do the ECM/PCM idle learn procedure.
18. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC U0131 indicated?
    YES - Check for poor connections or loose terminals at the EPS control unit and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

ECM/PCM Replacement

NOTE:

- Make sure the HDS is loaded with the latest software version.
- If you are replacing the ECM/PCM after substituting a known-good ECM/PCM, reinstall the original ECM/PCM, then do this procedure.



1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the ECM/PCM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting.
4. Jump the SCS line with the HDS.
5. Turn the ignition switch to LOCK (0).

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6. Remove the ECM/PCM cover (A).

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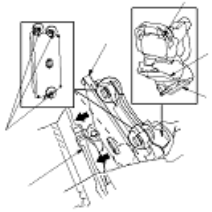
7. Remove the battery setting plate, and reposition the battery (D) away from the ECM/PCM.
   NOTE: Do not disconnect the battery terminals.
8. Remove the bolts (E).
9. Disconnect ECM/PCM connectors A, B, and C, then remove the ECM/PCM (E).
   NOTE: ECM/PCM connectors A, B, and C have symbols (A=□, B=△, C=○) embossed on them for identification.
10. Install a parts in the reverse order of removal.
11. Turn the ignition switch to ON (II).
    NOTE: DTC P0630 ‘‘VIN Not Programmed or Mismatch" may be stored because the VIN has not been programmed into the ECM/PCM; ignore it, and continue this procedure.
12. Manually input the VIN to the ECM/PCM with the HDS.
13. Select the IMMOBI SYSTEM with the HDS.
14. Enter the immobilizer code using the ECM/PCM replacement procedure in the HDS; it allows you to start the engine.
15. Select PGM-FI system and reset the ECM/PCM with the HDS.
16. Update the ECM/PCM if it does not have the latest software.
17. Do the ECM/PCM idle learn procedure.
18. Do the CKP pattern learn procedure.



ECM/PCM Update

Special Tools Required

- Honda diagnostic system (HDS)
- Honda interface module (HIM)
- HDS pocket tester

NOTE:

- Use this procedure when you need to update the ECM/PCM at anytime.
- Make sure the HDS/HIM has the latest software version.
- Before you update the ECM/PCM, make sure the battery in the vehicle is fully charged, and connect a jumper battery (not a battery charger) to maintain system voltage.
- Never turn the ignition switch to LOCK (0) or ACC (I) during the update. If there is a problem with the update, leave the ignition switch to ON.
- To prevent ECM/PCM damage, do not operate anything electrical (headlights, audio system, brakes, A/C, power windows, moonroof (if equipped), door locks, etc.) during the update.
- To ensure the latest program is installed, do an ECM/PCM update whenever the ECM/PCM is substituted or replaced.
- You cannot update an ECM/PCM with a program it already has. It will only accept a new program.
- High temperature in the engine compartment might cause the ECM/PCM to become too hot to run the update. If the engine has been running before this procedure, open the hood and cool the engine compartment.
- If you need to diagnose the Honda interface module (HIM) because the HIM's red (#3) light came on or was flashing during the update, leave the ignition switch in the ON (II) position when you disconnect the HIM from the data link connector (DLC). This will prevent ECM/PCM damage.

1. Turn the ignition switch to ON (II), but do not start the engine.
2. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
3. Make sure the HDS communicates with the ECM/PCM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting.
4. Exit the HDS diagnostic system, then select the update mode, and follow the screen prompts to update the ECM/PCM.
5. If the software in the ECM/PCM is the latest, disconnect the HDS/HIM from the DLC, and go back to the procedure that you were doing. If the software in the ECM/PCM is not the latest, follow the instructions on the screen. If prompted to choose the PGM-FI system or the A/T system (A/T), make sure you update both.
   NOTE: If the ECM/PCM update system requires you to cool the ECM/PCM, follow the instructions on screen. If you run into a problem during the update procedure (programming takes over 15 minutes, status bar goes over 100 %, D (A/T) or immobilizer indicator flashes, HDS tablet freezes, etc.), follow these steps to minimize the chance of damaging the ECM/PCM:
   - Leave the ignition switch in the ON (II) position.
   - Connect a jumper battery (do not connect a battery charger).
   - Shut down the HDS.
   - Disconnect the HDS from the DLC.
   - Reboot the HDS.
   - Reconnect the HDS to the DLC, and try the update procedure again.
6. Do the ECM/PCM idle learn procedure.
7. Do the CKP learn procedure.

DTC Troubleshooting: P0102 (50)

DTC P0102:
MAF Sensor Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II), and wait 2 seconds.
2. Check the MAF SENSOR in the DATA LIST with the HDS.

   Is about 0 gm/s, or 0.1 V or less indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAF sensor and the ECM/PCM.■
3. Check the No. 12 ALTERNATOR (10 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?
   YES - Go to Step 4 .
   NO - Repair short in the wire between the MAF sensor and the No. 12 ALTERNATOR (10 A) fuse. Also replace the No. 12 ALTERNATOR (10 A) fuse, then go to Step 20 .
4. Turn the ignition switch to LOCK (0).
5. Disconnect the MAF sensor/IAT sensor 5P connector.
6. Turn the ignition switch to ON (II).
7. Measure the voltage between MAF sensor/IAT sensor 5P connector terminal No. 5 and body ground.

   Is there battery voltage?
   YES - Go to Step 8 .
   NO - Repair open in the wire between the No. 12 ALTERNATOR (10 A) fuse and the MAF sensor, then go to Step 20 .
8. Turn the ignition switch to LOCK (0).

---

9. Measure the resistance between MAF sensor/IAT sensor 5P connector terminal No. 3 and body ground.

   Is there 190−210 kΩ?
   YES - Go to Step 14 .
   NO - Go to Step 10 .
10. Jump the SCS line with the HDS.
11. Disconnect ECM/PCM connector B (49P).

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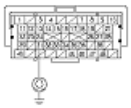
12. Check for continuity between ECM/PCM connector terminal B31 and body ground.



    Is there continuity?
    YES - Repair short in the wire between the ECM/PCM (B31) and the MAF sensor, then go to Step 21 .
    NO - Go to Step 13 .

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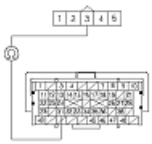
13. Check for continuity between MAF sensor/IAT sensor 5P connector terminal No. 3 and ECM/PCM connector terminal B31.



Is there continuity?
YES - Go to Step 26 .
NO - Repair open in the wire between the ECM/PCM (B31) and the MAF sensor, then go to Step 21 .

14. Substitute a known-good MAF sensor/IAT sensor.
15. Reconnect all connectors.
16. Turn the ignition switch to ON (II).
17. Clear the DTC with the HDS.
18. Start the engine. Hold the engine speed at 2,000 rpm (min^{-1}) without load (A/T in P or N, M/T in neutral).
19. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0102 indicated?
YES - Go to Step 27 .
NO - Replace the original MAF sensor/IAT sensor, then go to Step 20 .

20. Turn the ignition switch to LOCK (0).
21. Reconnect all connectors.
22. Turn the ignition switch to ON (II).
23. Reset the ECM/PCM with the HDS.
24. Do the ECM/PCM idle learn procedure.
25. Check for Temporary DTCs or DTCs with the HDS.

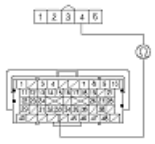
Is DTC P0102 indicated?
YES - Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

26. Reconnect all connectors.
27. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
28. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0102 indicated?
YES - Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0103 (50)

DTC P0103:
MAF Sensor Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.



1. Turn the ignition switch to ON (II), and wait 2 seconds.
2. Check the MAF SENSOR in the DATA LIST with the HDS.

   Is about 202 gm/s, or 4.89 V or more indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAF sensor and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Jump the SCS line with the HDS.
5. Disconnect the MAF sensor/IAT sensor 5P connector.
6. Disconnect ECM/PCM connector B (49P).
7. Check for continuity between MAF sensor/IAT sensor 5P connector terminal No. 4 and ECM/PCM connector terminal B33.

   Is there continuity?
   YES - Go to Step 8 .
   NO - Repair open in the wire between the ECM/PCM (B33) and the MAF sensor, then go to Step 15 .
8. Reconnect ECM/PCM connector B (49P).

---

9. Connect MAF sensor/IAT sensor 5P connector terminals No. 3 and No. 4 with a jumper wire.
10. Turn the ignition switch to ON (II).

11. Clear the DTC with the HDS.
12. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0103 indicated?
    YES - Go to Step 20 .
    NO - Go to Step 13 .
13. Turn the ignition switch to LOCK (0).
14. Replace the MAF sensor/IAT sensor.
15. Reconnect all connectors.
16. Turn the ignition switch to ON (II).
17. Reset the ECM/PCM with the HDS.
18. Do the ECM/PCM idle learn procedure.
19. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0103 indicated?
    YES - Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
20. Reconnect all connectors.
21. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
22. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0103 indicated?
    YES - Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0107 (3)

DTC P0107:
MAP Sensor Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check the MAP SENSOR in the DATA LIST with the HDS.

   Is about 3 kPa (26 mmHg, 1.0 in.Hg), or 0.23 V or less indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the MAP sensor 3P connector.
5. Turn the ignition switch to ON (II).
6. Check the MAP SENSOR in the DATA LIST with the HDS.

   Is about 3 kPa (26 mmHg, 1.0 in.Hg), or 0.23 V or less indicated?
   YES - Go to Step 12 .
   NO - Go to Step 7 .
7. Measure the voltage between MAP sensor 3P connector terminals No. 1 and No. 3.

   Is there about 5 V?
   YES - Go to Step 16 .
   NO - Go to Step 8 .
8. Turn the ignition switch to LOCK (0).
9. Jump the SCS line with the HDS.
10. Disconnect ECM/PCM connector C (49P).

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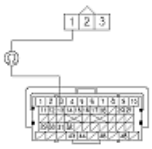
11. Check for continuity between ECM/PCM connector terminal C13 and MAP sensor 3P connector terminal No. 1.

    Is there continuity?
    YES - Go to Step 23 .
    NO - Repair open in the wire between the ECM/PCM (C13) and the MAP sensor, then go to Step 18 .
12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.
14. Disconnect ECM/PCM connector C (49P).

15. Check for continuity between MAP sensor 3P connector terminal No. 2 and body ground.

Is there continuity?

YES - Repair short in the wire between the ECM/PCM (C11) and the MAP sensor, then go to Step 18 .

NO - Go to Step 23 .

16. Turn the ignition switch to LOCK (0).
17. Replace the MAP sensor.
18. Reconnect all connectors.
19. Turn the ignition switch to ON (II).
20. Reset the ECM/PCM with the HDS.
21. Do the ECM/PCM idle learn procedure.
22. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0107 indicated?

YES - Check for poor connections or loose terminals at the MAP sensor and the ECM/PCM, then go to Step 1 .

NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

23. Reconnect all connectors.
24. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
25. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0107 indicated?

YES - Check for poor connections or loose terminals at the MAP sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .

NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0108 (3)

DTC P0108:
MAP Sensor Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check the MAP SENSOR in the DATA LIST with the HDS.

   Is about 160 kPa (1,197 mmHg, 47.1 in.Hg), or 4.49 V or more indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the MAP sensor 3P connector.
5. Connect MAP sensor 3P connector terminals No. 2 and No. 3 with a jumper wire.
6. Turn the ignition switch to ON (II).
7. Check the MAP SENSOR in the DATA LIST with the HDS.

   Is about 160 kPa (1,197 mmHg, 47.1 in.Hg), or 4.49 V or more indicated?
   YES - Go to Step 8 .
   NO - Go to Step 20 .
8. Turn the ignition switch to LOCK (0).
9. Remove the jumper wire from the MAP sensor 3P connector.
10. Turn the ignition switch to ON (II).

---

11. Measure the voltage between MAP sensor 3P connector terminals No. 1 and No. 3.

    Is there about 5 V?
    YES - Go to Step 16 .
    NO - Go to Step 12 .
12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.
14. Disconnect ECM/PCM connector C (49P).

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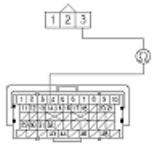
15. Check for continuity between ECM/PCM connector terminal C14 and MAP sensor 3P connector terminal No. 3.



    Is there continuity?
    YES - Go to Step 27 .
    NO - Repair open in the wire between the ECM/PCM (C14) and the MAP sensor, then go to Step 22 .
16. Turn the ignition switch to LOCK (0).
17. Jump the SCS line with the HDS.
18. Disconnect ECM/PCM connector C (49P).

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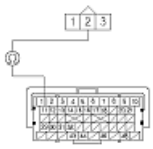
19. Check for continuity between ECM/PCM connector terminal C11 and MAP sensor 3P connector terminal No. 2.



Is there continuity?
YES - Go to Step 27 .
NO - Repair open in the wire between the ECM/PCM (C11) and the MAP sensor, then go to Step 22 .

20. Turn the ignition switch to LOCK (0).
21. Replace the MAP sensor.
22. Reconnect all connectors.
23. Turn the ignition switch to ON (II).
24. Reset the ECM/PCM with the HDS.
25. Do the ECM/PCM idle learn procedure.
26. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0108 indicated?
YES - Check for poor connections or loose terminals at the MAP sensor and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

27. Reconnect all connectors.
28. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
29. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0108 indicated?
YES - Check for poor connections or loose terminals at the MAP sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0112 (10)

DTC P0112:
IAT Sensor Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check the IAT SENSOR in the DATA LIST with the HDS.

   Is about 180 °C (356 °F) or more, or 0.08 V or less indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the IAT sensor and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the MAF sensor/IAT sensor 5P connector.
5. Turn the ignition switch to ON (II).
6. Check the IAT SENSOR in the DATA LIST with the HDS.

   Is about 180 °C (356 °F) or more, or 0.08 V or less indicated?
   YES - Go to Step 7 .
   NO - Go to Step 11 .
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector B (49P).
10. Check for continuity between MAF sensor/IAT sensor 5P connector terminal No. 2 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the IAT sensor and the ECM/PCM (B32), then go to Step 13 .
    NO - Go to Step 18 .
11. Turn the ignition switch to LOCK (0).
12. Replace the MAF sensor/IAT sensor.
13. Reconnect all connectors.
14. Turn the ignition switch to ON (II).
15. Reset the ECM/PCM with the HDS.
16. Do the ECM/PCM idle learn procedure.
17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0112 indicated?
    YES - Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
18. Reconnect all connectors.
19. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
20. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0112 indicated?
    YES - Check for poor connections or loose terminals at the IAT sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0113 (10)

DTC P0113:
IAT Sensor Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check the IAT SENSOR in the DATA LIST with the HDS.

   Is about −40 °C (−40 °F) or less, or 4.90 V or higher indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the IAT sensor and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the MAF sensor/IAT sensor 5P connector.
5. Connect MAF sensor/IAT sensor 5P connector terminals No. 1 and No. 2 with a jumper wire.
6. Turn the ignition switch to ON (II).
7. Check the IAT SENSOR in the DATA LIST with the HDS.

   Is about −40 °C (−40 °F) or less, or 4.90 V or higher indicated?
   YES - Go to Step 8 .
   NO - Go to Step 20 .
8. Turn the ignition switch to LOCK (0).
9. Remove the jumper wire from the MAF sensor/IAT sensor 5P connector.
10. Turn the ignition switch to ON (II).

---

11. Measure the voltage between MAF sensor/IAT sensor 5P connector terminal No. 2 and body ground.

    Is there about 5 V?
    YES - Go to Step 12 .
    NO - Go to Step 16 .
12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.
14. Disconnect ECM/PCM connector B (49P).

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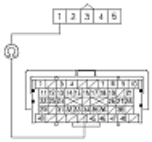
15. Check for continuity between MAF sensor/IAT sensor 5P connector terminal No. 1 and ECM/PCM connector terminal B34.



    Is there continuity?
    YES - Go to Step 27 .
    NO - Repair open in the wire between the ECM/PCM (B34) and the IAT sensor, then go to Step 22 .
16. Turn the ignition switch to LOCK (0).
17. Jump the SCS line with the HDS.
18. Disconnect ECM/PCM connector B (49P).

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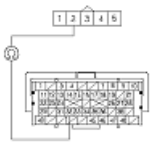
19. Check for continuity between MAF sensor/IAT sensor 5P connector terminal No. 2 and ECM/PCM connector terminal B32.



Is there continuity?

YES - Go to Step 27 .

NO - Repair open in the wire between the ECM/PCM (B32) and the IAT sensor, then go to Step 22 .

20. Turn the ignition switch to LOCK (0).
21. Replace the MAF sensor/IAT sensor.
22. Reconnect all connectors.
23. Turn the ignition switch to ON (II).
24. Reset the ECM/PCM with the HDS.
25. Do the ECM/PCM idle learn procedure.
26. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0113 indicated?

YES - Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the ECM/PCM, then go to Step 1 .

NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

27. Reconnect all connectors.
28. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
29. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0113 indicated?

YES - Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .

NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0117 (6)

DTC P0117:
ECT Sensor 1 Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check ECT SENSOR 1 in the DATA LIST with the HDS.

   Is about 180 °C (356 °F) or more, or 0.08 V or less indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1 and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the ECT sensor 1 2P connector.
5. Turn the ignition switch to ON (II).
6. Check ECT SENSOR 1 in the DATA LIST with the HDS.

   Is about 180 °C (356 °F) or more, or 0.08 V or less indicated?
   YES - Go to Step 7 .
   NO - Go to Step 11 .
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector B (49P).
10. Check for continuity between ECT sensor 1 2P connector terminal No. 1 and body ground.

    Is there continuity?
    YES - Repair short in the wire between ECT sensor 1 and the ECM/PCM (B24), then go to Step 13 .
    NO - Go to Step 18 .
11. Turn the ignition switch to LOCK (0).
12. Replace ECT sensor 1.
13. Reconnect all connectors.
14. Turn the ignition switch to ON (II).
15. Reset the ECM/PCM with the HDS.
16. Do the ECM/PCM idle learn procedure.
17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0117 indicated?
    YES - Check for poor connections or loose terminals at ECT sensor 1 and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
18. Reconnect all connectors.
19. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
20. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0117 indicated?
    YES - Check for poor connections or loose terminals at ECT sensor 1 and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0118 (6)

DTC P0118:
ECT Sensor 1 Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check ECT SENSOR 1 in the DATA LIST with the HDS.

   Is about −40 °C (−40 °F) or less, or 4.90 V or higher indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1 and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the ECT sensor 1 2P connector.
5. Connect ECT sensor 1 2P connector terminals No. 1 and No. 2 with a jumper wire.
6. Turn the ignition switch to ON (II).
7. Check ECT SENSOR 1 in the DATA LIST with the HDS.

   Is about −40 °C (−40 °F) or less, or 4.90 V or higher indicated?
   YES - Go to Step 8 .
   NO - Go to Step 20 .
8. Turn the ignition switch to LOCK (0).
9. Remove the jumper wire from ECT sensor 1 2P connector.
10. Turn the ignition switch to ON (II).

---

11. Measure the voltage between ECT sensor 1 2P connector terminal No. 1 and body ground.

    Is there about 5 V?
    YES - Go to Step 12 .
    NO - Go to Step 16 .
12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.
14. Disconnect ECM/PCM connector B (49P).

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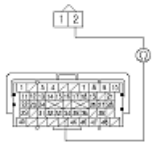
15. Check for continuity between ECT sensor 1 2P connector terminal No. 2 and ECM/PCM connector terminal B34.



    Is there continuity?
    YES - Go to Step 27 .
    NO - Repair open in the wire between the ECM/PCM (B34) and ECT sensor 1, then go to Step 22 .
16. Turn the ignition switch to LOCK (0).
17. Jump the SCS line with the HDS.
18. Disconnect ECM/PCM connector B (49P).

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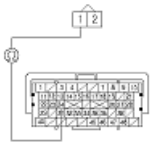
19. Check for continuity between ECT sensor 1 2P connector terminal No. 1 and ECM/PCM connector terminal B24.



Is there continuity?
YES - Go to Step 27 .
NO - Repair open in the wire between the ECM/PCM (B24) and ECT sensor 1, then go to Step 22 .

20. Turn the ignition switch to LOCK (0).
21. Replace ECT sensor 1.
22. Reconnect all connectors.
23. Turn the ignition switch to ON (II).
24. Reset the ECM/PCM with the HDS.
25. Do the ECM/PCM idle learn procedure.
26. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0118 indicated?
YES - Check for poor connections or loose terminals at ECT sensor 1 and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

27. Reconnect all connectors.
28. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
29. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0118 indicated?
YES - Check for poor connections or loose terminals at ECT sensor 1 and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0122 (7)

DTC P0122:
TP Sensor A Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check TP SENSOR A in the DATA LIST with the HDS.

   Is there about 0.3 V or less?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM.■
4. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC P0122 and P0222 indicated at the same time?
   YES - Go to Step 10 .
   NO - Go to Step 5 .
5. Turn the ignition switch to LOCK (0).
6. Disconnect the throttle body 6P connector.
7. Jump the SCS line with the HDS.
8. Disconnect ECM/PCM connector C (49P).
9. Check for continuity between throttle body 6P connector terminal No. 1 and body ground.

   Is there continuity?
   YES - Repair short in the wire between the throttle body and the ECM/PCM (C20), then go to Step 18 .
   NO - Go to Step 23 .

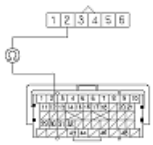
---

10. Measure the voltage between throttle body 6P connector terminal No. 2 and body ground.

    Is there about 5 V?
    YES - Go to Step 16 .
    NO - Go to Step 11 .
11. Turn the ignition switch to LOCK (0).
12. Jump the SCS line with the HDS.
13. Disconnect ECM/PCM connector C (49P).
14. Disconnect the throttle body 6P connector.

---

15. Check for continuity between ECM/PCM connector terminal C12 and throttle body 6P connector terminal No. 2.



Is there continuity?
YES - Go to Step 23 .
NO - Repair open in the wire between the throttle body and the ECM/PCM (C12), then go to Step 18 .

16. Turn the ignition switch to LOCK (0).
17. Replace the throttle body.
18. Reconnect all connectors.
19. Turn the ignition switch to ON (II).
20. Reset the ECM/PCM with the HDS.
21. Do the ECM/PCM idle learn procedure.
22. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0122 indicated?
YES - Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

23. Reconnect all connectors.
24. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
25. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0122 indicated?
YES - Check for poor connections or loose terminals at TP sensor A and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0123 (7)

DTC P0123:
TP Sensor A Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check TP SENSOR A in the DATA LIST with the HDS.

   Is there about 4.8 V or more?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM.■
4. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC P0123 and P0223 indicated at the same time?
   YES - Go to Step 13 .
   NO - Go to Step 5 .
5. Turn the ignition switch to LOCK (0).
6. Disconnect the throttle body 6P connector.
7. Turn the ignition switch to ON (II).
8. Measure the voltage between throttle body 6P connector terminal No. 1 and body ground.

   Is there about 5 V?
   YES - Go to Step 18 .
   NO - Go to Step 9 .
9. Turn the ignition switch to LOCK (0).
10. Jump the SCS line with the HDS.
11. Disconnect ECM/PCM connector C (49P).

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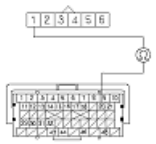
12. Check for continuity between ECM/PCM connector terminal C20 and throttle body 6P connector terminal No. 1.



    Is there continuity?
    YES - Go to Step 25 .
    NO - Repair open in the wire between the throttle body and the ECM/PCM (C20), then go to Step 20 .
13. Turn the ignition switch to LOCK (0).
14. Disconnect the throttle body 6P connector.
15. Jump the SCS line with the HDS.
16. Disconnect ECM/PCM connector C (49P).

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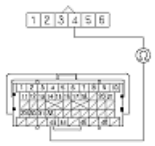
17. Check for continuity between ECM/PCM connector terminal C43 and throttle body 6P connector terminal No. 4.



Is there continuity?
YES - Go to Step 25 .
NO - Repair open in the wire between the throttle body and the ECM/PCM (C43), then go to Step 20 .

18. Turn the ignition switch to LOCK (0).

19. Replace the throttle body.

20. Reconnect all connectors.

21. Turn the ignition switch to ON (II).

22. Reset the ECM/PCM with the HDS.

23. Do the ECM/PCM idle learn procedure.

24. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0123 indicated?
YES - Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

25. Reconnect all connectors.

26. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.

27. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0123 indicated?
YES - Check for poor connections or loose terminals at TP sensor A and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0125 (86)

DTC P0125:
ECT Sensor 1 Malfunction/Slow Response
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Start the engine, and let it idle for 5 minutes or more.
2. Check the ECT SENSOR 1 in the DATA LIST with the HDS.

   Is about −18 °C (0 °F) or less indicated?
   YES - Check for poor connection or loose terminals at ECT SENSOR 1, ECT SENSOR 2, and the ECM/PCM. If they are OK, replace ECT SENSOR 1.
   NO - Go to Step 3 .
3. Turn the ignition switch to LOCK (0).
4. Allow the engine to cool 40 °C (104 °F) or less.
5. Make sure the temperature difference of ECT SENSOR 1 and ECT SENSOR 2 is between about 10 °C (50 °F) in the DATA LIST with the HDS.
6. Start the engine, and let it idle until ECT sensor 1goes up around 70 °C (158 °F).

   Dose ECT sensor 2 also show about 70 °C (158 °F)?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the ECM/PCM.■
7. Check the thermostat.

   Is the thermostat OK?
   YES - Check for poor connection or loose terminals at ECT SENSOR1, ECT SENSOR 2, and the ECM/PCM. If they are OK, replace ECT SENSOR 1, then go to Step 8 .
   NO - Replace the thermostat, then go to Step 8 .
8. Turn the ignition switch to LOCK (0).
9. Allow the engine to cool 40 °C (104 °F) or less.
10. Check the temperature difference of ECT SENSOR 1 and ECT SENSOR 2 is between about 10 °C (50 °F) in the DATA LIST with the HDS.
11. Start the engine, and let it idle until ECT sensor 1goes up around 70 °C (158 °F).

    Dose ECT sensor 2 also show about 70 °C (158 °F)?
    YES - Go to Step 1 and recheck.
    NO - Troubleshooting is complete.■

DTC Troubleshooting: P0133 (61)

DTC P0133:
A/F Sensor (Sensor 1) Responce Malfunction/Slow Response
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm (min^{-1}) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
4. Test-drive under these conditions:
   - Engine coolant temperature (ECT SENSOR 1) above 70 °C (158 °F)
   - A/T in D, M/T in 3rd or 4th
   - Drive the vehicle at 40 km/h (25 mph) or less for 5 minutes, then drive at a steady speed about 52 km/h (32 mph) or more
5. Monitor the OBD STATUS for DTC P0133 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?
   YES - Go to Step 6 .
   NO - If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 3 and recheck.
6. Turn the ignition switch to LOCK (0).
7. Replace the A/F sensor (Sensor 1).
8. Turn the ignition switch to ON (II).
9. Reset the ECM/PCM with the HDS.
10. Do the ECM/PCM idle learn procedure.
11. Start the engine. Hold the engine speed at 3,000 rpm (min^{-1}) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
12. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 70 °C (158 °F)
    - A/T in D, M/T in 3rd or 4th
    - Drive the vehicle at 40 km/h (25 mph) or less for 5 minutes, then drive at a steady speed about 52 km/h (32 mph) or more
13. Check for Temporary DTCs or DTCs with the HDS.

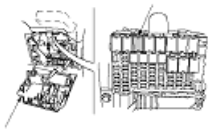
    Is DTC P0133 indicated?
    YES - Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to Step 1 .
    NO - Go to Step 14 .
14. Monitor the OBD STATUS for DTC P0133 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?
    YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 13 , go to the indicated DTC's troubleshooting.■
    NO - If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to Step 1 . If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 11 .

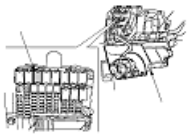
DTC Troubleshooting: P0135 (41)

DTC P0135:
A/F Sensor (Sensor 1) Heater Circuit Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

RHD model



LHD model



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0135 indicated?
   YES - Go to Step 5.
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1), A/F sensor relay, and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Check the No. 26 A/F SENSOR (10A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?
   YES - Go to Step 7.
   NO - Go to Step 21.
7. Open the fuse lid (A), then remove the A/F sensor relay (B) from the under-dash fuse/relay box.
8. Test the A/F sensor relay.

   Is the A/F sensor relay OK?
   YES - Go to Step 9.
   NO - Replace the A/F sensor relay, then go to Step 25.
9. Disconnect the A/F sensor (Sensor 1) 4P connector.

---

10. At sensor side, measure the resistance between A/F sensor (Sensor 1) 4P connector terminals No. 3 and No. 4.

    Is there 1.9–2.7 Ω at room temperature?
    YES - Go to Step 11.
    NO - Go to Step 24.

---

11. At sensor side, check for continuity between A/F sensor (Sensor 1) 4P connector terminals No. 2 and No. 3, and between terminals No. 2 and No. 4 individually.

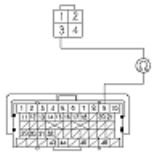
    Is there continuity?
    YES - Go to Step 24.
    NO - Go to Step 12.

12. Jump the SCS line with the HDS.
13. Disconnect ECM/PCM connector C (49P).

---

14. Check for continuity between A/F sensor (Sensor 1) 4P connector terminal No. 3 and ECM/PCM connector terminal C9.

    Is there continuity?
    YES - Go to Step 15.
    NO - Repair open in the wire between the ECM/PCM (C9) and the A/F sensor (Sensor 1), then go to Step 25.



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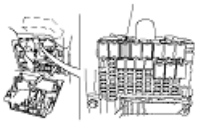
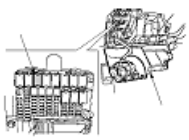
15. Open the fuse lid (A), then remove the A/F sensor relay (B) from the under-dash fuse/relay box.

RHD model



LHD model



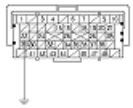
16. Connect A/F sensor (Sensor 1) 4P connector terminal No. 4 to body ground with a jumper wire.

17. Check for continuity between A/F sensor relay 4P connector terminal No. 1 and body ground.

Is there continuity?
YES - Go to Step 18 .
NO - Repair open in the wire between the A/F sensor (Sensor 1) and the A/F sensor relay, then go to Step 25 .

18. Disconnect ECM/PCM connector A (49P).

19. Connect ECM/PCM connector terminal A22 to body ground with a jumper wire.

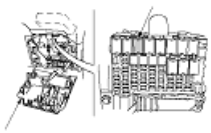


20. Check for continuity between A/F sensor relay 4P connector terminal No. 3 and body ground.

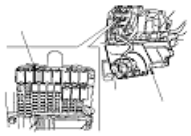
Is there continuity?
YES - Go to Step 31 .
NO - Repair open in the wire between the ECM/PCM (A22) and the A/F sensor relay, then go to Step 25 .

21. Open the fuse lid (A), then remove the A/F sensor relay (B) from the under-dash fuse/relay box.
22. Disconnect the A/F sensor (Sensor 1) 4P connector.

RHD model



LHD model



23. Check for continuity between A/F sensor (Sensor 1) 4P connector terminal No. 4 and body ground.

Is there continuity?

YES - Repair short in the wire between the A/F sensor relay and the A/F sensor (Sensor 1). Also replace the No. 26 A/F SENSOR (10 A) fuse, then go to Step 25 .

NO - Replace the under-dash fuse/relay box, then go to Step 25 .

24. Replace the A/F sensor (Sensor 1).

25. Reconnect all connectors.

26. Turn the ignition switch to ON (II).

27. Reset the ECM/PCM with the HDS.

28. Do the ECM/PCM idle learn procedure.

29. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0135 indicated?

YES - Check for poor connections or loose terminals at the A/F sensor (Sensor 1), A/F sensor relay, and the ECM/PCM, then go to Step 1 .

NO - Go to Step 30 .

30. Monitor the OBD STATUS for DTC P0135 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 26 , go to the indicated DTC's troubleshooting.■

NO - If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1), A/F sensor relay, and the ECM/PCM, then go to Step 1 . If the screen indicates NOT COMPLETED, go to Step 28 .

31. Reconnect all connectors.

32. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.

33. Start the engine.

34. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0135 indicated?

YES - Check for poor connections or loose terminals at the A/F sensor (Sensor 1), A/F sensor relay, and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 33 . If the ECM/PCM was substituted, go to Step 1 .

NO - Go to Step 35 .

35. Monitor the OBD STATUS for DTC P0135 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs were indicated in Step 34 , go to the indicated DTC's troubleshooting.■

NO - If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1), PGM-FI subrelay, and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 30 . If the ECM/PCM was substituted, go to Step 1 . If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC Troubleshooting: P0137 (63)

DTC P0137:
Secondary HO2S (Sensor 2) Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
4. Check the HO2S S2 in the DATA LIST with the HDS.

   Does the voltage stay at 0.05 V or less?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the secondary HO2S (Sensor 2) 4P connector.
7. Turn the ignition switch to ON (II).
8. Check the HO2S S2 in the DATA LIST with the HDS.

   Does the voltage stay at 0.05 V or less?
   YES - Go to Step 9 .
   NO - Go to Step 14 .
9. Turn the ignition switch to LOCK (0).
10. Remove the cowl cover and under cowl-cover.
11. Jump the SCS line with the HDS.
12. Disconnect ECM/PCM connector B (49P).
13. Check for continuity between secondary HO2S (Sensor 2) 4P connector terminal No. 2 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the ECM/PCM (B36) and the secondary HO2S (Sensor 2), then go to Step 16 .
    NO - Go to Step 24 .
14. Turn the ignition switch to LOCK (0).
15. Replace the secondary HO2S (Sensor 2).
16. Reconnect all connectors.
17. Turn the ignition switch to ON (II).
18. Reset the ECM/PCM with the HDS.
19. Do the ECM/PCM idle learn procedure.
20. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
21. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 70 °C (158 °F)
    - A/T in D (M/T in 4th gear)
    - Engine speed between 1,500–3,000 rpm (min^{-1})
    - Drive about 1 minute or more
22. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0137 indicated?
    YES - Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM, then go to Step 1 .
    NO - Go to Step 23 .
23. Monitor the OBD STATUS for DTC P0137 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?
    YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 22 , go to the indicated DTC's troubleshooting.■
    NO - If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM, then go to Step 1 . If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 20 .
24. Reconnect all connectors.

25. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.

26. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.

27. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 70 °C (158 °F)
    - A/T in D (M/T in 4th gear)
    - Engine speed between 1,500−3,000 rpm (min^{-1})
    - Drive 1 minute or more

28. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0137 indicated?

    YES - Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 26. If the ECM/PCM was substituted, go to Step 1.

    NO - Go to Step 29.

29. Monitor the OBD STATUS for DTC P0137 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs were indicated in Step 28, go to the indicated DTC's troubleshooting.■

    NO - If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 26. If the ECM/PCM was substituted, go to Step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 26.

DTC Troubleshooting: P0138 (63)

DTC P0138:
Secondary HO2S (Sensor 2) Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
4. Check the HO2S S2 in the DATA LIST with the HDS.

   Does the voltage stay at 1.27 V or more?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Remove the cowl cover and under cowl-cover.
7. Disconnect the secondary HO2S (Sensor 2) 4P connector.
8. Connect secondary HO2S (Sensor 2) 4P connector terminals No. 1 and No. 2 with a jumper wire.
9. Turn the ignition switch to ON (II).
10. Check the HO2S S2 in the DATA LIST with the HDS.

    Does the voltage stay at 1.27 V or more?
    YES - Go to Step 11 .
    NO - Go to Step 20 .
11. Turn the ignition switch to LOCK (0).
12. Remove the jumper wire from the secondary HO2S (Sensor 2) 4P connector.

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13. Connect secondary HO2S (Sensor 2) 4P connector terminal No. 2 to body ground with a jumper wire.
14. Turn the ignition switch to ON (II).

15. Check the HO2S S2 in the DATA LIST with the HDS.

    Does the voltage stay at 1.27 V or more?
    YES - Go to Step 16 .
    NO - Repair open in the wire between the ECM/PCM (B34) and the secondary HO2S (Sensor 2), then go to Step 22 .
16. Turn the ignition switch to LOCK (0).
17. Jump the SCS line with the HDS.
18. Disconnect ECM/PCM connector B (49P).

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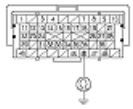
19. Check for continuity between ECM/PCM connector terminal B36 and body ground.



Is there continuity?

YES - Go to Step 30 .

NO - Repair open in the wire between the ECM/PCM (B36) and the secondary HO2S (Sensor 2), then go to Step 22 .

20. Turn the ignition switch to LOCK (0).
21. Replace the secondary HO2S (Sensor 2).
22. Reconnect all connectors.
23. Turn the ignition switch to ON (II).
24. Reset the ECM/PCM with the HDS.
25. Do the ECM/PCM idle learn procedure.
26. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
27. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 70 °C (158 °F)
    - A/T in D (M/T in 4th gear)
    - Engine speed between 1,500−3,000 rpm (min $^{-1}$)
    - Drive about 1 minute or more
28. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0138 indicated?

YES - Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM, then go to Step 1 .

NO - Go to Step 29 .

29. Monitor the OBD STATUS for DTC P0138 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 28 , go to the indicated DTC's troubleshooting.■

NO - If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM, then go to Step 1 . If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 26 .

30. Reconnect all connectors.
31. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
32. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
33. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 70 °C (158 °F)
    - A/T in D (M/T in 4th gear)
    - Engine speed between 1,500−3,000 rpm (min $^{-1}$)
    - Drive about 1 minute or more
34. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0138 indicated?

YES - Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 32 . If the ECM/PCM was substituted, go to Step 1 .

NO - Go to Step 35 .

35. Monitor the OBD STATUS for DTC P0138 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs were indicated in Step 34 , go to the indicated DTC's troubleshooting.■

NO - If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 32 . If the ECM/PCM was substituted, go to Step 1 . If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 30 .

DTC Troubleshooting: P0139 (63)

DTC P0139:
Secondary HO2S (Sensor 2) Slow Response
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
4. Test-drive under these conditions:
   - Engine coolant temperature (ECT SENSOR 1) above 70 °C (158 °F)
   - A/T in D, M/T in 4th
   - Drive at a steady speed between 88−120 km/h (55−75 mph) for 1 minute, then decelerate (with throttle fully closed) for 10 seconds
5. Monitor the OBD STATUS for DTC P0139 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?
   YES - Go to Step 6 .
   NO - If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 3 and recheck.
6. Turn the ignition switch to LOCK (0).
7. Replace the secondary HO2S (Sensor 2).
8. Turn the ignition switch to ON (II).
9. Reset the ECM/PCM with the HDS.
10. Do the ECM/PCM idle learn procedure.
11. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
12. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 70 °C (158 °F)
    - A/T in D, M/T in 4th
    - Drive at a steady speed between 88−120 km/h (55−75 mph) for 1 minute, then decelerate (with throttle fully closed) for 10 seconds
13. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0139 indicated?
    YES - Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM, then go to Step 1 .
    NO - Go to Step 14 .
14. Monitor the OBD STATUS for DTC P0139 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?
    YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 13 , go to the indicated DTC's troubleshooting.■
    NO - If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM, then go to Step 1 . If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 11 .

DTC Troubleshooting: P0141 (65)

DTC P0141:
Secondary HO2S (Sensor 2) Heater Circuit Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0141 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Check the No. 12 ALTERNATOR (10 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?
   YES - Go to Step 7 .
   NO - Repair short in the wire between the secondary HO2S (Sensor 2) and the No. 12 ALTERNATOR (10 A) fuse. Also replace the No. 12 ALTERNATOR (10 A) fuse, then go to Step 23 .
7. Remove the cowl cover and under cowl-cover panel.
8. Disconnect the secondary HO2S (Sensor 2) 4P connector.
9. At the secondary HO2S (Sensor 2) side, measure the resistance between secondary HO2S (Sensor 2) 4P connector terminals No. 3 and No. 4.

   Is there 5.4–7.3 Ω at room temperature?
   YES - Go to Step 10 .
   NO - Go to Step 22 .

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10. At the secondary HO2S (Sensor 2) side, check for continuity between body ground and secondary HO2S (Sensor 2) 4P connector terminals No. 3 and No. 4 individually.

    Is there continuity?
    YES - Go to Step 22 .
    NO - Go to Step 11 .
11. Turn the ignition switch to ON (II).

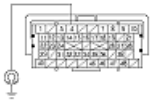
---

12. Measure the voltage between secondary HO2S (Sensor 2) 4P connector terminals No. 3 and No. 4.

    Is there battery voltage?
    YES - Go to Step 13 .
    NO - Go to Step 17 .
13. Turn the ignition switch to LOCK (0).
14. Jump the SCS line with the HDS.
15. Disconnect ECM/PCM connector B (49P).

---

16. Check for continuity between ECM/PCM connector terminal B4 and body ground.



    Is there continuity?
    YES - Repair short in the wire between the ECM/PCM (B4) and the secondary HO2S (Sensor 2), then go to Step 23 .
    NO - Go to Step 29 .

---

17. Measure the voltage between secondary HO2S (Sensor 2) 4P connector terminal No. 3 and body ground.

    Is there battery voltage?
    YES - Go to Step 18 .
    NO - Repair open in the wire between the secondary HO2S (Sensor 2) and the No. 12 ALTERNATOR (10 A) fuse, then go to Step 23 .
18. Turn the ignition switch to LOCK (0).
19. Jump the SCS line with the HDS.
20. Disconnect ECM/PCM connector B (49P).

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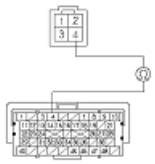
21. Check for continuity between ECM/PCM connector terminal B4 and secondary HO2S (Sensor 2) 4P connector terminal No. 4.



Is there continuity?
YES - Go to Step 29 .
NO - Repair open in the wire between the ECM/PCM (B4) and the secondary HO2S (Sensor 2), then go to Step 23 .

22. Replace the secondary HO2S (Sensor 2).

23. Reconnect all connectors.

24. Turn the ignition switch to ON (II).

25. Reset the ECM/PCM with the HDS.

26. Do the ECM/PCM idle learn procedure.

27. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0141 indicated?
YES - Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM, then go to Step 1 .
NO - Go to Step 28 .

28. Monitor the OBD STATUS for DTC P0141 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 27 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM, then go to Step 1 . If the screen indicates NOT COMPLETED, keep idling until a result comes on.

29. Reconnect all connectors.

30. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.

31. Start the engine, and let it idle.

32. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0141 indicated?
YES - Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 31 . If the ECM/PCM was substituted, go to Step 1 .
NO - Go to Step 33 .

33. Monitor the OBD STATUS for DTC P0141 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs were indicated in Step 32 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 31 . If the ECM/PCM was substituted, go to Step 1 . If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC Troubleshooting: P0222 (7)

DTC P0222:
TP Sensor B Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check TP SENSOR B in the DATA LIST with the HDS.

   Is there about 0.3 V or less?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM.■
4. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC P0122 and P0222 indicated at the same time?
   YES - Go to Step 10 .
   NO - Go to Step 5 .
5. Turn the ignition switch to LOCK (0).
6. Disconnect the throttle body 6P connector.
7. Jump the SCS line with the HDS.
8. Disconnect ECM/PCM connector C (49P).
9. Check for continuity between throttle body 6P connector terminal No. 3 and body ground.

   Is there continuity?
   YES - Repair short in the wire between the throttle body and the ECM/PCM (C21), then go to Step 18 .
   NO - Go to Step 23 .

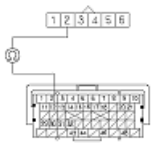
---

10. Measure the voltage between throttle body 6P connector terminal No. 2 and body ground.

    Is there about 5 V?
    YES - Go to Step 16 .
    NO - Go to Step 11 .
11. Turn the ignition switch to LOCK (0).
12. Jump the SCS line with the HDS.
13. Disconnect ECM/PCM connector C (49P).
14. Disconnect the throttle body 6P connector.

---

15. Check for continuity between ECM/PCM connector terminal C12 and throttle body 6P connector terminal No. 2.



Is there continuity?
YES - Go to Step 23 .
NO - Repair open in the wire between the throttle body and the ECM/PCM (C12), then go to Step 18 .

16. Turn the ignition switch to LOCK (0).
17. Replace the throttle body.
18. Reconnect all connectors.
19. Turn the ignition switch to ON (II).
20. Reset the ECM/PCM with the HDS.
21. Do the ECM/PCM idle learn procedure.
22. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0222 indicated?
YES - Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

23. Reconnect all connectors.
24. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
25. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0222 indicated?
YES - Check for poor connections or loose terminals at TP sensor B and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0223 (7)

DTC P0223:
TP Sensor B Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check TP SENSOR B in the DATA LIST with the HDS.

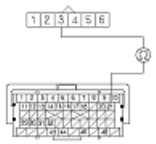
   Is there about 4.8 V or more?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM.■
4. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC P0123 and P0223 indicated at the same time?
   YES - Go to Step 13 .
   NO - Go to Step 5 .
5. Turn the ignition switch to LOCK (0).
6. Disconnect the throttle body 6P connector.
7. Turn the ignition switch to ON (II).
8. Measure the voltage between throttle body 6P connector terminal No. 3 and body ground.

   Is there about 5 V?
   YES - Go to Step 18 .
   NO - Go to Step 9 .
9. Turn the ignition switch to LOCK (0).
10. Jump the SCS line with the HDS.
11. Disconnect ECM/PCM connector C (49P).

---

12. Check for continuity between ECM/PCM connector terminal C21 and throttle body 6P connector terminal No. 3.

    Is there continuity?
    YES - Go to Step 25 .
    NO - Repair open in the wire between the throttle body and the ECM/PCM (C21), then go to Step 20 .
13. Turn the ignition switch to LOCK (0).
14. Disconnect the throttle body 6P connector.
15. Jump the SCS line with the HDS.
16. Disconnect ECM/PCM connector C (49P).

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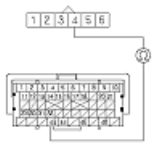
17. Check for continuity between ECM/PCM connector terminal C43 and throttle body 6P connector terminal No. 4.



Is there continuity?
YES - Go to Step 25 .
NO - Repair open in the wire between the throttle body and the ECM/PCM (C43), then go to Step 20 .

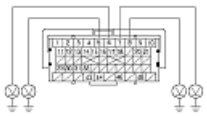
18. Turn the ignition switch to LOCK (0).
19. Replace the throttle body.
20. Reconnect all connectors.
21. Turn the ignition switch to ON (II).
22. Reset the ECM/PCM with the HDS.
23. Do the ECM/PCM idle learn procedure.
24. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0223 indicated?
YES - Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

25. Reconnect all connectors.
26. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
27. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0223 indicated?
YES - Check for poor connections or loose terminals at TP sensor B and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0301 (71), P0302 (72), P0303 (73), P0304 (74)



DTC P0301:
No. 1 Cylinder Misfire Detected
DTC P0302:
No. 2 Cylinder Misfire Detected
DTC P0303:
No. 3 Cylinder Misfire Detected
DTC P0304:
No. 4 Cylinder Misfire Detected
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral).
4. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?
   YES - Go to Step 9.
   NO - If the screen indicates PASSED, go to Step 5. If the screen indicates EXECUTING, keep idling until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, wait for several minutes, and recheck.
5. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

   Does the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?
   YES - Go to Step 9.
   NO - Go to Step 6.
6. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
   - ENGINE SPEED
   - VSS
   - REL TP SENSOR
   - CLV (calculated load value)
   - APP SENSOR
7. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?
   YES - Go to Step 9.
   NO - If the screen indicates PASSED, go to Step 8. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 6 and recheck.
8. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

   Does the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?
   YES - Go to Step 9.
   NO - Intermittent failure, the system is OK at this time. Check for loose wires or poor connections in the fuel system circuit.■
9. Turn the ignition switch to LOCK (0).
10. Exchange the ignition coil from the problem cylinder with one from another cylinder.
11. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
    - ENGINE SPEED
    - VSS
    - REL TP SENSOR
    - CLV (calculated load value)
    - APP SENSOR
12. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

    Does the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?
    YES - Go to Step 13.
    NO - Intermittent misfire due to poor contact at the ignition coil connector (no misfire at this time). Check for poor connections or loose terminals at the ignition coil.■
13. Determine which cylinder had the misfire.

    Does the misfire occur in the cylinder where the ignition coil was exchanged?
    YES - Replace the faulty ignition coil, then go to Step 40.
    NO - Go to Step 14.
14. Turn the ignition switch to LOCK (0).

15. Exchange the spark plug from the problem cylinder with one from another cylinder.

16. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
    - ENGINE SPEED
    - VSS
    - REL TP SENSOR
    - CLV (calculated load value)
    - APP SENSOR

17. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

    Does the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?
    YES - Go to Step 18 .
    NO - Intermittent misfire due to spark plug fouling (no misfire at this time).■

18. Determine which cylinder had the misfire.

    Does the misfire occur in the cylinder where the spark plug was exchanged?
    YES - Replace the faulty spark plug, then go to Step 40 .
    NO - Go to Step 19 .

19. Turn the ignition switch to LOCK (0).

20. Exchange the injector from the problem cylinder with one from the another cylinder.

21. Start the engine, and let it idle for 2 minutes.

22. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
    - ENGINE SPEED
    - VSS
    - REL TP SENSOR
    - CLV (calculated load value)
    - APP SENSOR

23. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

    Does the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?
    YES - Go to Step 24 .
    NO - Intermittent misfire due to bad contact at the injector connector (no misfire at this time). Check for poor connections or loose terminals at the injector.■

24. Determine which cylinder had the misfire.

    Does the misfire occur in the cylinder where the injector was exchanged?
    YES - Replace the faulty injector, then go to Step 40 .
    NO - Go to Step 25 .

25. Do an engine compression and a cylinder leakdown test.

    Did the engine pass both tests?
    YES - Go to Step 26 .
    NO - Repair the engine, then go to Step 40 .

26. Do the VTEC rocker arm test.

    Did the engine pass the test?
    YES - Go to Step 27 .
    NO - Repair the VTEC rocker arm, then go to Step 40 .

27. Turn the ignition switch to LOCK (0).

28. Jump the SCS line with the HDS.

29. Disconnect ECM/PCM connector C (49P).

30. Turn the ignition switch to ON (II).

31. Measure the voltage between body ground and the appropriate ECM/PCM connector terminal of the problem cylinder (see table).

PROBLEM CYLINDER	DTC	ECM/PCM TERMINAL	WIRE COLOR
No. 1	P0301	C5	BRN
No. 2	P0302	C6	RED
No. 3	P0303	C7	BLU
No. 4	P0304	C8	YEL

    Is there battery voltage?
    YES - Go to Step 39 .
    NO - Go to Step 32 .

32. Turn the ignition switch to LOCK (0).
33. Disconnect the injector 2P connector from the problem cylinder.
34. Turn the ignition switch to ON (II).

---

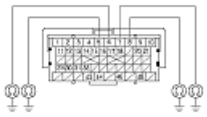
35. Measure the voltage between injector 2P connector terminal No. 1 and body ground.

Is there battery voltage?
YES - Go to Step 36 .
NO - Repair open in the wire between the injector and PGM-FI main relay 1, then go to Step 40 .

36. Turn the ignition switch to LOCK (0).

---

37. Check for continuity between body ground and the ECM/PCM connector terminal of the problem cylinder (see table).

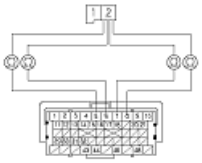


PROBLEM CYLINDER	DTC	ECM/PCM TERMINAL	WIRE COLOR
No. 1	P0301	C5	BRN
No. 2	P0302	C6	RED
No. 3	P0303	C7	BLU
No. 4	P0304	C8	YEL

Is there continuity?
YES - Repair short in the wire between the ECM/ PCM and the injector, then go to Step 40 .
NO - Go to Step 38 .

---

38. Check for continuity between appropriate injector 2P connector terminal No. 2 and the ECM/PCM connector terminal of the problem cylinder (see table).



PROBLEM CYLINDER	DTC	ECM/PCM TERMINAL	WIRE COLOR
No. 1	P0301	C5	BRN
No. 2	P0302	C6	RED
No. 3	P0303	C7	BLU
No. 4	P0304	C8	YEL

Is there continuity?
YES - Go to Step 39 .
NO - Repair open in the wire between the ECM/ PCM and the injector, then go to Step 40 .

---

39. At the injector side, measure the resistance between injector 2P connector terminals No. 1 and No. 2.

Is there 10−13 Ω?
YES - Go to Step 50 .
NO - Replace the injector, then go to Step 40 .

40. Turn the ignition switch to LOCK (0).

41. Reconnect all connectors, and install the parts in the reverse order of removal.

42. Turn the ignition switch to ON (II).

43. Reset the ECM/PCM with the HDS.

44. Clear the CKP pattern with the HDS.

45. Do the ECM/PCM idle learn procedure.

46. Do the CKP pattern learn procedure.

47. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
    - ENGINE SPEED
    - VSS
    - REL TP SENSOR
    - CLV (calculated load value)
    - APP SENSOR

48. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0301, P0302, P0303, or P0304 indicated?
YES - Check for poor connections or loose terminals at the ignition coils, the injectors, and the ECM/PCM, then go to the troubleshooting DTC P0300, P0301, P0302, P0303, or P0304.
NO - Go to Step 49 .

49. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 48 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the ignition coils, the injectors, and the ECM/PCM, then go to Step 1 . If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 47 .

50. Reconnect all connectors.

51. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.

52. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
    - ENGINE SPEED
    - VSS
    - REL TP SENSOR
    - CLV (calculated load value)
    - APP SENSOR

53. Check for Temporary DTCs or DTCs with the HDS.

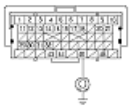
Is DTC P0301, P0302, P0303, or P0304 indicated?
YES - Check for poor connections or loose terminals at the ignition coils, the injectors, and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 52 . If the ECM/PCM was substituted, go to Step 1 .
NO - Go to Step 54 .

54. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs were indicated in Step 53 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the ignition coils, the injectors, and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 52 . If the ECM/PCM was substituted, go to Step 1 . If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 52 .

DTC Troubleshooting: P0325 (23)

DTC P0325:
Knock Sensor Circuit Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.



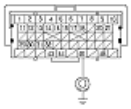
1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed 3,000 rpm (min $^{-1}$) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
4. Hold the engine speed between 3,000−4,000 rpm (min $^{-1}$) for at least 10 seconds.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0325 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the knock sensor and the ECM/PCM.■
6. Turn the ignition switch to LOCK (0).
7. Jump the SCS line with the HDS.
8. Disconnect the knock sensor 1P connector.
9. Disconnect ECM/PCM connector C (49P).
10. Check for continuity between ECM/PCM connector terminal C46 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the ECM/PCM (C46) and the knock sensor, then go to Step 14 .
    NO - Go to Step 11 .

11. Connect the knock sensor 1P connector terminal to body ground with a jumper wire.

12. Check for continuity between ECM/PCM connector terminal C46 and body ground.



Is there continuity?
YES - Go to Step 13 .
NO - Repair open in the wire between the ECM/PCM (C46) and the knock sensor, then go to Step 14 .

13. Replace the knock sensor.

14. Reconnect all connectors.

15. Turn the ignition switch to ON (II).

16. Reset the ECM/PCM with the HDS.

17. Do the ECM/PCM idle learn procedure.

18. Hold the engine speed between 3,000−4,000 rpm (min $^{-1}$) for at least 10 seconds.

19. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0325 indicated?
YES - Go to Step 21 .
NO - Go to Step 20 .

20. Monitor the OBD STATUS for DTC P0325 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 19 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the knock sensor and the ECM/PCM, then go to Step 1 . If the screen indicates NOT COMPLETED, go to Step 18 and recheck.

21. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.

22. Hold the engine speed between 3,000−4,000 rpm (min $^{-1}$) for at least 10 seconds.

23. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0325 indicated?

YES - Check for poor connections or loose terminals at the knock sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 22 . If the ECM/PCM was substituted, go to Step 1 .
NO - Go to Step 24 .

24. Monitor the OBD STATUS for DTC P0325 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs were indicated in Step 23 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the knock sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 22 . If the ECM/PCM was substituted, go to Step 1 . If the screen indicates NOT COMPLETED, go to Step 22 .

DTC Troubleshooting: P0335 (4)

DTC P0335:
CKP Sensor No Signal
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0335 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the CKP sensor and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the CKP sensor 3P connector.
7. Turn the ignition switch to ON (II).
8. Measure the voltage between CKP sensor 3P connector terminal No. 1 and body ground.

   Is there battery voltage?
   YES - Go to Step 9 .
   NO - Repair open in the wire between the CKP sensor and PGM-FI main relay 1, then go to Step 19 .

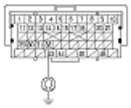
9. Measure the voltage between CKP sensor 3P connector terminal No. 3 and body ground.

   Is there about 5 V?
   YES - Go to Step 10 .
   NO - Go to Step 11 .

10. Measure the voltage between CKP sensor 3P connector terminals No. 1 and No. 2.

    Is there battery voltage?
    YES - Go to Step 17 .
    NO - Repair open in the wire between the CKP sensor and G101; AT model, MT model, then go to Step 19 .
11. Turn the ignition switch to LOCK (0).
12. Jump the SCS line with the HDS.
13. Disconnect ECM/PCM connector C (49P).

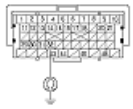
14. Check for continuity between ECM/PCM connector terminal C32 and body ground.



    Is there continuity?
    YES - Repair short in the wire between the ECM/PCM (C32) and the CKP sensor, then go to Step 19 .
    NO - Go to Step 15 .

15. Connect CKP sensor 3P connector terminal No. 3 to body ground with a jumper wire.

16. Check for continuity between ECM/PCM connector terminal C32 and body ground.



Is there continuity?
YES - Go to Step 26 .
NO - Repair open in the wire between the ECM/PCM (C32) and the CKP sensor, then go to Step 19 .

17. Turn the ignition switch to LOCK (0).
18. Replace the CKP sensor.
19. Reconnect all connectors.
20. Turn the ignition switch to ON (II).
21. Reset the ECM/PCM with the HDS.
22. Clear the crank pattern with the HDS.
23. Do the ECM/PCM idle learn procedure.
24. Do the CKP pattern learn procedure.
25. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0335 indicated?
YES - Check for poor connections or loose terminals at the CKP sensor and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

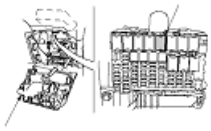
26. Reconnect all connectors.
27. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
28. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0335 indicated?
YES - Check for poor connections or loose terminals at the CKP sensor and the ECM/PCM, then go to Step 1 . If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

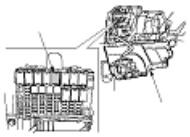
DTC Troubleshooting: P0351 (71), P0352 (72), P0353 (73), P0354 (74)

DTC P0351:
No. 1 Cylinder Ignition Coil Circuit Malfunction
DTC P0352:
No. 2 Cylinder Ignition Coil Circuit Malfunction
DTC P0353:
No. 3 Cylinder Ignition Coil Circuit Malfunction
DTC P0354:
No. 4 Cylinder Ignition Coil Circuit Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

RHD model



LHD model



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0351, P0352, P0353, and/or P0354 indicated?
   YES - Go to Step 5.
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ignition coil and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Exchange the ignition coil from the problem cylinder with one from another cylinder.
7. Start the engine.
8. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC indicated at the exchanged cylinder position?
   YES - Replace the faulty ignition coil, then go to Step 25.
   NO - Go to Step 9.
9. Turn the ignition switch to LOCK (0).
10. Check the No. 33 IGNITION COIL (15 A) fuse in the under-dash fuse/relay box.

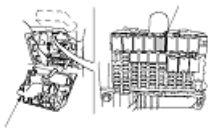
    Is the fuse OK?
    YES - Go to Step 11.
    NO - Go to Step 12.
11. Open the fuse lid (A), then test the ignition coil relay (B) in the under-dash fuse/relay box.

    Is the ignition coil relay OK?
    YES - Go to Step 15.
    NO - Replace the ignition coil relay, then go to Step 25.

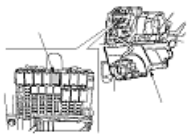
---

12. Open the fuse lid (A), then remove the ignition coil relay (B) from the under-dash fuse/relay box.
13. Disconnect all ignition coil 3P connectors.

RHD model



LHD model



---

14. Check for continuity between No. 1 ignition coil 3P connector terminal No. 3 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the ignition coils and the ignition coil relay. Also replace the No. 33 IGNITION COIL (15 A) fuse, then go to Step 25.
    NO - Check the under-dash fuse/relay box, and replace it if needed, then go to Step 25.
15. Reinstall the ignition coil relay.
16. Disconnect the ignition coil 3P connector from the problem cylinder.
17. Turn the ignition switch to ON (II).

---

18. Measure the voltage between ignition coil 3P connector terminal No. 3 of the problem cylinder and body ground (see table).

PROBLEM CYLINDER	DTC
No. 1	P0351
No. 2	P0352
No. 3	P0353
No. 4	P0354

Is there battery voltage?

YES - Go to Step 19 .

NO - Repair open in the wire between the ignition coil and the ignition coil relay, then go to Step 25 .

19. Turn the ignition switch to LOCK (0).

---

20. Check for continuity between ignition coil 3P connector terminal No. 2 of the problem cylinder and body ground (see table).

PROBLEM CYLINDER	DTC
No. 1	P0351
No. 2	P0352
No. 3	P0353
No. 4	P0354

Is there continuity?

YES - Go to Step 21 .

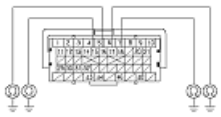
NO - Repair open in the wire between the ignition coil and G101, then go to Step 25 .

21. Jump the SCS line with the HDS.

22. Disconnect ECM/PCM connector C (49P).

---

23. Check for continuity between body ground and the appropriate ECM/PCM connector terminal of the problem cylinder (see table).



PROBLEM CYLINDER	DTC	ECM/PCM TERMINAL	WIRE COLOR
No. 1	P0351	C15	WHT
No. 2	P0352	C16	WHT/GRN
No. 3	P0353	C17	WHT/BLK
No. 4	P0354	C18	WHT/BLU

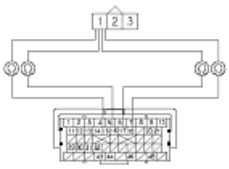
Is there continuity?

YES - Repair short in the wire between the ECM/PCM and the ignition coil, then go to Step 25 .

NO - Go to Step 24 .

---

24. Check for continuity between appropriate ignition coil 3P connector terminal No. 1 and the appropriate ECM/PCM connector terminal of the problem cylinder (see table).



PROBLEM CYLINDER	DTC	ECM/PCM TERMINAL	WIRE COLOR
No. 1	P0351	C15	WHT
No. 2	P0352	C16	WHT/GRN
No. 3	P0353	C17	WHT/BLK
No. 4	P0354	C18	WHT/BLU

Is there continuity?

YES - Go to Step 31 .

NO - Repair open in the wire between the ECM/PCM and the ignition coil, then go to Step 25 .

25. Turn the ignition switch to LOCK (0).
26. Reconnect all connectors.
27. Turn the ignition switch to ON (II).
28. Reset the ECM/PCM with the HDS.
29. Do the ECM/PCM idle learn procedure.
30. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0351, P0352, P0353, and/or P0354 indicated?

YES - Check for poor connections or loose terminals at the ignition coil and the ECM/PCM, then go to Step 1 .

NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

31. Reconnect all connectors.
32. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
33. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0351, P0352, P0353, and/or P0354 indicated?

YES - Check for poor connections or loose terminals at the ignition coil and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .

NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0365 (8)

DTC P0365:
CMP Sensor No Signal
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0365 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the CMP sensor and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the CMP sensor 3P connector.
7. Turn the ignition switch to ON (II).
8. Measure the voltage between CMP sensor 3P connector terminal No. 3 and body ground.

   Is there battery voltage?
   YES - Go to Step 9 .
   NO - Repair open in the wire between the CMP sensor and PGM-FI main relay 1, then go to Step 18 .

---

9. Measure the voltage between CMP sensor 3P connector terminal No. 1 and body ground.

   Is there about 5 V?
   YES - Go to Step 10 .
   NO - Go to Step 11 .

---

10. Measure the voltage between CMP sensor 3P connector terminals No. 2 and No. 3.

    Is there battery voltage?
    YES - Go to Step 16 .
    NO - Repair open in the wire between the CMP sensor and G101; AT model, MT model, then go to Step 18 .
11. Turn the ignition switch to LOCK (0).
12. Jump the SCS line with the HDS.
13. Disconnect ECM/PCM connector C (49P).

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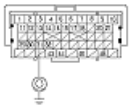
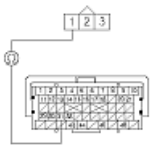
14. Check for continuity between ECM/PCM connector terminal C31 and body ground.



    Is there continuity?
    YES - Repair short in the wire between the ECM/PCM (C31) and the CMP sensor, then go to Step 18 .
    NO - Go to Step 15 .

---

15. Check for continuity between CMP sensor 3P connector terminal No. 1 and ECM/PCM connector terminal C31.



Is there continuity?
YES - Go to Step 23 .
NO - Repair open in the wire between the ECM/PCM (C31) and the CMP sensor, then go to Step 18 .

16. Turn the ignition switch to LOCK (0).
17. Replace the CMP sensor.
18. Reconnect all connectors.
19. Turn the ignition switch to ON (II).
20. Reset the ECM/PCM with the HDS.
21. Do the ECM/PCM idle learn procedure.
22. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0365 indicated?
YES - Check for poor connections or loose terminals at the CMP sensor and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

23. Reconnect all connectors.
24. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
25. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0365 indicated?
YES - Check for poor connections or loose terminals at the CMP sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0420 (67)

DTC P0420:
Catalyst System Efficiency Below Threshold
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.
- If some of the DTCs listed below are stored at the same time as DTC P0420, troubleshoot them first, then recheck for DTC P0420.
  P0137, P0138: Secondary HO2S (Sensor 2)
  P0141: Secondary HO2S (Sensor 2) heater
- P0300: Random misfire
  P0301−P0304: No. 1, No. 2, No. 3, or No. 4 cylinder misfire detected
- Poor quality fuel may cause this DTC.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm (min^{-1}) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
4. Test-drive under these conditions:
   - Engine coolant temperature (ECT SENSOR 1) above 70 °C (158 °F)
   - A/T in D, M/T in 4th or 5th
   - Vehicle speed between 72−120 km/h (45−75 mph) for 5 minutes or more with cruise control set
   - Vehicle speed between 88−120 km/h (55−75 mph) for 10 seconds, then decelerate (with throttle fully closed). Repeat this 3 times or more
   - Maintain the vehicle speed at 88 km/h (55 mph) for 5 minutes or more with cruise control set
5. Monitor the OBD STATUS for DTC P0420 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?
   YES - Go to Step 6 .
   NO - If the screen indicates PASSED, intermittent failure, the system is OK at this time. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 4 and recheck.
6. Turn the ignition switch to LOCK (0).
7. Replace the WU-TWC.
8. Turn the ignition switch to ON (II).
9. Reset the ECM/PCM with the HDS.
10. Do the ECM/PCM idle learn procedure.
11. Start the engine. Hold the engine speed at 3,000 rpm (min^{-1}) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
12. Test-drive for about 10 minutes, varying the vehicle speed.
13. Check the CATA MONITOR CONDITION in the DATA LIST with the HDS.

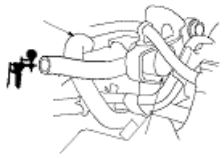
    Is the temperature OK?
    YES - Go to Step 14 .
    NO - Go to Step 11 and recheck.
14. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 70 °C (158 °F)
    - Vehicle speed between 88−120 km/h (55−75 mph) for 10 seconds, then decelerate (with throttle fully closed). Repeat this 3 times or more
    - Maintain the vehicle speed at 88 km/h (55 mph) for 5 minutes or more with cruise control set
15. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0420 indicated?
    YES - Check the fuel quality, then go to Step 1 .
    NO - Go to Step 16 .
16. Monitor the OBD STATUS for DTC P0420 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?
    YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 15 , go to the indicated DTC's troubleshooting.■
    NO - If the screen indicates FAILED, check the fuel quality, then go to Step 1 . If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 11 .

DTC Troubleshooting: P0443 (92)

DTC P0443:
EVAP Canister Purge Valve Circuit Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0443 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EVAP canister purge valve and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0), and allow the engine to cool below 60 °C (140 °F).
6. Disconnect the vacuum hose (A) from the EVAP canister purge valve (B) in the engine compartment, and connect a vacuum pump/gauge to the hose.
7. Start the engine, and let it idle.

   Is there vacuum?
   YES - Go to Step 8 .
   NO - Go to Step 14 .
8. Turn the ignition switch to LOCK (0).
9. Disconnect the EVAP canister purge valve 2P connector.

---

10. Check for continuity between EVAP canister purge valve 2P connector terminal No. 2 and body ground.

    Is there continuity?
    YES - Go to Step 11 .
    NO - Go to Step 23 .
11. Jump the SCS line with the HDS.
12. Disconnect ECM/PCM connector B (49P).

---

13. Check for continuity between EVAP canister purge valve 2P connector terminal No. 2 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the EVAP canister purge valve and the ECM/PCM (B3), then go to Step 24 .
    NO - Go to Step 30 .
14. Turn the ignition switch to LOCK (0).
15. Disconnect the EVAP canister purge valve 2P connector.
16. Turn the ignition switch to ON (II).

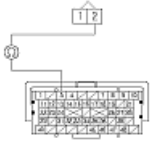
---

17. Measure the voltage between EVAP canister purge valve 2P connector terminal No. 1 and body ground.

    Is there battery voltage?
    YES - Go to Step 18 .
    NO - Repair open in the wire between the EVAP canister purge valve and the No. 12 ALTERNATOR (10 A) fuse in the under-dash fuse/relay box, then go to Step 24 .
18. Turn the ignition switch to LOCK (0).
19. Jump the SCS line with the HDS.
20. Disconnect ECM/PCM connector B (49P).

---

21. Check for continuity between ECM/PCM connector terminal B3 and EVAP canister purge valve 2P connector terminal No. 2.

    Is there continuity?
    YES - Go to Step 22 .
    NO - Repair open in the wire between the EVAP canister purge valve and the ECM/PCM (B3), then go to Step 24 .

---

22. Measure the resistance between EVAP canister purge valve 2P connector terminals No. 1 and No. 2.

Is there about 25 Ω at room temperature?
YES - Go to Step 30 .
NO - Go to Step 23 .

23. Replace the EVAP canister purge valve.

24. Reconnect all connectors.

25. Turn the ignition switch to ON (II).

26. Reset the ECM/PCM with the HDS.

27. Do the ECM/PCM idle learn procedure.

28. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0443 indicated?
YES - Check for poor connections or loose terminals at the EVAP canister purge valve and the ECM/PCM, then go to Step 1 .
NO - Go to Step 29 .

29. Monitor the OBD STATUS for DTC P0443 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 28 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the EVAP canister purge valve and the ECM/PCM, then go to Step 1 . If the screen indicates EXECUTING, OUT OF CONDITION, or NOT COMPLETED, keep idling until a result comes on.

30. Reconnect all connectors.

31. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.

32. Start the engine.

33. Check for Temporary DTCs or DTCs with the HDS.

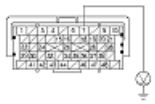
Is DTC P0443 indicated?
YES - Check for poor connections or loose terminals at the EVAP canister purge valve and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 32 . If the ECM/PCM was substituted, go to Step 1 .
NO - Go to Step 34 .

34. Monitor the OBD STATUS for DTC P0443 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs were indicated in Step 23 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the EVAP canister purge valve and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 32 . If the ECM/PCM was substituted, go to Step 1 . If the screen indicates EXECUTING, OUT OF CONDITION, or NOT COMPLETED, keep idling until a result comes on.

DTC Troubleshooting: P0563

DTC P0563:
ECM/PCM Power Source Circuit Unexpected Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.



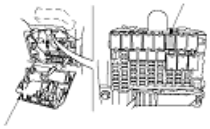
1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Wait 10 seconds.
5. Turn the ignition switch to ON (II).
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0563 indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at PGM-FI main relay 1 and the ECM/PCM.■
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).
10. Measure the voltage between ECM/PCM connector terminal A7 and body ground.

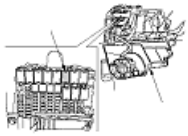
    Is there battery voltage?
    YES - Go to Step 13 .
    NO - Go to Step 11 .

11. Open the fuse lid (A), then remove PGM-FI main relay 1 (B) from the under-dash fuse/relay box.

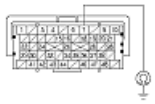
RHD model



LHD model



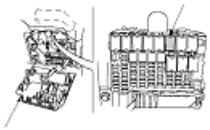
12. Check for continuity between ECM/PCM connector terminal A7 and body ground.



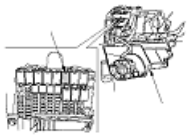
    Is there continuity?
    YES - Repair short in the wire between the ECM/PCM (A7) and PGM-FI main relay 1, then go to Step 16 .
    NO - Go to Step 15 .

13. Open the fuse lid (A), then remove PGM-FI main relay 1 (B) from the under-dash fuse/relay box.

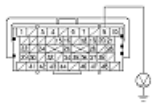
RHD model



LHD model



14. Measure the voltage between ECM/PCM connector terminal A9 and body ground.



Is there battery voltage?
YES - Repair short to power in the wire between the ECM/PCM (A9) and PGM-FI main relay 1, then go to Step 16 .
NO - Go to Step 15 .

15. Test PGM-FI main relay 1.

Is PGM-FI main relay 1 OK?
YES - Go to Step 23 .
NO - Replace PGM-FI main relay 1, then go to Step 16 .

16. Reconnect all connectors.

17. Turn the ignition switch to ON (II).

18. Reset the ECM/PCM with the HDS.

19. Do the ECM/PCM idle learn procedure.

20. Turn the ignition switch to LOCK (0).

21. Wait 10 seconds.

22. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0563 indicated?
YES - Check for poor connections or loose terminals at PGM-FI main relay 1 and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

23. Reconnect all connectors.

24. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.

25. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0563 indicated?
YES - Check for poor connections or loose terminals at PGM-FI main relay 1 and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 20 . If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P062F (131)

DTC P062F:
ECM/PCM Internal Control Module Keep Alive Memory (KAM) Error
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P062F indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time.■
4. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P062F indicated?
   YES - If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
   NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0630 (139)

DTC P0630:
VIN Not Programmed or Mismatch
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.
- This DTC is stored only when the ECM/PCM does not have the VIN information of the vehicle. Use the HDS to input the missing VIN information.

1. Turn the ignition switch to ON (II).
2. Check the VIN with the HDS.

   Does the HDS show the vehicle's VIN?
   YES - Go to Step 5 .
   NO - Go to Step 3 .
3. Input the VIN to the ECM/PCM with the HDS.

   Does the screen show COMPLETE?
   YES - Go to Step 5 .
   NO - Go to Step 4 .
4. Check for DTCs with the HDS.

   Is DTC P062F indicated?
   YES - Go to the DTC P062F troubleshooting. ■
   NO - Go to Step 9 .
5. Clear the DTC with the HDS.
6. Turn the ignition switch to LOCK (0).
7. Turn the ignition switch to ON (II), and wait 5 seconds.
8. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0630 indicated?
   YES - Go to Step 9 .
   NO - Intermittent failure, the system is OK at this time.■
9. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
10. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0630 indicated?
    YES - If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0685 (135)

DTC P0685:
ECM/PCM Power Control Circuit/Internal Circuit Malfunction
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.
- If the problem doesn't return after you clear the DTC, or it this DTC is stored intermittently, check for loose terminals at the IGP line connectors before replacing the ECM/PCM.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, then let it idle for 30 seconds.
4. Turn the ignition switch to LOCK (0).
5. Start the engine, then let it idle for 30 seconds.
6. Turn the ignition switch to LOCK (0).
7. Turn the ignition switch to ON (II).
8. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0685 indicated?
   YES - Go to Step 9 .
   NO - Intermittent failure, the system is OK at this time.■
9. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
10. Start the engine, then let it idle for 30 seconds.
11. Turn the ignition switch to LOCK (0).
12. Start the engine, then let it idle for 30 seconds.
13. Turn the ignition switch to LOCK (0).
14. Turn the ignition switch to ON (II).
15. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0685 indicated?
    YES - If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 10 . If the ECM/PCM was substituted, go to Step 1 .
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0720 (122)

DTC P0720:
Output Shaft (Countershaft) Speed Sensor Circuit Malfunction (M/T model)
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (in neutral) until the radiator fan comes on, then let it idle.
2. Test-drive for several minutes.
3. Check the C SHAFT SPD in the DATA LIST with the HDS.

   Is any vehicle speed indicated?
   YES - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the output shaft (countershaft) speed sensor and the ECM.■
   NO - Go to Step 4 .
4. Turn the ignition switch to LOCK (0).
5. Disconnect the output shaft (countershaft) speed sensor 3P connector.
6. Turn the ignition switch to ON (II).
7. Measure the voltage between output shaft (countershaft) speed sensor 3P connector terminal No. 1 and body ground.

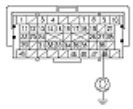
   Is there about 5 V?
   YES - Go to Step 8 .
   NO - Repair open in the wire between the ECM (C13) and the output shaft (countershaft) speed sensor, then go to Step 18 .

8. Measure the voltage between output shaft (countershaft) speed sensor 3P connector terminal No. 2 and body ground.

   Is there about 5 V?
   YES - Go to Step 9 .
   NO - Go to Step 10 .

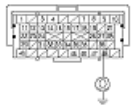
9. Measure the voltage between output shaft (countershaft) speed sensor 3P connector terminals No. 1 and No. 3.

   Is there about 5 V?
   YES - Go to Step 16 .
   NO - Repair open in the wire between the ECM (C14) and the output shaft (countershaft) speed sensor, then go to Step 18 .
10. Turn the ignition switch to LOCK (0).
11. Jump the SCS line with the HDS.
12. Disconnect ECM connector B (49P).
13. Check for continuity between ECM connector terminal B38 and body ground.



    Is there continuity?
    YES - Repair short in the wire between the ECM (B38) and the output shaft (countershaft) speed sensor, then go to Step 18 .
    NO - Go to Step 14 .
14. Connect output shaft (countershaft) speed sensor 3P connector terminal No. 2 to body ground with a jumper wire.

15. Check for continuity between ECM connector terminal B38 and body ground.



Is there continuity?
YES - Go to Step 25 .
NO - Repair open in the wire between the ECM (B38) and the output shaft (countershaft) speed sensor, then go to Step 18 .

16. Turn the ignition switch to LOCK (0).
17. Replace the output shaft (countershaft) speed sensor.
18. Reconnect all connectors.
19. Turn the ignition switch to ON (II).
20. Reset the ECM with the HDS.
21. Do the ECM idle learn procedure.
22. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 80 °C (176 °F)
    - Transmission in 5th gear
    - ENGINE SPEED between 2,000−3,000 rpm (min $^{-1}$)
    - Drive for several minutes, then decelerate (with the throttle fully closed) for 8 seconds
23. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0720 indicated?
YES - Check for poor connections or loose terminals at the output shaft (countershaft) speed sensor and the ECM, then go to Step 1 .
NO - Go to Step 24 .

24. Monitor the OBD STATUS for DTC P0720 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 23 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the output shaft (countershaft) speed sensor and the ECM, then go to Step 1 . If the screen indicates NOT COMPLETED, go to Step 22 .

25. Reconnect all connectors.
26. Update the ECM if it does not have the latest software, or substitute a known-good ECM.
27. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 80 °C (176 °F)
    - Transmission in 5th gear
    - ENGINE SPEED between 2,000−3,000 rpm (min $^{-1}$)
    - Drive for several minutes, then decelerate (with the throttle fully closed) for 8 seconds
28. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0720 indicated?
YES - Check for poor connections or loose terminals at the output shaft (countershaft) speed sensor and the ECM. If the ECM was updated, substitute a known-good ECM, then go to Step 27 . If the ECM was substituted, go to Step 1 .
NO - Go to Step 29 .

29. Monitor the OBD STATUS for DTC P0720 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM. If any other Temporary DTCs or DTCs were indicated in Step 28 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the output shaft (countershaft) speed sensor and the ECM. If the ECM was updated, substitute a known-good ECM, then go to Step 27 . If the ECM was substituted, go to Step 1 . If the screen indicates NOT COMPLETED, go to Step 27 .

DTC Troubleshooting: P1109 (13)

DTC P1109:
BARO Sensor Circuit Out of Range High
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

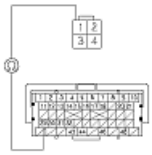
1. Reset the ECM/PCM with the HDS.
2. Start the engine.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1109 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time.■
4. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1109 indicated?
   YES - If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
   NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P1157 (48)

DTC P1157:
A/F Sensor (Sensor 1) Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

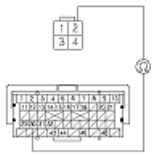


1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and wait 1 minute.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1157 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Jump the SCS line with the HDS.
7. Disconnect the A/F sensor (Sensor 1) 4P connector.
8. Disconnect ECM/PCM connector C (49P).
9. Check for continuity between A/F sensor (Sensor 1) 4P connector terminal No. 1 and ECM/PCM connector terminal C29.

   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wire between the ECM/PCM (C29) and the A/F sensor (Sensor 1), then go to Step 12 .

10. Check for continuity between A/F sensor (Sensor 1) 4P connector terminal No. 2 and ECM/PCM connector terminal C30.



Is there continuity?
YES - Go to Step 11 .
NO - Repair open in the wire between the ECM/PCM (C30) and the A/F sensor (Sensor 1), then go to Step 12 .

11. Replace the A/F sensor (Sensor 1).
12. Reconnect all connectors.
13. Turn the ignition switch to ON (II).
14. Reset the ECM/PCM with the HDS.
15. Do the ECM/PCM idle learn procedure.
16. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P1157 indicated?
YES - Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to Step 1 . If the connector and terminal fits are OK, go to Step 18 .
NO - Go to Step 17 .

17. Monitor the OBD STATUS for DTC P1157 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 16 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to Step 1 . If the screen indicates NOT COMPLETED, go to Step 15 .

18. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
19. Start the engine, and let it idle.
20. Check for Temporary DTCs or DTCs with the HDS.

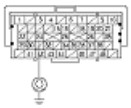
Is DTC P1157 indicated?
YES - If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 19 . If the ECM/PCM was substituted, go to Step 1 .
NO - Go to Step 21 .

21. Monitor the OBD STATUS for DTC P1157 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs were indicated in Step 20 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, go to Step 1 . If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 19 . If the ECM/PCM was substituted, go to Step 1 . If the screen indicates NOT COMPLETED, let the until a result comes on.

DTC Troubleshooting: P1297

DTC P1297:
ELD Circuit Low Voltage



NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check the ELD in the DATA LIST with the HDS.

   Is 72 A or more indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ELD and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the ELD 3P connector.
5. Turn the ignition switch to ON (II).
6. Check the ELD in the DATA LIST with the HDS.

   Is 72 A or more indicated?
   YES - Go to Step 7 .
   NO - Go to Step 11 .
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).
10. Check for continuity between ECM/PCM connector terminal A24 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the ECM/PCM (A24) and the ELD, then go to Step 13 .
    NO - Go to Step 20 .
11. Turn the ignition switch to LOCK (0).
12. Replace the ELD.
13. Reconnect all connectors.
14. Turn the ignition switch to ON (II).
15. Reset the ECM/PCM with the HDS.
16. Do the ECM/PCM idle learn procedure.
17. Start the engine.
18. Turn on the headlights.
19. Check for Temporary DTCs or DTCs with the HDS.

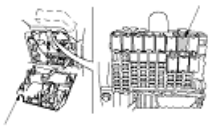
    Is DTC P1297 indicated?
    YES - Check for poor connections or loose terminals at the ELD and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
20. Reconnect all connectors.
21. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
22. Start the engine.
23. Turn on the headlights.
24. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1297 indicated?
    YES - Check for poor connections or loose terminals at the ELD and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 22 . If the ECM/PCM was substituted, go to Step 1 .
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

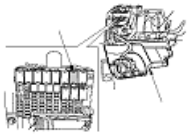
DTC Troubleshooting: P1658 (40)

DTC P1658:
ETCS Control Relay ON Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

RHD model



LHD model



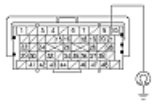
1. Turn the ignition switch to ON (II).
2. Do the ETCS TEST in the INSPECTION MENU with the HDS.

   Is the RELAY circuit OK?
   YES - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ETCS control relay and the ECM/PCM.■
   NO - Go to Step 3 .
3. Turn the ignition switch to LOCK (0).
4. Open the fuse lid (A), then remove the ETCS control relay (B) from the under-dash fuse/relay box.
5. Test the ETCS control relay.

   Is the ETCS control relay OK?
   YES - Go to Step 6 .
   NO - Replace the ETCS control relay, then go to Step 13 .
6. Jump the SCS line with the HDS.
7. Disconnect ECM/PCM connector A (49P).

---

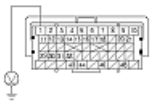
8. Check for continuity between ECM/PCM connector terminal A21 and body ground.



   Is there continuity?
   YES - Repair short in the wire between the ECM/PCM (A21) and the ETCS control relay, then go to Step 13 .
   NO - Go to Step 9 .
9. Disconnect ECM/PCM connector C (49P).
10. Turn the ignition switch to ON (II).

---

11. Measure the voltage between ECM/PCM connector terminal C1 and body ground.



    Is there battery voltage?
    YES - Repair short to power in the wire between the ECM/PCM (C1) and the ETCS control relay, then go to Step 12 .
    NO - Go to Step 18 .
12. Turn the ignition switch to LOCK (0).
13. Reconnect all connectors.
14. Turn the ignition switch to ON (II).
15. Reset the ECM/PCM with the HDS.
16. Do the ECM/PCM idle learn procedure.
17. Check for Temporary DTCs or DTCs with the HDS.

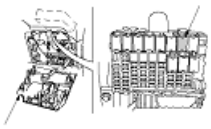
    Is DTC P1658 indicated?
    YES - Check for poor connections or loose terminals at the ETCS control relay and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
18. Turn the ignition switch to LOCK (0).
19. Reconnect all connectors.
20. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
21. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1658 indicated?
    YES - Check for poor connections or loose terminals at the ETCS control relay and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

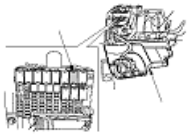
DTC Troubleshooting: P1659 (40)

DTC P1659:
Electronic Throttle Control System (ETCS) Control Relay OFF Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

RHD model



LHD model



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1659 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ETCS control relay and the ECM/PCM.■
4. Turn the ignition switch to LOCK (0).
5. Check the No. 52 ETCS (15 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?
   YES - Go to Step 6 .
   NO - Go to Step 19 .
6. Open the fuse lid (A), then remove the ETCS control relay (B) from the under-dash fuse/relay box.
7. Test the ETCS control relay.

   Is the ETCS control relay OK?
   YES - Go to Step 8 .
   NO - Replace the ETCS control relay, then go to Step 25 .
8. Turn the ignition switch to ON (II).

---

9. Measure the voltage between ETCS control relay 4P connector terminal No. 3 and body ground.

   Is there battery voltage?
   YES - Go to Step 10 .
   NO - Replace the under-dash fuse/relay box, then go to Step 24 .

---

10. Measure the voltage between ETCS control relay 4P connector terminal No. 2 and body ground.

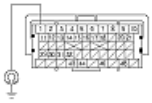
    Is there battery voltage?
    YES - Go to Step 11 .
    NO - Replace the under-dash fuse/relay box, then go to Step 24 .
11. Turn the ignition switch to LOCK (0).
12. Jump the SCS line with the HDS.
13. Disconnect ECM/PCM connector C (49P).

---

14. Connect ETCS control relay 4P connector terminal No. 1 to body ground with the jumper wire.

---

15. Check for continuity between ECM/PCM connector terminal C1 and body ground.



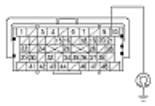
    Is there continuity?
    YES - Go to Step 16 .
    NO - Repair open in the wire between the ECM/PCM (C1) and the ETCS control relay, then go to Step 25 .
16. Disconnect ECM/PCM connector A (49P).

---

17. Connect ETCS control relay 4P connector terminal No. 4 to body ground with the jumper wire.

---

18. Check for continuity between ECM/PCM connector terminal A21 and body ground.

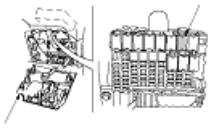


Is there continuity?
YES - Go to Step 30 .
NO - Repair open in the wire between the ECM/PCM (A21) and the ETCS control relay, then go to Step 25 .

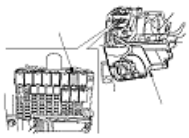
---

19. Open the fuse lid (A), then remove the ETCS control relay (B) from the under-dash fuse/relay box.
20. Jump the SCS line with the HDS.
21. Disconnect ECM/PCM connector C (49P).

RHD model



LHD model



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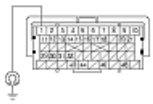
22. Check for continuity between ECM/PCM connector terminal C1 and body ground.



Is there continuity?
YES - Repair short in the wire between the ECM/PCM (C1) and the ETCS control relay, then go to Step 25 .
NO - Go to Step 23 .

---

23. Check for continuity between ETCS control relay 4P connector terminal No. 2 and body ground.

Is there continuity?
YES - Replace the under-hood fuse/relay box, then go to Step 25 .
NO - Go to Step 30 .

24. Turn the ignition switch to LOCK (0).
25. Reconnect all connectors.
26. Turn the ignition switch to ON (II).
27. Reset the ECM/PCM with the HDS.
28. Do the ECM/PCM idle learn procedure.
29. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P1659 indicated?
YES - Check for poor connections or loose terminals at the ETCS control relay and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

30. Reconnect all connectors.
31. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
32. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P1659 indicated?
YES - Check for poor connections or loose terminals at the ETCS control relay and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P1683 (40)

DTC P1683:
Throttle Valve Default Position Spring Performance Problem

⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch to ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm (min^{-1}) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
4. Turn the ignition switch to LOCK (0), and wait 10 seconds.
5. Turn the ignition switch to ON (II).
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1683 indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM.■
7. Turn the ignition switch to LOCK (0).
8. Remove the air cleaner.
9. Push the throttle valve closed as shown.
10. Release the throttle valve.

    Does the throttle valve return?
    YES - Clean the throttle body, then go to Step 12 .
    NO - Go to Step 11 .
11. Replace the throttle body.
12. Turn the ignition switch to ON (II).
13. Reset the ECM/PCM with the HDS.
14. Do the ECM/PCM idle learn procedure.
15. Turn the ignition switch to LOCK (0), and wait 10 seconds.
16. Turn the ignition switch to ON (II).
17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1683 indicated?
    YES - If the throttle body was cleaned, go to Step 11 . If the throttle body was replaced, check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P1684 (40)

DTC P1684:
Throttle Valve Return Spring Performance Problem

⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch to ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm (min^{-1}) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
4. Turn the ignition switch to LOCK (0), and wait 10 seconds.
5. Turn the ignition switch to ON (II).
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1684 indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM.■
7. Turn the ignition switch to LOCK (0).
8. Remove the air cleaner.
9. Push the throttle valve open as shown.
10. Release the throttle valve.

    Does the throttle valve return?
    YES - Clean the throttle body, then go to Step 12 .
    NO - Go to Step 11 .
11. Replace the throttle body.
12. Turn the ignition switch to ON (II).
13. Reset the ECM/PCM with the HDS.
14. Do the ECM/PCM idle learn procedure.
15. Turn the ignition switch to LOCK (0), and wait 10 seconds.
16. Turn the ignition switch to ON (II).
17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1684 indicated?
    YES - If the throttle body was cleaned, go to Step 11 . If the throttle body was replaced, check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P16BC

DTC P16BC:
Alternator FR Terminal Circuit/IGP Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Check for poor connections or loose terminals at the alternator 4P connector.

   Are the connections and terminals OK?
   YES - Go to Step 2 .
   NO - Repair the connector or terminals, then go to Step 18 .

2. Check the alternator mounting surfaces for corrosion.

   Are the mounting surfaces corroded?
   YES - Remove the alternator. Clean all of its mounting surface and reinstall the alternator, then go to Step 18 .
   NO - Go to Step 3 .

3. Turn the ignition switch to ON (II).
4. Clear the DTC with the HDS.
5. Start the engine.
6. Check under these conditions:
   - A/C on
   - Temperature control at maximum cool
   - Blower fan at maximum speed
   - Rear window defogger on
   - Headlights on high beam
7. Hold the engine speed 2,000 rpm (min $^{-1}$) (A/T in P or N, M/T in neutral) for 1 minute.
8. Check for Temporary DTCs or DTCs with the HDS.

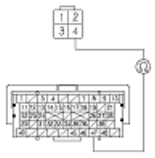
   Is DTC P16BC indicated?
   YES - Go to Step 9 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the alternator.■
9. Turn the ignition switch to LOCK (0).
10. Disconnect the alternator 4P connector.
11. Turn the ignition switch to ON (II).
12. Measure the voltage between alternator 4P connector terminal No. 1 and body ground.

    Is there battery voltage?
    YES - Go to Step 13 .
    NO - Repair open in the wire between the alternator (IG1 line) and the No. 12 ALTERNATOR (10 A) fuse in the under-dash fuse/relay box, then go to Step 18 .

13. Measure the voltage between alternator 4P connector terminal No. 4 and body ground.

    Is there about 5 V?
    YES - Replace the alternator, then go to Step 18 .
    NO - Go to Step 14 .
14. Turn the ignition switch to LOCK (0).
15. Jump the SCS line with the HDS.
16. Disconnect ECM/PCM connector B (49P).

17. Check for continuity between alternator 4P connector terminal No. 4 and ECM/PCM connector terminal B47.



Is there continuity?

YES - Go to Step 27 .

NO - Repair open in the wire between the ECM/PCM (B47) and the alternator, then go to Step 18 .

18. Turn the ignition switch to LOCK (0).
19. Reconnect all connectors.
20. Turn the ignition switch to ON (II).
21. Reset the ECM/PCM with the HDS.
22. Do the ECM/PCM idle learn procedure.
23. Start the engine.
24. Check under these conditions:
    - A/C on
    - Temperature control at maximum cool
    - Blower fan at maximum speed
    - Rear window defogger on
    - Headlights on high beam
25. Hold the engine speed at 2,000 rpm (min $^{-1}$) (A/T in P or N, M/T in neutral) for 1 minute.
26. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P16BC indicated?

YES - Check for poor connections or loose terminals at the alternator and the ECM/PCM, then go to Step 1 .

NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

27. Reconnect all connectors.
28. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
29. Start the engine.
30. Check under these conditions:
    - A/C on
    - Temperature control at maximum cool
    - Blower fan at maximum speed
    - Rear window defogger on
    - Headlights on high beam
31. Hold the engine speed 2,000 rpm (min $^{-1}$) (A/T in P or N, M/T in neutral) for 1 minute.
32. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P16BC indicated?

YES - Check for poor connections or loose terminals at the alternator and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 29 . If the ECM/PCM was substituted, go to Step 1 .

NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2101 (40)

DTC P2101:
ETCS Malfunction

⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

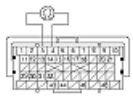
1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Do the ETCS TEST in the INSPECTION MENU with the HDS.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2101 indicated?
   YES - Go to Step 7 .
   NO - Go to Step 5 .
5. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
   - ENGINE SPEED
   - VSS
   - APP SENSOR A
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2101 indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then clean the throttle body. ■
7. Turn the ignition switch to LOCK (0).
8. Remove the air cleaner.
9. Turn the ignition switch to ON (II).
10. Clear the DTC with the HDS.
11. Do the ETCS TEST in the INSPECTION MENU with the HDS.
12. Visually check the throttle valve operation.

    Does the throttle valve operate smoothly?
    YES - Clean the throttle body, then go to Step 22 and recheck. If DTC P2101 is indicated, go to Step 19 .
    NO - Go to Step 13 .
13. Turn the ignition switch to LOCK (0).
14. Disconnect the throttle body 6P connector.
15. Jump the SCS line with the HDS.
16. Disconnect ECM/PCM connector C (49P).
17. Connect throttle body 6P connector terminals No. 5 and No. 6 with a jumper wire.

18. Check for continuity between ECM/PCM connector terminals C3 and C4.



Is there continuity?
YES - Go to Step 27 .
NO - Repair open in the wires between the throttle body and the ECM/PCM (C3, C4), then go to Step 21 .

19. Turn the ignition switch to LOCK (0).

20. Replace the throttle body.

21. Reconnect all connectors.

22. Turn the ignition switch to ON (II).

23. Reset the ECM/PCM with the HDS.

24. Do the ECM/PCM idle learn procedure.

25. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
    - ENGINE SPEED
    - VSS
    - APP SENSOR A

26. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2101 indicated?
YES - Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then clean the throttle body, and go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

27. Reconnect all connectors.

28. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.

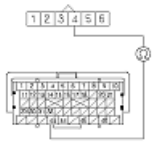
29. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
    - ENGINE SPEED
    - VSS
    - APP SENSOR A

30. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2101 indicated?
YES - Check for poor connections or loose terminals at the throttle body and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 28 . If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2118 (40)

DTC P2118:
Throttle Actuator Current Range/Performance Problem
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Slowly press the accelerator pedal to the floor.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2118 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Jump the SCS line with the HDS.
7. Disconnect the throttle body 6P connector.
8. Disconnect ECM/PCM connector C (49P).
9. Check for continuity between ECM/PCM connector terminal C43 and throttle body 6P connector terminal No. 4.

   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wire between the throttle body and the ECM/PCM (C43), then go to Step 14 .

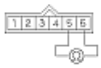
10. Check for continuity between throttle body 6P connector terminals No. 5 and No. 6.

    Is there continuity?
    YES - Repair short in the wires between throttle body 6P connector terminals No. 5 (ETCS− line) and No. 6 (ETCS+ line), then go to Step 14 .
    NO - Go to Step 11 .

11. Check for continuity between body ground and throttle body 6P connector terminals No. 5 and No. 6 individually.

    Is there continuity?
    YES - Repair short in the wire between the throttle body 6P connector and body ground, then go to Step 14 .
    NO - Go to Step 12 .

12. At the throttle body side, measure the resistance between throttle body 6P connector terminals No. 5 and No. 6 with the throttle fully closed.



Is there about 1.0 Ω or less?
YES - Go to Step 13 .
NO - Go to Step 22 .

13. Replace the throttle body.
14. Reconnect all connectors.
15. Turn the ignition switch to ON (II).
16. Reset the ECM/PCM with the HDS.
17. Do the ECM/PCM idle learn procedure.
18. Turn the ignition switch to LOCK (0).
19. Turn the ignition switch to ON (II).
20. Slowly press the accelerator pedal to the floor.
21. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2118 indicated?
YES - Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

22. Reconnect all connectors.
23. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
24. Turn the ignition switch to LOCK (0).
25. Turn the ignition switch to ON (II).
26. Slowly press the accelerator pedal to the floor.
27. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2118 indicated?
YES - Check for poor connections or loose terminals at the throttle body and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 24 . If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2122 (37)

DTC P2122:
APP Sensor A (TP Sensor D) Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check APP SENSOR A in the DATA LIST with the HDS.

   Is there about 0.2 V or less?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at APP sensor A and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between APP sensor 6P connector terminals No. 1 and No. 2.

   Is there about 5 V?
   YES - Go to Step 7 .
   NO - Go to Step 17 .
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).

---

10. Check for continuity between APP sensor 6P connector terminal No. 3 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the ECM/PCM (A18) and APP sensor A, then go to Step 24 .
    NO - Go to Step 11 .

---

11. Connect APP sensor 6P connector terminal No. 3 to body ground with a jumper wire.

---

12. Check for continuity between ECM/PCM connector terminal A18 and body ground.

    Is there continuity?
    YES - Go to Step 13 .
    NO - Repair open in the wire between the ECM/PCM (A18) and APP sensor A, then go to Step 24 .
13. Reconnect ECM/PCM connector A (49P).

---

14. Connect APP sensor 6P connector terminals No. 1 and No. 3 with a jumper wire.
15. Turn the ignition switch to ON (II).
16. Check APP SENSOR A in the DATA LIST with the HDS.

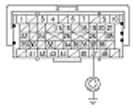
    Is there about 0.2 V or less?
    YES - Go to Step 29 .
    NO - Go to Step 22 .
17. Turn the ignition switch to LOCK (0).
18. Jump the SCS line with the HDS.
19. Disconnect ECM/PCM connector A (49P).

---

20. Connect APP sensor 6P connector terminal No. 1 to body ground with a jumper wire.

---

21. Check for continuity between ECM/PCM connector terminal A26 and body ground.



Is there continuity?

YES - Go to Step 29 .
NO - Repair open in the wire between the ECM/PCM (A26) and APP sensor A, then go to Step 24 .

22. Turn the ignition switch to LOCK (0).
23. Replace the accelerator pedal module.
24. Reconnect all connectors.
25. Turn the ignition switch to ON (II).
26. Reset the ECM/PCM with the HDS.
27. Do the ECM/PCM idle learn procedure.
28. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2122 indicated?

YES - Check for poor connections or loose terminals at APP sensor A and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

29. Turn the ignition switch to LOCK (0).
30. Reconnect all connectors.
31. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
32. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2122 indicated?

YES - Check for poor connections or loose terminals at APP sensor A and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2123 (37)

DTC P2123:
APP Sensor A (TP Sensor D) Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check APP SENSOR A in the DATA LIST with the HDS.

   Is there about 4.9 V or more?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at APP sensor A and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between APP sensor 6P connector terminals No. 1 and No. 2.

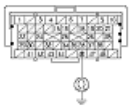
   Is there about 5 V?
   YES - Go to Step 12 .
   NO - Go to Step 7 .
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).

---

10. Connect APP sensor 6P connector terminal No. 2 to body ground with a jumper wire.

---

11. Check for continuity between ECM/PCM connector terminal A36 and body ground.

    Is there continuity?
    YES - Go to Step 19 .
    NO - Repair open in the wire between the ECM/PCM (A36) and APP sensor A, then go to Step 14 .
12. Turn the ignition switch to LOCK (0).
13. Replace the accelerator pedal module.
14. Reconnect all connectors.
15. Turn the ignition switch to ON (II).
16. Reset the ECM/PCM with the HDS.
17. Do the ECM/PCM idle learn procedure.
18. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2123 indicated?
    YES - Check for poor connections or loose terminals at APP sensor A and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
19. Reconnect all connectors.
20. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
21. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2123 indicated?
    YES - Check for poor connections or loose terminals at APP sensor A and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2127 (37)

DTC P2127:
APP Sensor B (TP Sensor E) Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check APP SENSOR B in the DATA LIST with the HDS.

   Is there about 0.2 V or less?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at APP sensor B and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between APP sensor 6P connector terminals No. 4 and No. 5.

   Is there about 5 V?
   YES - Go to Step 7 .
   NO - Go to Step 17 .
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).

---

10. Check for continuity between APP sensor 6P connector terminal No. 6 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the ECM/PCM (A19) and APP sensor B, then go to Step 24 .
    NO - Go to Step 11 .

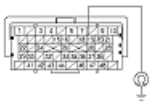
---

11. Connect APP sensor 6P connector terminal No. 6 to body ground with a jumper wire.

---

12. Check for continuity between ECM/PCM connector terminal A19 and body ground.

    Is there continuity?
    YES - Go to Step 13 .
    NO - Repair open in the wire between the ECM/PCM (A19) and APP sensor B, then go to Step 24 .
13. Reconnect ECM/PCM connector A (49P).



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14. Connect APP sensor 6P connector terminals No. 4 and No. 6 with a jumper wire.
15. Turn the ignition switch to ON (II).
16. Check APP SENSOR B in the DATA LIST with the HDS.

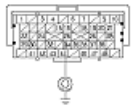
    Is there about 0.2 V or less?
    YES - Go to Step 29 .
    NO - Go to Step 22 .
17. Turn the ignition switch to LOCK (0).
18. Jump the SCS line with the HDS.
19. Disconnect ECM/PCM connector A (49P).

---

20. Connect APP sensor 6P connector terminal No. 4 to body ground with a jumper wire.

---

21. Check for continuity between ECM/PCM connector terminal A25 and body ground.



Is there continuity?

YES - Go to Step 29 .
NO - Repair open in the wire between the ECM/PCM (A25) and APP sensor B, then go to Step 24 .

22. Turn the ignition switch to LOCK (0).
23. Replace the accelerator pedal module.
24. Reconnect all connectors.
25. Turn the ignition switch to ON (II).
26. Reset the ECM/PCM with the HDS.
27. Do the ECM/PCM idle learn procedure.
28. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2127 indicated?

YES - Check for poor connections or loose terminals at APP sensor B and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

29. Turn the ignition switch to LOCK (0).
30. Reconnect all connectors.
31. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
32. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2127 indicated?

YES - Check for poor connections or loose terminals at APP sensor B and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2128 (37)

DTC P2128:
APP Sensor B (TP Sensor E) Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check APP SENSOR B in the DATA LIST with the HDS.

   Is there about 4.9 V or more?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals APP sensor B and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between APP sensor 6P connector terminals No. 4 and No. 5.

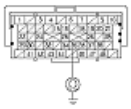
   Is there about 5 V?
   YES - Go to Step 12 .
   NO - Go to Step 7 .
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).

---

10. Connect APP sensor 6P connector terminal No. 5 to body ground with a jumper wire.

---

11. Check for continuity between ECM/PCM connector terminal A35 and body ground.



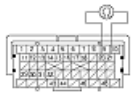
   Is there continuity?
   YES - Go to Step 19 .
   NO - Repair open in the wire between the ECM/PCM (A35) and APP sensor B, then go to Step 14 .
12. Turn the ignition switch to LOCK (0).
13. Replace the accelerator pedal module.
14. Reconnect all connectors.
15. Turn the ignition switch to ON (II).
16. Reset the ECM/PCM with the HDS.
17. Do the ECM/PCM idle learn procedure.
18. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2128 indicated?
   YES - Check for poor connections or loose terminals at APP sensor B and the ECM/PCM, then go to Step 1 .
   NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
19. Reconnect all connectors.
20. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
21. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2128 indicated?
   YES - Check for poor connections or loose terminals at APP sensor B and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
   NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2135 (7)

DTC P2135:
TP Sensor A/B Incorrect Voltage Correlation



⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch to ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

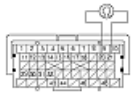
1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Do the ETCS TEST in the INSPECTION MENU with the HDS.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2135 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the intake air duct from the throttle body.
7. Turn the ignition switch to ON (II).
8. Clear the DTC with the HDS.
9. Visually check the throttle valve operation.

   Does the valve temporarily move to its fully closed position?
   YES - Go to Step 16 .
   NO - Go to Step 10 .
10. Turn the ignition switch to LOCK (0).
11. Jump the SCS line with the HDS.
12. Disconnect ECM/PCM connector C (44P).
13. Check for continuity between ECM/PCM connector terminals C20 and C21.

    Is there continuity?
    YES - Go to Step 14 .
    NO - Go to Step 23 .
14. Disconnect the throttle body 6P connector.

15. Check for continuity between ECM/PCM connector terminals C20 and C21.



Is there continuity?

YES - Repair short in the wire between the ECM/PCM connector terminals C20 (TPSA line) and C21 (TPSB line), then go to Step 18 .

NO - Go to Step 16 .

16. Turn the ignition switch to LOCK (0).
17. Replace the throttle body.
18. Reconnect all connectors.
19. Turn the ignition switch to ON (II).
20. Reset the ECM/PCM with the HDS.
21. Do the ECM/PCM idle learn procedure.
22. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2135 indicated?

YES - Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to Step 1 .

NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

23. Reconnect all connectors.
24. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
25. Check for Temporary DTCs or DTCs with the HDS.

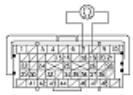
Is DTC P2135 indicated?

YES - Check for poor connections or loose terminals at the throttle body and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .

NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2138 (37)

DTC P2138:
APP Sensor A/B (TP Sensor D/E) Incorrect Voltage Correlation
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.



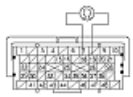
1. Turn the ignition switch to ON (II).
2. Clear the DTC with HDS.
3. Press the accelerator pedal to the floor.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2138 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the APP sensor and the ECM/PCM.■
5. Check APP SENSOR A and APP SENSOR B in the DATA LIST with the HDS.

   Are they the same voltage?
   YES - Go to Step 6 .
   NO - Go to Step 12 .
6. Turn the ignition switch to LOCK (0).
7. Jump the SCS line with the HDS.
8. Disconnect ECM/PCM connector A (49P).
9. Check for continuity between ECM/PCM connector terminals A18 and A19.

   Is there continuity?
   YES - Go to Step 10 .
   NO - Go to Step 22 .
10. Disconnect the APP sensor 6P connector.

11. Check for continuity between ECM/PCM connector terminals A18 and A19.



Is there continuity?

YES - Repair short in the wires between ECM/PCM connector terminals A18 (APSA line) and A19 (APSB line), then go to Step 14 .

NO - Go to Step 13 .

12. Turn the ignition switch to LOCK (0).
13. Replace the accelerator pedal module.
14. Reconnect all connectors.
15. Turn the ignition switch to ON (II).
16. Reset the ECM/PCM with the HDS.
17. Do the ECM/PCM idle learn procedure.
18. Turn the ignition switch to LOCK (0).
19. Turn the ignition switch to ON (II).
20. Press the accelerator pedal to the floor.
21. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2138 indicated?

YES - Check for poor connections or loose terminals at APP sensor A/B and the ECM/PCM, then go to Step 1 .

NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

22. Reconnect all connectors.
23. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
24. Turn the ignition switch to LOCK (0).
25. Turn the ignition switch to ON (II).
26. Press the accelerator pedal to the floor.
27. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2138 indicated?

YES - Check for poor connections or loose terminals at APP sensor A/B and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 23 . If the ECM/PCM was substituted, go to Step 1 .

NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2176 (40)

DTC P2176:
Throttle Actuator Control System Idle Position Not Learned

⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch to ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.
- If DTC P2135 is stored at the same time as DTC P2176, troubleshoot DTC P2135 first, then recheck for DTC P2176.

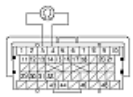
1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II), and wait 10 seconds.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2176 indicated?
   YES - Go to Step 6 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then clean the throttle body. ■
6. Turn the ignition switch to LOCK (0).
7. Remove the air cleaner.
8. Turn the ignition switch to ON (II).
9. Clear the DTC with the HDS.
10. Visually check the throttle valve operation while performing the ETCS TEST in the INSPECTION MENU with the HDS.

    Does the throttle valve move to its fully closed position?
    YES - Go to Step 11 .
    NO - Go to Step 12 .
11. Check for sludge or carbon on the throttle valve.

    Is there sludge or carbon on the throttle valve?
    YES - Clean the throttle body, then go to Step 21 .
    NO - Go to Step 18 .
12. Turn the ignition switch to LOCK (0).
13. Disconnect the throttle body 6P connector.
14. Jump the SCS line with the HDS.
15. Disconnect ECM/PCM connector C (49P).
16. Connect throttle body 6P connector terminals No. 5 and No. 6 with a jumper wire.

17. Check for continuity between ECM/PCM connector terminals C3 and C4.



Is there continuity?
YES - Go to Step 27 .
NO - Repair open in the wires between the throttle body and the ECM/PCM (C3, C4), then go to Step 20 .

18. Turn the ignition switch to LOCK (0).

19. Replace the throttle body.

20. Reconnect all connectors.

21. Turn the ignition switch to ON (II).

22. Reset the ECM/PCM with the HDS.

23. Do the ECM/PCM idle learn procedure.

24. Turn the ignition switch to LOCK (0).

25. Turn the ignition switch to ON (II), and wait 10 seconds.

26. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2176 indicated?
YES - Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then clean the throttle body, and go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

27. Reconnect all connectors.

28. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.

29. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2176 indicated?
YES - Check for poor connections or loose terminals at the throttle body and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2184 (192)

DTC P2184:
ECT Sensor 2 Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check ECT SENSOR 2 in the DATA LIST with the HDS.

   Is about 180 °C (356 °F) or more, or 0.08 V or less indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 2 and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the ECT sensor 2 2P connector.
5. Turn the ignition switch to ON (II).
6. Check ECT SENSOR 2 in the DATA LIST with the HDS.

   Is about 180 °C (356 °F) or more, or 0.08 V or less indicated?
   YES - Go to Step 7 .
   NO - Go to Step 11 .
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).
10. Check for continuity between ECT sensor 2 2P connector terminal No. 2 and body ground.

    Is there continuity?
    YES - Repair short in the wire between ECT sensor 2 and the ECM/PCM (A34), then go to Step 13 .
    NO - Go to Step 18 .
11. Turn the ignition switch to LOCK (0).
12. Replace ECT sensor 2.
13. Reconnect all connectors.
14. Turn the ignition switch to ON (II).
15. Reset the ECM/PCM with the HDS.
16. Do the ECM/PCM idle learn procedure.
17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2184 indicated?
    YES - Check for poor connections or loose terminals at ECT sensor 2 and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
18. Reconnect all connectors.
19. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
20. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2184 indicated?
    YES - Check for poor connections or loose terminals at ECT sensor 2 and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2185 (192)

DTC P2185:
ECT Sensor 2 Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check ECT SENSOR 2 in the DATA LIST with the HDS.

   Is about −40 °C (−40 °F) or less, or 4.90 V or more indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 2 and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the ECT sensor 2 2P connector.
5. Connect ECT sensor 2 2P connector terminals No. 1 and No. 2 with a jumper wire.
6. Turn the ignition switch to ON (II).
7. Check ECT SENSOR 2 in the DATA LIST with the HDS.

   Is about −40 °C (−40 °F) or less, or 4.90 V or more indicated?
   YES - Go to Step 8 .
   NO - Go to Step 20 .
8. Turn the ignition switch to LOCK (0).
9. Remove the jumper wire from ECT sensor 2 2P connector.
10. Turn the ignition switch to ON (II).

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11. Measure the voltage between ECT sensor 2 2P connector terminal No. 2 and body ground.

    Is there about 5 V?
    YES - Go to Step 12 .
    NO - Go to Step 16 .
12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.
14. Disconnect ECM/PCM connector A (49P).

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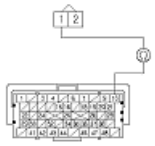
15. Check for continuity between ECT sensor 2 2P connector terminal No. 1 and ECM/PCM connector terminal A10.



    Is there continuity?
    YES - Go to Step 27 .
    NO - Repair open in the wire between the ECM/PCM (A10) and ECT sensor 2, then go to Step 22 .
16. Turn the ignition switch to LOCK (0).
17. Jump the SCS line with the HDS.
18. Disconnect ECM/PCM connector A (49P).

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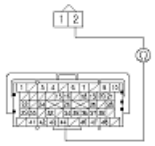
19. Check for continuity between ECT sensor 2 2P connector terminal No. 2 and ECM/PCM connector terminal A34.



Is there continuity?
YES - Go to Step 27 .
NO - Repair open in the wire between the ECM/PCM (A34) and ECT sensor 2, then go to Step 22 .

20. Turn the ignition switch to LOCK (0).
21. Replace ECT sensor 2.
22. Reconnect all connectors.
23. Turn the ignition switch to ON (II).
24. Reset the ECM/PCM with the HDS.
25. Do the ECM/PCM idle learn procedure.
26. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2185 indicated?
YES - Check for poor connections or loose terminals at ECT sensor 2 and the ECM/PCM, then go to Step 1 .
NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

27. Reconnect all connectors.
28. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
29. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2185 indicated?
YES - Check for poor connections or loose terminals at ECT sensor 2 and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2228 (13)

DTC P2228:
BARO Sensor Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check the BARO SENSOR in the DATA LIST with the HDS.

   Is about 43 kPa (323 mmHg, 12.7 in.Hg), or 1.3 V or less indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time.■
3. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2228 indicated?
   YES - Check for poor connections or loose terminals at the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
   NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2229 (13)

DTC P2229:
BARO Sensor Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

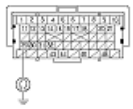
1. Turn the ignition switch to ON (II).
2. Check the BARO SENSOR in the DATA LIST with the HDS.

   Is about 160 kPa (1,200 mmHg, 47.2 in.Hg), or 4.5 V or more indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time.■
3. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2229 indicated?
   YES - Check for poor connections or loose terminals at the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
   NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2238 (48)

DTC P2238:
A/F Sensor (Sensor 1) AFS+ Line Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2238 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM.■
4. Turn the ignition switch to LOCK (0).
5. Jump the SCS line with the HDS.
6. Remove the cowl cover and under cowl-cover panel.
7. Disconnect the A/F sensor (Sensor 1) 4P connector.
8. Disconnect ECM/PCM connector C (49P).
9. Check for continuity between ECM/PCM connector terminal C29 and body ground.

   Is there continuity?
   YES - Repair short in the wire between the ECM/PCM (C29) and the A/F sensor (Sensor 1), then go to Step 11 .
   NO - Go to Step 10 .
10. Replace the A/F sensor (Sensor 1).
11. Reconnect all connectors.
12. Turn the ignition switch to ON (II).
13. Reset the ECM/PCM with the HDS.
14. Do the ECM/PCM idle learn procedure.
15. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2238 indicated?
    YES - Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to Step 1 . If the connector and terminal fits are OK, go to Step 17 .
    NO - Go to Step 16 .
16. Monitor the OBD STATUS for DTC P2238 in the DTCs MENU with the HDS.

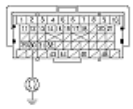
    Does the screen indicate PASSED?
    YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 15 , go to the indicated DTC's troubleshooting.■
    NO - If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to Step 1 . If the screen indicates NOT COMPLETED, go to Step 13 .
17. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
18. Start the engine, and let it idle.
19. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2238 indicated?
    YES - If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 18 . If the ECM/PCM was substituted, go to Step 1 .
    NO - Go to Step 20 .
20. Monitor the OBD STATUS for DTC P2238 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?
    YES - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs were indicated in Step 19 , go to the indicated DTC's troubleshooting.■
    NO - If the screen indicates FAILED, go to Step 1 . If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 18 . If the ECM/PCM was substituted, go to Step 1 . If the screen indicates NOT COMPLETED, keep idling until a result come on.

DTC Troubleshooting: P2252 (48)

DTC P2252:
A/F Sensor (Sensor 1) AFS− Line Low Voltage



NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2252 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Jump the SCS line with the HDS.
7. Remove the cowl cover and under cowl-cover panel.
8. Disconnect the A/F sensor (Sensor 1) 4P connector.
9. Disconnect ECM/PCM connector C (49P).
10. Check for continuity between ECM/PCM connector terminal C30 and body ground.

    Is there continuity?
    YES - Repair short in the wire between the ECM/PCM (C30) and the A/F sensor (Sensor 1), then go to Step 12 .
    NO - Go to Step 11 .
11. Replace the A/F sensor (Sensor 1).
12. Reconnect all connectors.
13. Turn the ignition switch to ON (II).
14. Reset the ECM/PCM with the HDS.
15. Do the ECM/PCM idle learn procedure.
16. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2252 indicated?
    YES - Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to Step 1 . If the connector and terminal fits are OK, go to Step 18 .
    NO - Go to Step 17 .
17. Monitor the OBD STATUS for DTC P2252 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?
    YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 16 , go to the indicated DTC's troubleshooting.■
    NO - If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to Step 1 . If the screen indicates NOT COMPLETED, go to Step 14 .
18. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
19. Start the engine, and let it idle.
20. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2252 indicated?
    YES - If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 19 . If the ECM/PCM was substituted, go to Step 1 .
    NO - Go to Step 21 .
21. Monitor the OBD STATUS for DTC P2252 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?
    YES - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs were indicated in Step 20 , go to the indicated DTC's troubleshooting.■
    NO - If the screen indicates FAILED, go to Step 1 . If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 19 . If the ECM/PCM was substituted, go to Step 1 . If the screen indicates NOT COMPLETED, keep idling until a result come on.

DTC Troubleshooting: P2610 (132)

DTC P2610:
ECM/PCM Ignition Off Internal Timer Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2610 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time.■
4. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2610 indicated?
   YES - If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
   NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P2648 (21)

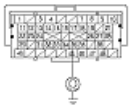
DTC P2648:
Rocker Arm Oil Control Solenoid Circuit Low Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Select the VTEC TEST in the INSPECTION MENU with in the HDS.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2648 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the rocker arm oil control solenoid 2P connector.
7. Measure the resistance between the rocker arm oil control solenoid 2P connector terminals No. 1 and No. 2.

   Is there 14−30 Ω at room temperature?
   YES - Go to Step 8 .
   NO - Go to Step 11 .
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector B (49P).

10. Check for continuity between ECM/PCM connector terminal B35 and body ground.



Is there continuity?
YES - Repair short in the wire between the ECM/PCM (B35) and the rocker arm oil control solenoid, then go to Step 12 .
NO - Go to Step 19 .

11. Replace the rocker arm oil control valve.
12. Reconnect all connectors.
13. Turn the ignition switch to ON (II).
14. Reset the ECM/PCM with the HDS.
15. Do the ECM/PCM idle learn procedure.
16. Do the VTEC TEST in the INSPECTION MENU with the HDS.
17. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2648 indicated?
YES - Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM, then go to Step 1 .
NO - Go to Step 18 .

18. Monitor the OBD STATUS for DTC P2648 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 17 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM, then go to Step 1 . If the screen indicates NOT COMPLETED, go to Step 16 .

19. Reconnect all connectors.
20. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
21. Do the VTEC TEST in the INSPECTION MENU with the HDS.
22. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2648 indicated?
YES - Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 21 . If the ECM/PCM was substituted, go to Step 1 .
NO - Go to Step 23 .

23. Monitor the OBD STATUS for DTC P2648 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs were indicated in Step 22 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 21 . If the ECM/PCM was substituted, go to Step 1 . If the screen indicates NOT COMPLETED, go to Step 21 .

DTC Troubleshooting: P2649 (21)

DTC P2649:
Rocker Arm Oil Control Solenoid Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
4. Check for Temporary DTCs or DTCs with the HDS.

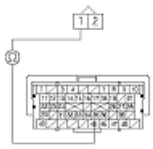
   Is DTC P2649 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM.■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the rocker arm oil control solenoid 2P connector.
7. At the solenoid side, measure the resistance between rocker arm oil control solenoid 2P connector terminals No. 1 and No. 2.

   Is there 14−30 Ω at room temperature?
   YES - Go to Step 8 .
   NO - Go to Step 11 .

8. Check for continuity between rocker arm oil control solenoid 2P connector terminal No. 2 and body ground.

   Is there continuity?
   YES - Go to Step 9 .
   NO - Repair open in the wire between the rocker arm oil control solenoid and G101; AT model, MT model, then go to Step 13 .
9. Jump the SCS line with the HDS.
10. Disconnect ECM/PCM connector B (49P).

11. Check for continuity between ECM/PCM connector terminal B35 and rocker arm oil control solenoid 2P connector terminal No. 1.



Is there continuity?
YES - Go to Step 19 .
NO - Repair open in the wire between the ECM/PCM (B35) and the rocker arm oil control solenoid, then go to Step 13 .

12. Replace the rocker arm oil control valve.
13. Reconnect all connectors.
14. Turn the ignition switch to ON (II).
15. Reset the ECM/PCM with the HDS.
16. Do the ECM/PCM idle learn procedure.
17. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2649 indicated?
YES - Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM, then go to Step 1 .
NO - Go to Step 18 .

18. Monitor the OBD STATUS for DTC P2649 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 17 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, go to Step 1 and recheck. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

19. Reconnect all connectors.
20. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
21. Start the engine, and let it idle.
22. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2649 indicated?
YES - Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 21 . If the ECM/PCM was substituted, go to Step 1 .
NO - Go to Step 23 .

23. Monitor the OBD STATUS for DTC P2649 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?
YES - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs were indicated in Step 21 , go to the indicated DTC's troubleshooting.■
NO - If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 21 . If the ECM/PCM was substituted, go to Step 1 . If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC Troubleshooting: P2A00 (61)

DTC P2A00:
A/F Sensor (Sensor 1) Circuit Range/Performance Problem
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm (min^{-1}) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
4. Test-drive under these conditions:
   - Engine coolant temperature (ECT SENSOR 1) above 70 °C (158 °F)
   - A/T in D, M/T in 3rd or 4th
   - Vehicle speed between 40−88 km/h (25−55 mph) for 5 minutes
   - Drive at a steady speed between 88−120 km/h (55−75 mph) for 10 seconds, then decelerate (with throttle fully closed) for 5 seconds
5. Monitor the OBD STATUS for DTC P2A00 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?
   YES - Go to Step 6 .
   NO - If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 3 and recheck.
6. Turn the ignition switch to LOCK (0).
7. Replace the A/F sensor (Sensor 1).
8. Turn the ignition switch to ON (II).
9. Reset the ECM/PCM with the HDS.
10. Do the ECM/PCM idle learn procedure.
11. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 70 °C (158 °F)
    - A/T in D, M/T in 3rd or 4th
    - Vehicle speed between 40−88 km/h (25−55 mph) for 5 minutes
    - Drive at a steady speed between 88−120 km/h (55−75 mph) for 10 seconds, then decelerate (with throttle fully closed) for 5 seconds
12. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2A00 indicated?
    YES - Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to Step 1 .
    NO - Go to Step 13 .
13. Monitor the OBD STATUS for DTC P2A00 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?
    YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 12 , go to the indicated DTC's troubleshooting.■
    NO - If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to Step 1 . If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 11 .

DTC Troubleshooting: U0029 (126)

DTC U0029:
F-CAN Malfunction (BUS-OFF (ECM/PCM))
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

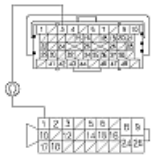
1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC U0029 indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time.■
4. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC U0029 indicated?
   YES - If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
   NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: U0121 - PGM-FI System

DTC U0121:
F-CAN Malfunction (ECM/PCM-ABS Modulator-Control Unit)
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.



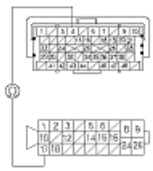
1. Turn the ignition switch to ON (II).
2. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC U0029 and U0121 indicated at the same time?
   YES - Go to the troubleshooting for DTC U0029.■
   NO - Go to Step 3 .
3. Clear the DTC with the HDS.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC U0121 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ABS modulator-control unit, and the ECM/PCM.■
5. Check for communication to the ABS system with the HDS.

   Does the HDS communicate with the ABS modulator-control unit?
   YES - Go to Step 6 .
   NO - Go to the DLC circuit troubleshooting. ■
6. Turn the ignition switch to LOCK (0).
7. Jump the SCS line with the HDS.
8. Disconnect the ABS modulator-control unit 25P connector.
9. Disconnect ECM/PCM connector A (49P).
10. Check for continuity between ECM/PCM connector terminal A3 and ABS modulator-control unit 25P connector terminal No. 1.

    Is there continuity?
    YES - Go to Step 11 .
    NO - Repair open in the wire between the ECM/PCM (A3) and the ABS modulator-control unit, then go to Step 12 .



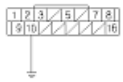
11. Check for continuity between ECM/PCM connector terminal A4 and ABS modulator-control unit 25P connector terminal No. 17.

    Is there continuity?
    YES - Substitute a known-good ABS modulator-control unit, then go to Step 12 and recheck. If DTC U0121 is not indicated after substitution, replace the original ABS modulator-control unit, then go to Step 12 .
    NO - Repair open in the wire between the ECM/PCM (A4) and the ABS modulator-control unit, then go to Step 12 .
12. Reconnect all connectors.
13. Turn the ignition switch to ON (II).
14. Reset the ECM/PCM with the HDS.
15. Do the ECM/PCM idle learn procedure.
16. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC U0122 indicated?
    YES - Check for poor connections or loose terminals at the gauge control module, the ABS modulator-control unit, and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: U0131 (126)

DTC U0131:
F-CAN Malfunction (ECM/PCM-EPS Control Unit)
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.



1. Turn the ignition switch to ON (II).
2. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC U0029 and U0131 indicated at the same time?
   YES - Go to the troubleshooting for DTC U0029.■
   NO - Go to Step 3 .
3. Clear the DTC with the HDS.
4. Check for Temporary DTCs or DTCs with the HDS.

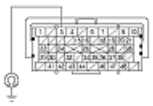
   Is DTC U0131 indicated?
   YES - Go to Step 5 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EPS control unit and the ECM/PCM.■
5. Check for communication to the EPS system with the HDS.

   Does the HDS communicate with the EPS control unit?
   YES - Go to Step 6 .
   NO - Go to the DLC circuit troubleshooting. ■
6. Turn the ignition switch to LOCK (0).
7. Jump the SCS line with the HDS.
8. Disconnect EPS control unit C (16P) connector.
9. Disconnect ECM/PCM connector A (49P).
10. Connect EPS control unit connector terminal C10 to body ground with a jumper wire.

---

11. Check for continuity between ECM/PCM connector terminal A3 and body ground.

    Is there continuity?
    YES - Go to Step 12 .
    NO - Repair open in the wire between the ECM/PCM (A3) and the EPS control unit, then go to Step 14 .



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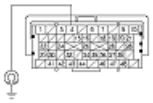
12. Connect EPS control unit connector terminal C9 to body ground with a jumper wire.

---

13. Check for continuity between ECM/PCM connector terminal A4 and body ground.

    Is there continuity?
    YES - Substitute a known-good EPS control unit, then go to Step 14 and recheck. If DTC U0131 is not indicated after substitution, replace the original EPS control unit, then go to Step 14 .
    NO - Repair open in the wire between the ECM/PCM (A4) and the EPS control unit, then go to Step 14 .



14. Reconnect all connectors.
15. Turn the ignition switch to ON (II).
16. Reset the ECM/PCM with the HDS.
17. Do the ECM/PCM idle learn procedure.
18. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC U0131 indicated?
    YES - Check for poor connections or loose terminals at the EPS control unit and the ECM/PCM, then go to Step 1 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

Set speed does not cancel (engine rpm stays high) when the clutch pedal is pressed

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Do the clutch pedal position switch test.
3. Do the cruise control input test. Test the clutch pedal position switch signal input.

Also check for

- Short to ground on the WHT wire
- Faulty clutch pedal position switch

Set speed will not resume when the resume/accel switch is pressed (with the cruise control main switch turned on, and set speed temporarily canceled by pressing the clutch pedal)

Diagnostic procedure

1. Check for PGM-FI DTCs.
2. Check the clutch pedal position switch adjustment.
3. Do the cruise control combination switch test.
4. Do the cruise control input test. Test the cruise control resume/accel switch signal input. Test the clutch pedal position switch signal input.

Also check for

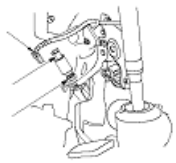
- Faulty clutch pedal position switch
- Open circuit, loose or disconnected terminals: LT GRN/BLK, BLU wire

Clutch Pedal Position Switch Test

1. Disconnect the 2P connector from the clutch pedal position switch.

2. Check for continuity between the terminals according to the table.
   - If the continuity is not as specified, replace the clutch pedal position switch.
   - If OK, install the clutch pedal position switch, and adjust the pedal height.

Clutch Pedal Position Switch Replacement



1. Disconnect the 2P connector (A) from the clutch pedal position switch.
2. Loosen the locknut (B), then remove the clutch pedal position switch (C).
3. Install the clutch pedal position switch, and adjust the pedal height.

Cruise Control (ECM/PCM) Input Test

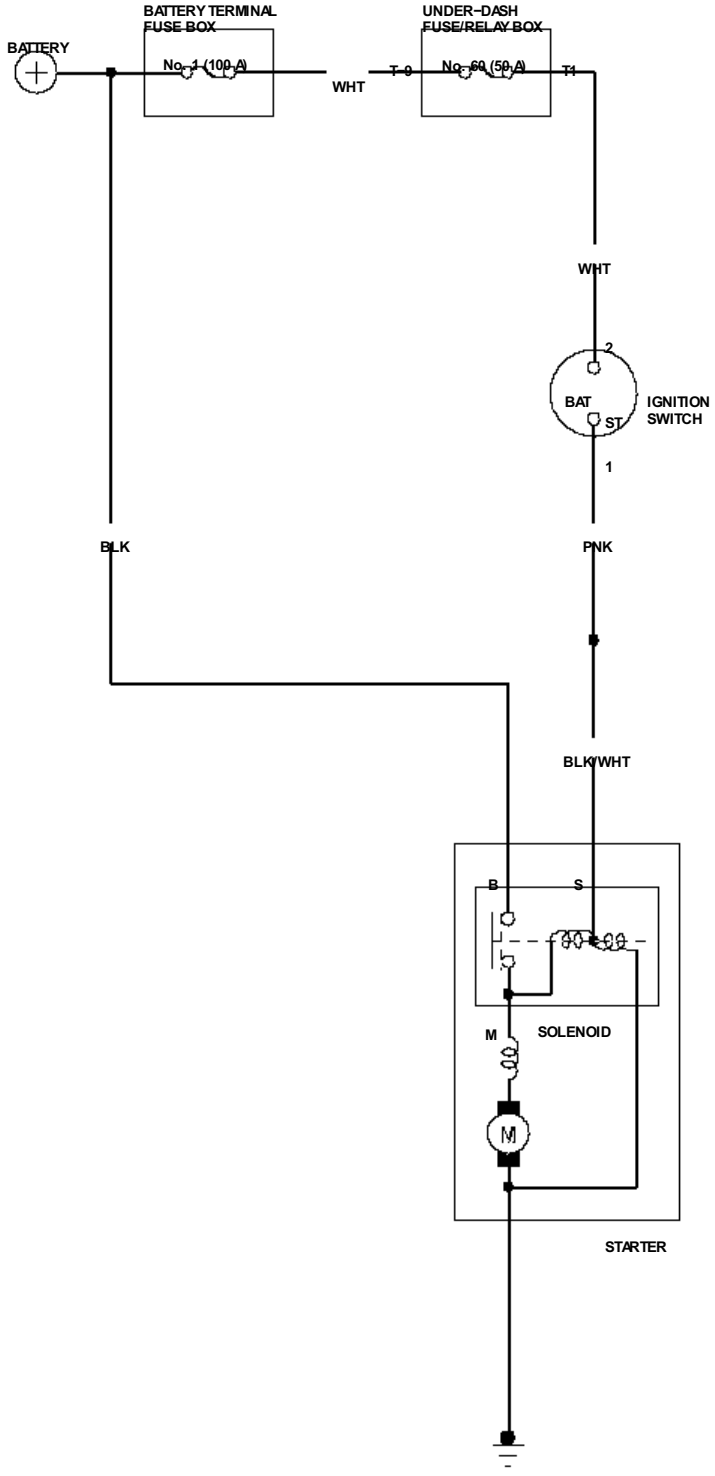
1. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC).
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the engine control module (ECM)/powertrain control module (PCM). If it doesn't communicate, troubleshoot the DLC circuit.
4. Go to PGM-FI, and check for DTCs.
5. Do the following tests while monitoring parameters in the PGM-FI DATA LIST with the HDS.
   NOTE: Intermittent failures are often caused by loose circuit connections. While monitoring cruise control inputs, flex their circuits, and note if any of the test results change.

Signal to be tested	Test condition	Parameter: Desired result	Possible cause if result is not obtained
Brake pedal position switch signal	Brake pedal pressed, then released	CRUISE BRAKE SW should indicate OFF when the brake pedal is pressed and ON when the brake pedal is released.	• Faulty brake pedal position switch • Blown No. 24 (10 A) fuse in the under-dash fuse/relay box • An open in the wire between the ECM/PCM and the brake pedal position switch • A wire shorted to ground between the ECM/PCM and the brake pedal position switch
Clutch pedal position switch signal (M/T model)	Clutch pedal pressed, then released	SHIFT/CLUTCH SW should indicate OFF when the clutch pedal is pressed and ON when the clutch pedal is released.	• Faulty clutch pedal position switch • An open in the wire between the ECM and the clutch pedal position switch • A wire shorted to ground between the ECM and the clutch pedal position switch • Poor ground G401
Transmission range switch signal (A/T model)	Shift lever in D and S	SHIFT/CLUTCH SW should indicate ON in P, R, and N and OFF in D and S.	• Faulty transmission range switch • An open in the wire between the PCM and the transmission range switch • A wire shorted to ground between the PCM and the transmission range switch • Poor ground G101
Set switch signal	Set/decel switch pressed and released	CRUISE CONTROL SET SW should indicate ON when the set/decel switch is pressed and OFF when the set/decel switch is released.	• Faulty cruise control combination switch • An open in the wire between the gauge control module and the cruise control combination switch • A wire shorted to ground between the gauge control module and the cruise control combination switch
Resume switch signal	Resume/accel switch pressed and released	CRUISE CONTROL RESUME SW should indicate ON when the resume/accel switch is pressed and OFF when the resume/accel switch is released.	• Faulty cruise control combination switch • An open in the wire between the gauge control module and the cruise control combination switch • A wire shorted to ground between the gauge control module and the cruise control combination switch
Cancel switch signal	Cancel switch pressed and released	CRUISE CONTROL CANCEL SW should indicate ON when the cancel switch is pressed and OFF when the cancel switch is released.	Faulty cruise control combination switch
Cruise control main switch signal	Cruise control main switch ON and OFF	CRUISE CONTROL MAIN SW should indicate ON when the cruise control main switch is turned ON and OFF when the cruise control main switch is turned OFF.	• Faulty cruise control combination switch • An open in the wire between the gauge control module and the cruise control combination switch • A wire shorted to ground between the gauge control module and the cruise control combination switch • An open in the wire between the cruise control combination switch and ground

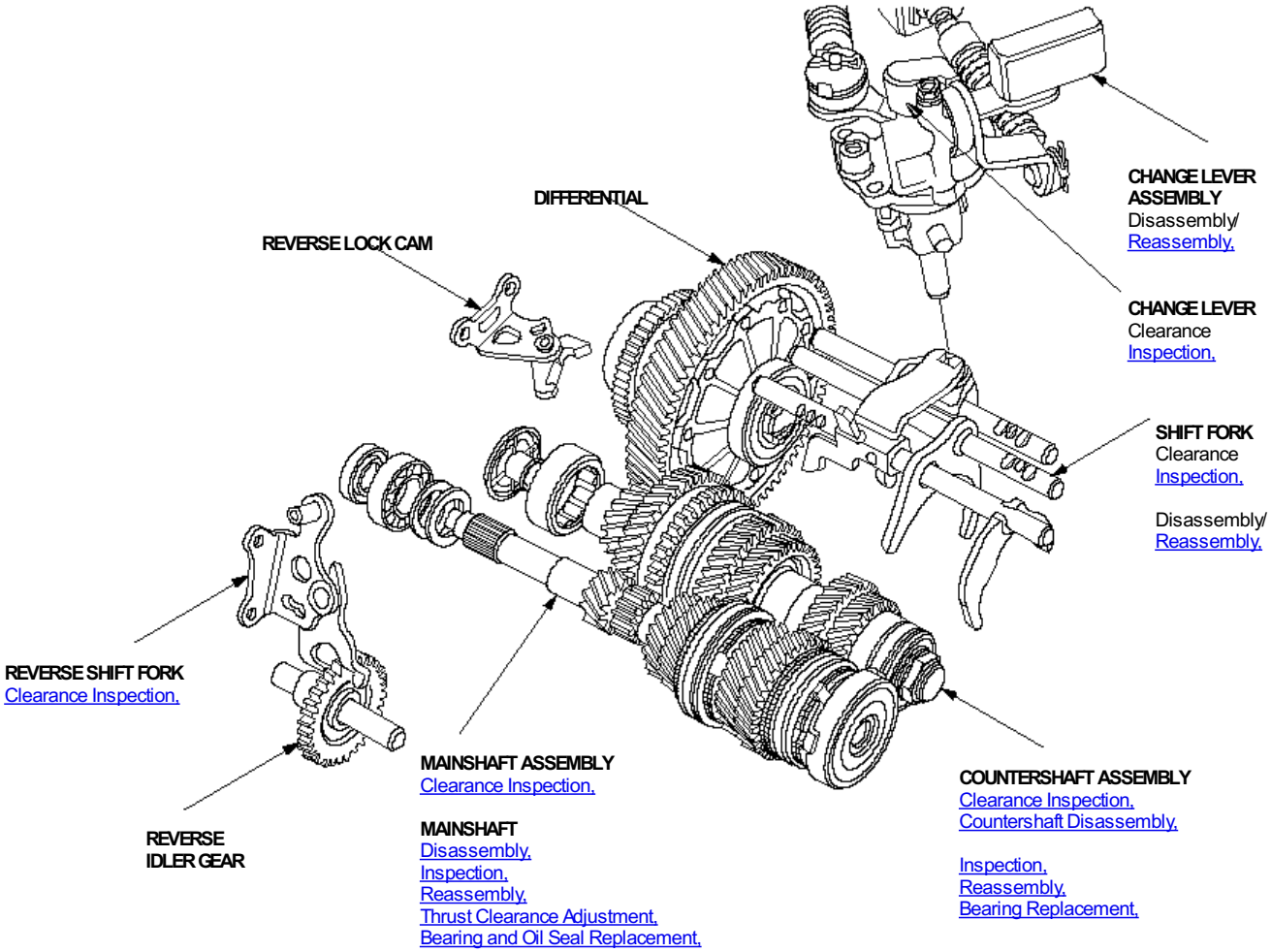
Signal to be tested	Test condition	Parameter: Desired result	Possible cause if result is not obtained
Cruise control indicator signal	Start the engine, turn the cruise control main switch on, and drive the vehicle above 40 km/h (25 mph). Set and cancel the cruise control.	CRUISE INDICATOR should indicate ON when the cruise control is set and OFF when the cruise control is canceled.	Faulty gauge control module

Starting System Circuit Diagram

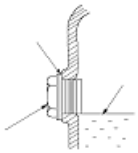
M/T model



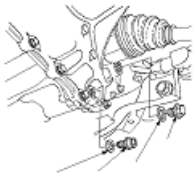
M/T Component Location Index



MTF Inspection and Replacement



1. Park the vehicle on level ground, and turn the engine OFF.
2. Raise the vehicle on a lift and make sure it is securely supported.
3. Remove the splash shield.
4. Remove the filler plug (A) and sealing washer (B), check the condition of the MTF and make sure it is at the proper level (C).



5. If the MTF is dirty, remove the drain plug (A) and drain the MTF.
6. Reinstall the drain plug with a new sealing washer (B), and refill the transmission with MTF to the proper level. Always use Genuine Honda Manual Transmission Fluid (MTF).

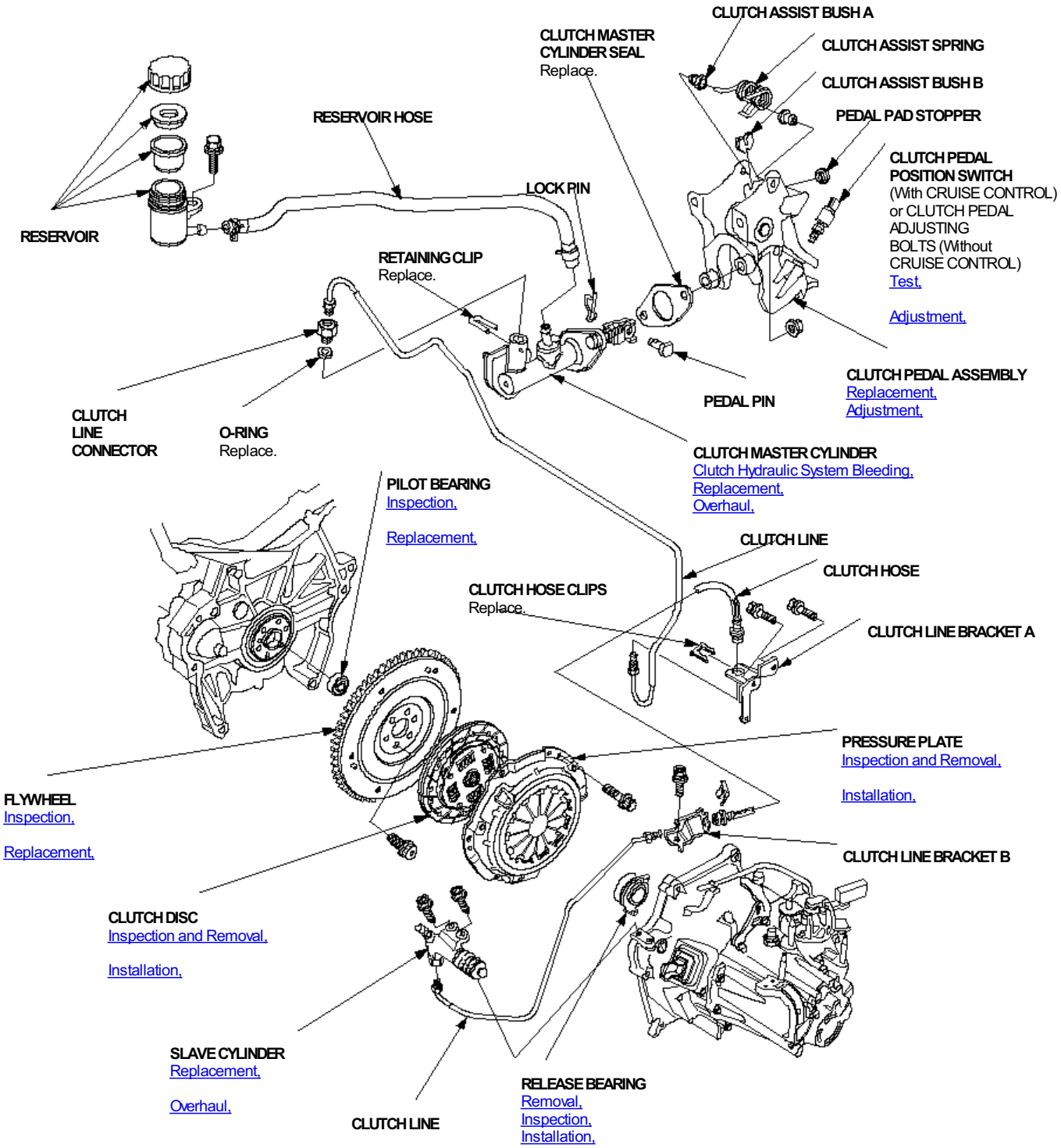
Fluid Capacity

1.5 L (1.6 US qt, 1.3 Imp qt) at fluid change
1.6 L (1.7 US qt, 1.4 Imp qt) at overhaul

7. Install the filler plug (C) with a new sealing washer (D).
8. Install the splash shield.
9. Lower the vehicle on the lift.

Clutch Component Location Index

NOTE: RHD type is shown, LHD type is similar.



Clutch Master Cylinder Replacement

NOTE:

- Use fender covers to avoid damaging painted surfaces.
- Do not spill brake fluid on the vehicle; it may damage the paint or plastic. If brake fluid does contact the paint or plastic, wash it off immediately with water.
- Without cruise control: Clutch pedal adjusting bolt is substituted as clutch pedal position switch.
- Put on gloves to protect your hands.

1. Secure the hood in the wide open position (support rod in the lower hole).
2. Remove the windshield wiper arms.
3. Remove the cowl cover and hood hinge cover.
4. Remove the wiper motor.
5. Remove the under-cowl panel.
6. LHD model: Remove the air cleaner housing.
7. Remove the brake fluid from the clutch master cylinder reservoir with a syringe.
8. Remove the driver's dashboard lower cover; RHD model, LHD model.
9. Pry out the lock pin (A), and pull the pedal pin (B) out of the yoke. Remove the master cylinder mounting nuts (C).

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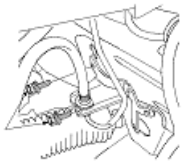
10. LHD model: Remove the clutch pipe bracket bolts (A).
11. LHD model: Remove the reservoir hose from two clips.



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12. Disconnect the reservoir hose (A), then remove the clutch line (B) from the clutch master cylinder (C). Plug or wrap the end of the reservoir hose and clutch line with a shop towel to prevent brake fluid from coming out.
    NOTE:
    - Loosen the flare nut (D) while holding the clutch line connector (E) with a wrench.
    - Inspect the hose. If the hose has damage, leaks interference, or twisting, replace it.
13. Remove the clutch master cylinder seal (F) from the clutch master cylinder.

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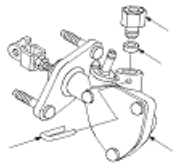
14. Remove the retaining clip (A), then remove the clutch line connector (B) and the O-ring (C) from the master cylinder (D).



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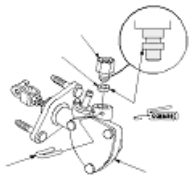
15. Install the clutch line connector (A) with a new O-ring (B), then set in a new retaining clip (C) to the master cylinder (D).
    NOTE: Apply the rubber grease on the O-ring and joint part (E) of the clutch line connector.



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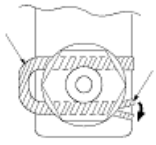
16. To prevent the retaining clip (A) from coming off, pry apart the tip (B) of the clip with a screwdriver.



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17. Install the new clutch master cylinder seal (A) to the clutch master cylinder (B).
18. Connect the clutch line (C), and reservoir hose (D).
    NOTE: Tighten the flare nut (E) while holding the clutch line connector (F) with a wernch.
19. LHD model: Install the two reservoir hose clips.

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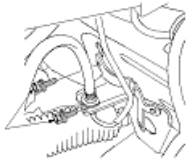
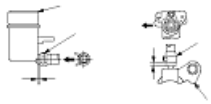
20. LHD model: Install the clutch pipe bracket bolts (A).

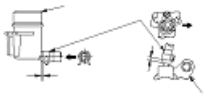


21. Make sure the hose clamps (A) are positioned on the master cylinder (B) and reservoir (C) as shown.
22. LHD model: Install the air cleaner housing.

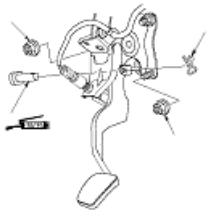
RHD model



LHD model

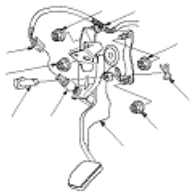


23. Install the master cylinder mounting nuts (A).
24. Apply multipurpose grease to the pedal pin (B), and slide it into the yoke, then install a lock pin (C).
25. Adjust the clutch pedal and clutch pedal position switch.
26. Bleed the clutch hydraulic system.
27. Install the driver dashboard lower cover; RHD model, LHD model.
28. Install the under-cowl panel.
29. Install the wiper motor.
30. Install the cowl cover and hood hinge cover.
31. Install the windshield wiper arms.
32. Check the clutch operation, and check for leaks.
33. Test-drive the vehicle.

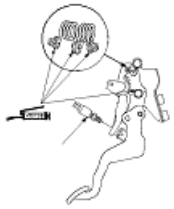


Clutch Pedal Assembly Replacement

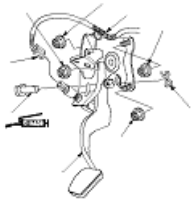
NOTE: Without cruise control: The adjusting bolt is substituted as clutch pedal position switch.



1. Disconnect the clutch pedal position switch connector (A). Remove the harness clip (B).
2. Pry out the lock pin (C), and pull the pedal pin (D) out of the yoke.
3. Remove the master cylinder mounting nuts (E) and clutch pedal mounting nuts (F).
4. Remove the clutch pedal assembly (G).
5. Remove the clutch pedal position switch (H).



6. Install the clutch pedal position switch (A).



7. Install the clutch pedal assembly (A).
8. Install the clutch pedal mounting nuts (B) and master cylinder mounting nuts (C).
9. Apply multipurpose grease to the pedal pin (D), and slide it into the yoke, then install a lock pin (E).
10. Install the harness clip (F). Connect the clutch pedal position switch connector (G).
11. Adjust the clutch pedal and clutch pedal position switch.
12. Check the clutch operation.

Clutch Pedal and Clutch Position Switch Adjustment

NOTE:

- Remove the driver's side floor mat before adjusting the clutch pedal.
- With cruise control: Cruise control, check the clutch pedal position switch.
- Without cruise control: The adjusting bolt is substituted as clutch pedal position switch.
  The clutch pedal height adjustment is same procedure as with the clutch pedal position switch.
- If there is no clearance between the master cylinder piston and push rod, the release bearing will be held against the diaphragm spring, which can result in clutch slippage or other clutch problems.

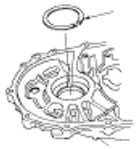
1. Disconnect the clutch pedal position switch connector.
2. Loosen the clutch pedal position switch locknut (A), and back off the clutch pedal position switch (B), it no longer touches the clutch pedal switch pad (C).
3. Loosen pushrod locknut (D), and turn the push rod (E) in or out to get the specified height (F), and the stroke (G) at the clutch pedal.
   Clutch Pedal Height (F):
   RHD model: 145 mm (5.71 in.)
   LHD model: 150 mm (5.91 in.)

   Clutch Pedal Stroke (G): 120−130 mm (4.72−5.12 in.)

4. Tighten the clutch pushrod locknut (A).
5. With the clutch pedal released, turn in the clutch pedal position switch (B) until it contacts the clutch pedal.
6. Turn in the clutch pedal position switch an additional 3/4 to 1 turn.
7. While holding the clutch pedal position switch, tighten the locknut (C).
8. Connect the clutch pedal position switch connector.

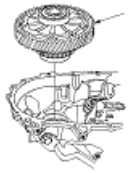
M/T Clutch Housing Differential Thrust Clearance Adjustment

Special Tools Required



Inner driver handle, 40 mm
07746-0030100

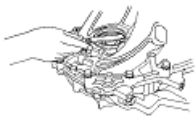
1. Remove the left driveshaft side oil seal.
2. Install the 72 mm or 80 mm shim (A) that's the same size as the one you removed.



3. Install the differential assembly (A) into the clutch housing.
4. Install the transmission housing onto the clutch housing, then tighten the 8 mm flange bolts in a crisscross pattern in several steps.
   8 x 1.25 mm
   27 N·m (2.8 kgf·m, 20 lbf·ft)

5. Use the 40 mm inner driver handle to bottom the differential assembly in the clutch housing.

6. Measure clearance between 72 mm or 80 mm shim and bearing outer race in transmission housing.
   Standard: 0.01–0.1 mm (0.0004–0.004 in.)



7. If the clearance is more than the standard, select a new 72 mm shim or 80 mm shim from the following table. If the clearance measured in Step 6 is within the standard, go to Step 10 .

72 mm Shim: L13Z1 engine

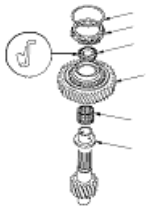
Type	Part Number	Thickness
A	41441-PL3-A000	1.0 mm (0.0394 in.)
B	41442-PL3-A000	1.1 mm (0.0433 in.)
C	41443-PL3-A000	1.2 mm (0.0472 in.)
D	41444-PL3-A000	1.3 mm (0.0512 in.)
E	41445-PL3-A000	1.4 mm (0.0551 in.)
F	41446-PL3-A000	1.5 mm (0.0591 in.)
G	41447-PL3-A000	1.6 mm (0.0630 in.)
H	41448-PL3-A000	1.7 mm (0.0669 in.)
J	41449-PL3-A000	1.8 mm (0.0709 in.)
K	41450-PL3-A000	1.05 mm (0.0413 in.)
L	41451-PL3-A000	1.15 mm (0.0453 in.)
M	41452-PL3-A000	1.25 mm (0.0492 in.)
N	41453-PL3-A000	1.35 mm (0.0531 in.)
P	41454-PL3-A000	1.45 mm (0.0571 in.)
Q	41455-PL3-A000	1.55 mm (0.0610 in.)
R	41456-PL3-A000	1.65 mm (0.0650 in.)
S	41457-PL3-A000	1.75 mm (0.0689 in.)

80 mm Shim: L15A7 engine

Type	Part Number	Thickness
A	41441-PL3-B000	1.0 mm (0.0394 in.)
B	41442-PL3-B000	1.1 mm (0.0433 in.)
C	41443-PL3-B000	1.2 mm (0.0472 in.)
D	41444-PL3-B000	1.3 mm (0.0512 in.)
E	41445-PL3-B000	1.4 mm (0.0551 in.)
F	41446-PL3-B000	1.5 mm (0.0591 in.)
G	41447-PL3-B000	1.6 mm (0.0630 in.)
H	41448-PL3-B000	1.7 mm (0.0669 in.)
J	41449-PL3-B000	1.8 mm (0.0709 in.)
K	41450-PL3-B000	1.05 mm (0.0413 in.)
L	41451-PL3-B000	1.15 mm (0.0453 in.)
M	41452-PL3-B000	1.25 mm (0.0492 in.)
N	41453-PL3-B000	1.35 mm (0.0531 in.)
P	41454-PL3-B000	1.45 mm (0.0571 in.)
Q	41455-PL3-B000	1.55 mm (0.0610 in.)
R	41456-PL3-B000	1.65 mm (0.0650 in.)
S	41457-PL3-B000	1.75 mm (0.0689 in.)

8. Remove the bolts and transmission housing.
9. Replace the thrust shim selected in Step 7 , then recheck the clearance.
10. Install the new left driveshaft side oil seal.
11. Reinstall the transmission housing.

M/T Countershaft Reassembly



Exploded View

Special Tools Required

Inner driver handle, 40 mm
07746-0030100

Inner bearing driver attachment, 25 mm
07746-0030200

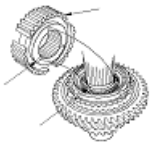
Inner bearing driver attachment, 30 mm
07746-0030300

Inner bearing driver attachment, 35 mm
07746-0030400

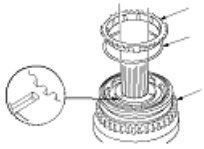
NOTE: Refer to the Exploded View, as needed during this procedure.

1. Clean all parts in solvent, dry them, and apply MTF to all contact surfaces.
2. Install the distance collar (A), with the needle bearing (B), 1st gear (C), and friction damper (D) on the shaft.
3. Install the 1st gear synchro ring (E) and synchro spring (F) on the shaft.

4. Align the fingers (A) on the friction damper with the grooves (B) on the 1st/2nd synchro hub (C), then install the 1st/2nd synchro hub onto the shaft.



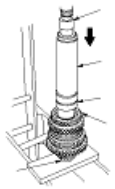
5. Install the reverse gear (A), synchro spring (B), and synchro ring (C) on the shaft.



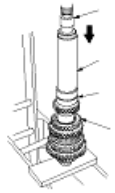
6. Install the distance collar (A) and friction damper (B), then align the fingers (C) on the friction damper and grooves (D) in the 1st/2nd synchro hub.

7. Install the needle bearing (A) and 2nd gear (B).

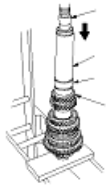
8. Support the countershaft (A) on steel blocks, then press in the 3rd gear (B) using the 40 mm inner driver handle (C), 35 mm inner bearing driver attachment (D), and a press (E).
   NOTE: Do not exceed the maximum pressure during installation.



9. Press in the 4th gear (A) using the 40 mm inner driver handle (B), 30 mm inner bearing driver attachment (C), and a press (D).
   NOTE: Do not exceed the maximum pressure during installation.

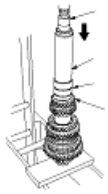


10. Press in the 5th gear (A) using the 40 mm inner driver handle (B), 30 mm inner bearing driver attachment (C), and a press (D).
    NOTE: Do not exceed the maximum pressure during installation.

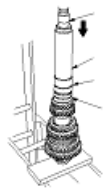


11. Press in the ball bearing * (A) using the 40 mm inner driver handle (B), 25 mm inner bearing driver attachment (C), and a press (D).
    *L15A7 engine: needle bearing

    NOTE: Do not exceed the maximum pressure during installation. Check the ball bearing install direction.



12. Press in the ball bearing (A) using the 40 mm inner driver handle (B), 25 mm inner bearing driver attachment (C), and a press (D).
    NOTE: Do not exceed the maximum pressure during installation.



13. Install the 22 mm spring washer (A) and 22 mm locknut (left-hand threads) (B).
14. Securely clamp the countershaft assembly in a bench vise with wood blocks.
15. Torque the new locknut to 108 N·m (11.0 kgf·m, 79.6 lbf·ft), then loosen it and torque it again to the same value. Stake the locknut tab into the groove.

How to Troubleshoot the Fuel and Emissions Systems

Intermittent Failures

The term ‘‘intermittent failure" means a system may have had a failure, but it checks OK now. If the malfunction indicator lamp (MIL) on the dash does not come on, check for poor connections or loose terminals at all connectors related to the circuit that you are troubleshooting. If the MIL was on but then went out, the original problem may have been intermittent.

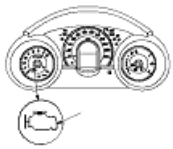
Service Information

Periodically, new ECM/PCM software or new service procedures may become available. Always check online for the latest software or service information related to the DTCs or symptoms you are troubleshooting.

Opens and Shorts

‘‘Open" and ‘‘short" are common electrical terms. An open is a break in a wire or at a connection. A short is an accidental connection of a wire to ground or to another wire. In simple electronics, this usually means something won't work at all. With complex electronics (such as ECMs or PCMs) this can sometimes mean something works, but not the way it's supposed to.

How to Use the HDS (Honda Diagnostic System)



If the MIL (malfunction indicator lamp) has come on

1. Start the engine, and check the MIL (A).

2. If the MIL stays on, connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
3. Turn the ignition switch to ON (II).
4. Make sure the HDS communicates with the ECM/PCM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting.
5. Check the diagnostic trouble code (DTC) and note it. Also check the freeze data and/or on-board snapshot data, and download any data found. Then refer to the indicated DTC's troubleshooting, and begin the appropriate troubleshooting procedure.
   NOTE:
   - Freeze data indicates the engine conditions when the first system malfunction, misfire, or fuel trim malfunction that activated the MIL was detected.
   - The HDS can read the DTC, freeze data, on-board snapshot, current data, and other engine control module (ECM) or powertrain control module (PCM) data.
   - For specific operations, refer to the user's manual that came with the HDS.
6. If no DTCs are found, go to MIL troubleshooting.

If the MIL did not stay on

If the MIL did not stay on but there is a driveability problem, do the symptom troubleshooting.

If you can't duplicate the DTC

Some of the troubleshooting requires you to reset the ECM/PCM and try to duplicate the DTC. If the problem is intermittent and you can't duplicate the code, do not continue through the procedure. To do so will only result in confusion and possibly, a needlessly replaced ECM/PCM.

HDS Clear Command

The ECM/PCM stores various specific data to correct the system even if there is no electrical power such as when the battery negative terminal is disconnected. Stored data based on failed parts should be cleared by using the ‘‘CLEAR COMMAND" of the HDS, if parts are replaced.
The HDS has three kinds of clear commands to meet this purpose. They are clear DTCs, ECM/PCM reset, and CKP pattern clear. DTC clear command erases all stored DTC codes, freeze data, and on-board snapshot. This must be done with the HDS after reproducing the DTC during troubleshooting.
The ECM/PCM reset command erases all stored DTC codes, freeze data, on-board snapshot, and all specific data to correct the system except CKP pattern. If the CKP pattern data in the ECM/PCM was cleared, you must do the CKP pattern learn procedure. The CKP pattern clear command erases only CKP pattern data. This command is for repair of a misfire or the CKP sensor.

Scan Tool Clear Command

If you are using a generic scan tool to clear commands, be aware that there is only one setting for clearing the ECM/PCM, and it clears all commands at the same time (CKP pattern learn, idle learn, freeze data, on-board snapshot, and DTCs). After you clear all commands, you then need to do these procedures, in this order: ECM/PCM idle learn procedure; CKP pattern learn procedure.

DTC Clear

1. Clear the DTC with the HDS while the engine is stopped.
2. Turn the ignition switch to LOCK (0).
3. Turn the ignition switch to ON (II), and wait 30 seconds.
4. Turn the ignition switch to LOCK (0), and disconnect the HDS from the DLC.

ECM/PCM Reset

1. Reset the ECM/PCM with the HDS while the engine is stopped.
2. Turn the ignition switch to LOCK (0).
3. Turn the ignition switch to ON (II), and wait 30 seconds.
4. Turn the ignition switch to LOCK (0), and disconnect the HDS from the DLC.
5. Do the ECM/PCM idle learn procedure.

CKP Pattern Clear/CKP Pattern Learn

Clear/Learn Procedure (with the HDS)

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the ECM/PCM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting.
4. Select CRANK PATTERN in the ADJUSTMENT MENU with the HDS.
5. Select CRANK PATTERN LEARNING with the HDS, and follow the screen prompts.
6. The CKP pattern learn procedure is complete.

Learn Procedure (without the HDS)

1. Start the engine. Hold the engine speed at 3,000 rpm (min^{-1}) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
2. Test-drive the vehicle on a level road: Decelerate (with the throttle fully closed) from an engine speed of 2,500 rpm (min^{-1}) down to 1,000 rpm (min^{-1}) with the A/T in 2 position, or the M/T in 1st gear.
3. Repeat Step 2 several times.
4. Turn the ignition switch to LOCK (0).
5. Turn the ignition switch to ON (II), and wait 30 seconds. The CKP pattern learn procedure is complete.

How to End a Troubleshooting Session (required after any troubleshooting)

1. Reset the ECM/PCM with the HDS.
2. Do the ECM/PCM idle learn procedure.
3. Turn the ignition switch to LOCK (0).
4. Disconnect the HDS from the DLC.
   NOTE: The ECM/PCM is part of the immobilizer system. If you replace the ECM/PCM, it will have a different immobilizer code. In order for the engine to start, you must rewrite the immobilizer code with the HDS (immobilizer system section).

How to Troubleshoot Circuits at the ECM/PCM Connectors

NOTE: The ECM/PCM stays on up to 15 minutes after the ignition switch is turned to LOCK (0). Jumping the SCS line after turning the ignition switch to LOCK (0) cancels this function. Disconnecting the ECM/PCM during this function, without jumping the SCS line first, can damage the ECM/PCM.

1. Jump the SCS line with the HDS.
2. Disconnect ECM/PCM connectors A, B, and C.
   NOTE: ECM/PCM connectors A, B, and C have symbols (A=□, B=△, C=○) embossed on them for identification.

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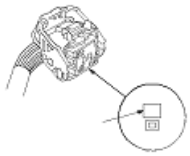
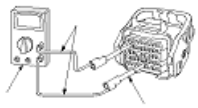
3. When diagnosis/troubleshooting is done at the ECM/PCM connector, use the terminal test port (A) above the terminal you need to check.



4. Connect one side of the patch cord (A) terminals to a commercially available digital multimeter (B), and connect the other side of the patch cord terminals to a commercially available banana jack (Pomona Electronics Tool No. 3563 or equivalent) (C).
5. Gently contact the pin probe (male) at test port from the terminal side. Do not force the tips into the terminals.



NOTICE

- For accurate results, always use the pin probe (male).
- To prevent damage to the connector terminals, do not insert test equipment probes, paper clips, or other substitutes as they can damage the terminals. Damaged terminals cause a poor connection and an incorrect measurement.
- Do not puncture the insulation on a wire. Punctures can cause poor or intermittent electrical connections.

Substituting the ECM/PCM

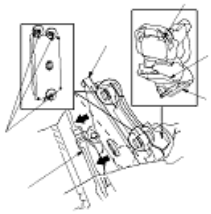
Special Tools Required

- Honda diagnostic system (HDS)
- Honda interface module (HIM)
- HDS pocket tester

NOTE: Use this procedure when you have to substitute a known-good ECM/PCM during troubleshooting procedure.

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the ECM/PCM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting.
4. Jump the SCS line with the HDS.
5. Turn the ignition switch to LOCK (0).
6. Remove the ECM/PCM cover (A).

7. Remove the battery setting plate, and reposition the battery (D) away from the ECM/PCM.
   NOTE: Do not disconnect the battery terminals.
8. Remove the bolts (E).
9. Disconnect ECM/PCM connectors A, B, and C, then remove the ECM/PCM (F).
   NOTE: ECM/PCM connectors A, B, and C have symbols (A=□, B=△, C=○) embossed on them for identification.
10. Install a known-good ECM/PCM in the reverse order of removal.
11. Turn the ignition switch to ON (II).
    NOTE: DTC P0630 "VIN Not Programmed or Mismatch" may be stored because the VIN has not been programmed into the ECM/PCM; ignore it, and continue this procedure.
12. Manually input the VIN to the ECM/PCM with the HDS.
13. Select the IMMOBI SYSTEM with the HDS.
14. Enter the immobilizer code using the ECM/PCM replacement procedure in the HDS; it allows you to start the engine.
15. Reset the ECM/PCM with the HDS.
16. Update the ECM/PCM if it does not have the latest software.
17. Do the ECM/PCM idle learn procedure.
18. Do the CKP pattern learn procedure.



OBD Status

The OBD status shows the current system status of each DTC and all of the parameters. This function is used to see if the repair was successfully completed. The results of diagnostic tests for the DTC are displayed as:

- PASSED: The on board diagnosis is successfully finished.
- FAILED: The on board diagnosis has finished but failed.
- EXECUTING: The vehicle is in enable criteria conditions for the DTC and the on board diagnosis is running.
- NOT COMPLETED: The on board diagnosis was running but is out for the enable conditions for the DTC.
- OUT OF CONDITION: The vehicle has stayed out of the enable conditions for the DTC.

DTC Troubleshooting: P0171 (45), P0172 (45)

DTC P0171:
Fuel System Too Lean
DTC P0172:
Fuel System Too Rich
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.
- If some of the DTCs listed below are indicated at the same time as DTC P0171 and/or P0172, troubleshoot those DTCs first, then recheck for P0171 and/or P0172.
  P0102, P0103: Mass air flow (MAF) sensor
  P0107, P0108: Manifold absolute pressure (MAP) sensor
  P0133, P1157, P2238, P2252, P2A00: Air fuel ratio (A/F) sensor (Sensor 1)
  P0134, P0135: Air fuel ratio (A/F) sensor (Sensor 1) heater
  P0137, P0138, P0139: Secondary HO2S (Sensor 2)
  P0141: Secondary HO2S (Sensor 2) heater
  P2648, P2649: VTEC system
  P0443: EVAP canister purge valve

1. Check the fuel pressure.

   Is the fuel pressure OK?
   YES - Go to Step 2 .
   NO -
   - If the pressure is too high, replace the fuel pressure regulator, then go to Step 10 .
   - If the pressure is too low, check the fuel pump, the fuel feed pipe, and the fuel filter. If they are OK, replace the fuel pressure regulator, then go to Step 10 .

2. Check for vacuum leaks at these parts:
   - PCV valve
   - PCV hose
   - EVAP canister purge valve
   - Throttle body
   - Intake manifold
   - Brake booster hose
   - Brake booster
   - Intake air duct

   Are the parts OK?
   YES - Go to Step 3 .
   NO - Repair or replace parts with leaks, then go to Step 10 .

3. Turn the ignition switch to LOCK (0).

4. Disconnect the vacuum hose (A) from the EVAP canister purge valve (B), and connect a vacuum pump/gauge to the EVAP canister purge valve.

5. Apply vacuum to the hose.

   Does the hold vacuum?
   YES - Go to Step 6 .
   NO - Replace the EVAP canister purge valve, then go to Step 10 .

6. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.

7. Check for these conditions:
   - Engine coolant temperature (ECT SENSOR 1) above 70 °C (158 °F)
   - A/T in P or N (M/T in neutral)
   - All electrical loads off

8. Monitor the ENGINE SPEED in the DATA LIST with the HDS, and hold the engine speed at 2,500 rpm (min $^{-1}$). Once the engine speed is met, hold the accelerator pedal steady for more than 10 seconds.

   Did the engine speed vary more than 100 rpm (min $^{-1}$) from 2,500 rpm (min $^{-1}$)?
   YES - Repeat Step 8 .
   NO - Go to Step 9 .

9. While holding the engine speed at 2,500 rpm (min $^{-1}$), check the MAF SENSOR in the DATA LIST with the HDS.

   Is there about 4.5−5.5 gm/s (L13Z1 engine) or 4.6−5.7 gm/s (L15A7 engine)?
   YES - Check the engine valve clearances and adjust them if needed. If the valve clearances are OK, replace the injectors, then go to Step 10 .
   NO - Replace the MAF sensor/IAT sensor, then go to Step 10 .

10. Turn the ignition switch to ON (II).

11. Reset the ECM/PCM with the HDS.

12. Do the ECM/PCM idle learn procedure.

13. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.

14. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 70 °C (158 °F)
    - A/T in D, M/T in 4th
    - Drive at a steady speed between 24−120 km/h (15−75 mph) for 15 minutes

    NOTE: DTC P0171 and/or P0172 may take up to 80 minutes of test driving to set. Using the HDS, monitor the long term fuel trim (LT FUEL TRIM) or the air fuel feed back average (AF FB AVE). If the long term fuel trim/air fuel feed back average stays within 0.80−1.25, there is no problem at this time.

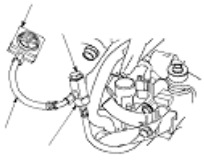
15. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0171 or P0172 indicated?

    YES - Check for poor connections or loose terminals at the MAF sensor/IAT sensor, the injectors, the EVAP canister purge valve, and the ECM/PCM, then go to Step 1 .

    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0300 (75) and any combination of P0301 (71), P0302 (72), P0303 (73), P0304 (74)



DTC P0300:
Random Misfire and Any Combination of the Following:
DTC P0301:
No. 1 Cylinder Misfire Detected
DTC P0302:
No. 2 Cylinder Misfire Detected
DTC P0303:
No. 3 Cylinder Misfire Detected
DTC P0304:
No. 4 Cylinder Misfire Detected

Special Tools Required

Oil pressure gauge attachment
07NAJ-P070100

Low pressure gauge assy. 1,000 kpa
07406-0070002

Oil pressure hose
07ZAJ-S5A0200

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.
- If the misfire is frequent enough to trigger detection of increased emissions during two consecutive driving cycles, the MIL will come on, and DTC P0300 (and some of the combination of P0301 through P0304) will be stored.
- If the misfire is frequent enough to damage the catalyst, the MIL will flash whenever the misfire occurs, and DTC P0300 (and some of the combination of P0301 through P0304) will be stored. When the misfire stops, the MIL will remain on.
- If any of the DTCs listed below are indicated at the same time as the random misfire DTCs, troubleshoot those DTCs first, then recheck for random misfire DTCs:
  P0102, P0103: Mass air flow (MAF) sensor
  P0107, P0108: Manifold absolute pressure (MAP) sensor
  P0171, P0172: Fuel system
  P0335, P0339: Crankshaft position (CKP) sensor
  P0365, P0369: Camshaft position (CMP) sensor
  P2648, P2649: VTEC system

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral).
4. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?
   YES - Go to Step 9.
   NO - If the screen indicates PASSED, go to Step 5. If the screen indicates EXECUTING, keep idling until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, wait for several minutes, then recheck.
5. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

   Does the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?
   YES - Go to Step 9.
   NO - Go to Step 6.
6. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
   - ENGINE SPEED
   - VSS
   - REL TP SENSOR
   - CLV (calculated load value)
   - APP SENSOR
7. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?
   YES - Go to Step 9.
   NO - If the screen indicates PASSED, go to Step 8. If the screen indicates EXECUTING, keep driving until a result comes on. if the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 6 and recheck.
8. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

   Does the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?
   YES - Go to Step 9.
   NO - Intermittent failure, the system is OK at this time.■

9. Turn the ignition switch to LOCK (0).
10. Check the fuel quality.

    Is the quality good?
    YES - Go to Step 11 .
    NO - Drain the tank and fill with a known-good fuel, then go to Step 24 .
11. Inspect the spark plugs. If the spark plugs are fouled or worn, replace them.
12. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
    - ENGINE SPEED
    - VSS
    - REL TP SENSOR
    - CLV (calculated load value)
    - APP SENSOR
13. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

    Does the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?
    YES - Go to Step 14 .
    NO - Go to Step 24 .
14. Check the fuel pressure.

    Is the fuel pressure OK?
    YES - Go to Step 15 .
    NO -
    - If the fuel pressure is too high, replace the fuel pressure regulator, then go to Step 24 .
    - If the fuel pressure is too low, check the fuel pump, the fuel feed pipe, and the fuel filter. If they are OK, replace the fuel pressure regulator, then go to Step 24 .
15. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
16. Check for these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 80 °C (176 °F)
    - A/T in P or N, M/T in neutral
    - All electrical loads off
17. Monitor the ENGINE SPEED in the DATA LIST with the HDS, and hold the engine speed at 2,500 rpm (min $^{-1}$). Once the engine speed is met, hold the accelerator pedal steady for more than 10 seconds.

    Did the engine speed vary more than 100 rpm (min $^{-1}$) from 2,500 rpm (min $^{-1}$)?
    YES - Repeat Step 17 .
    NO - Go to Step 18 .
18. While holding the engine speed at 2,500 rpm (min $^{-1}$), check the MAF SENSOR in the DATA LIST with the HDS.

    Is there about 4.5–5.5 gm/s (L13Z1 engine), 4.6–5.7 gm/s (L15A7 engine)?
    YES - Go to Step 19 .
    NO - Replace the MAF sensor/IAT sensor, then go to Step 24 .
19. Turn the ignition switch to LOCK (0).
20. Remove rocker arm oil pressure switch.
21. Attach the bolt (A) from the rocker arm oil control valve and connect the special tool as shown, the install the bolt that was removed to the pressure gauge joint attachment.
22. Start the engine. Hold the engine speed at 3,000 rpm (min $^{-1}$) without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
23. Check the oil pressure at engine speeds of 1,000 rpm (min $^{-1}$) and 2,000 rpm (min $^{-1}$).

    Is the oil pressure below 49 kPa (0.5 kgf/cm ^{2} , 7 psi)?
    YES - Check for air in the fuel line, then go to Step 24 .
    NO - Inspect the VTEC system, then go to Step 24 .
24. Turn the ignition switch to ON (II).
25. Reset the ECM/PCM with the HDS.
26. Clear the CKP pattern with the HDS.
27. Do the ECM/PCM idle learn procedure.
28. Do the CKP pattern learn procedure.
29. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
    - ENGINE SPEED
    - VSS

- REL TP SENSOR
- CLV (calculated load value)
- APP SENSOR

30. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0300, P0301, P0302, P0303, or P0304 indicated?

YES - Check for a poor connections or loose terminals at the ignition coils, the injectors, and the ECM/PCM, then go to the troubleshooting for DTC P0301, P0302, P0303, or P0304.

NO - Go to Step 31 .

31. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES - Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in Step 30 , go to the indicated DTC's troubleshooting.■

NO - If the screen indicates FAILED, go to Step 1 and recheck. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION or NOT COMPLETED, go to Step 29 .

DTC Troubleshooting: P060A (131)

DTC P060A:
PCM (A/T system) Internal Control Module Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P060A indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time.■
4. Update the PCM if it does not have the latest software, or substitute a known-good PCM.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P060A indicated?
   YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .
   NO - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: U0300 (131)

DTC U0300:
PGM-FI System and A/T System Program Version Mismatch
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.
- Do not turn the ignition switch to LOCK (0) or ACC (I) while updating the PCM. If you turn the ignition switch to LOCK (0) or ACC (I) before completion, the PCM will be damaged.

1. Do the PCM update procedure (PGM-FI system and A/T system).
2. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC U0300 indicated?
   YES - Replace the original PCM. ■
   NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0602 (196)

DTC P0602:
ECM/PCM Programming Error
NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.
- This DTC is indicated when an ECM/PCM update is not completed.
- Do not turn the ignition switch to LOCK (0) or ACC (I) while updating the ECM/PCM. If you turn the ignition switch to LOCK (0) or ACC (I) before completion, the ECM/PCM can be damaged.

1. Do the ECM/PCM update procedure.

2. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0602 indicated?
   YES - Replace the original ECM/PCM. ■
   NO - The update is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P0606 (0)

DTC P0606:
ECM/PCM Processor Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Wait 40 seconds.
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0606 indicated?
   YES - Go to Step 7 .
   NO - Intermittent failure, the system is OK at this time.■
7. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
8. Turn the ignition switch to LOCK (0).
9. Turn the ignition switch to ON (II).
10. Wait 40 seconds.
11. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0606 indicated?
    YES - If the ECM/PCM was updated, substitute a known-good ECM/PCM, then go to Step 8 . If the ECM/PCM was substituted, go to Step 1 .
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P1298

DTC P1298:
ELD Circuit High Voltage
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Check the ELD in the DATA LIST with the HDS.

   Is 0.2 A or less indicated?
   YES - Go to Step 3 .
   NO - Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ELD and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the ELD 3P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between ELD 3P connector terminal No. 1 and body ground.

   Is there battery voltage?
   YES - Go to Step 7 .
   NO - Check the No. 22 METER (7.5 A) fuse in the under-dash fuse/relay box. If the fuse is OK, repair open in the wire between the No. 22 METER (7.5 A) fuse and the ELD, then go to Step 12 .
7. Jump the SCS line with the HDS.
8. Disconnect ECM/PCM connector A (49P).

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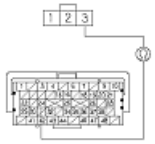
9. Check for continuity between ELD 3P connector terminal No. 3 and ECM/PCM connector terminal A24.

   Is there continuity?
   YES - Go to Step 10 .
   NO - Repair open in the wire between the ECM/PCM (A24) and the ELD, then go to Step 12 .

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10. Check for continuity between ELD 3P connector terminal No. 2 and body ground.

    Is there continuity?
    YES - Go to Step 11 .
    NO - Repair open in the wire between the ELD and G501, then go to Step 12 .
11. Replace the ELD.
12. Reconnect all connectors.
13. Turn the ignition switch to ON (II).
14. Reset the ECM/PCM with the HDS.
15. Do the ECM/PCM idle learn procedure.
16. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1298 indicated?
    YES - Go to Step 17 .
    NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■
17. Update the ECM/PCM if it does not have the latest software, or substitute a known-good ECM/PCM.
18. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1298 indicated?
    YES - Check for poor connections or loose terminals at the ELD and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM, then recheck. If the ECM/PCM was substituted, go to Step 1 .
    NO - If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: P060A (131)

DTC P060A:
PCM (A/T system) Internal Control Module Malfunction
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P060A indicated?
   YES - Go to Step 4 .
   NO - Intermittent failure, the system is OK at this time.■
4. Update the PCM if it does not have the latest software, or substitute a known-good PCM.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P060A indicated?
   YES - If the PCM was updated, substitute a known-good PCM, then recheck. If the PCM was substituted, go to Step 1 .
   NO - If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting: U0300 (131)

DTC U0300:
PGM-FI System and A/T System Program Version Mismatch
NOTE:

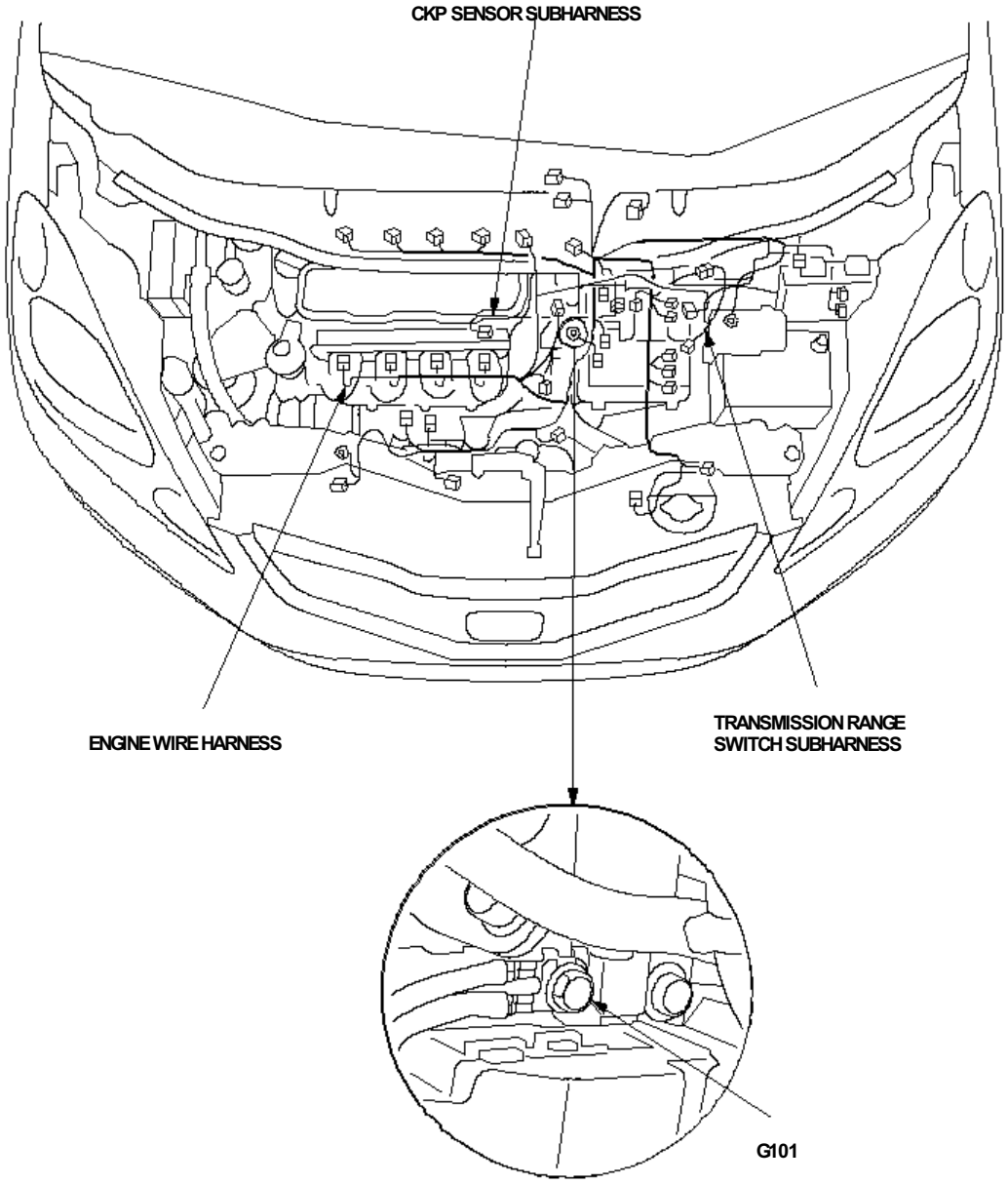
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information.
- Do not turn the ignition switch to LOCK (0) or ACC (I) while updating the PCM. If you turn the ignition switch to LOCK (0) or ACC (I) before completion, the PCM will be damaged.

1. Do the PCM update procedure (PGM-FI system and A/T system).
2. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC U0300 indicated?
   YES - Replace the original PCM. ■
   NO - Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

Engine Wire Harness, CKP Sensor Subharness, Transmission Range Switch Subharness Locations

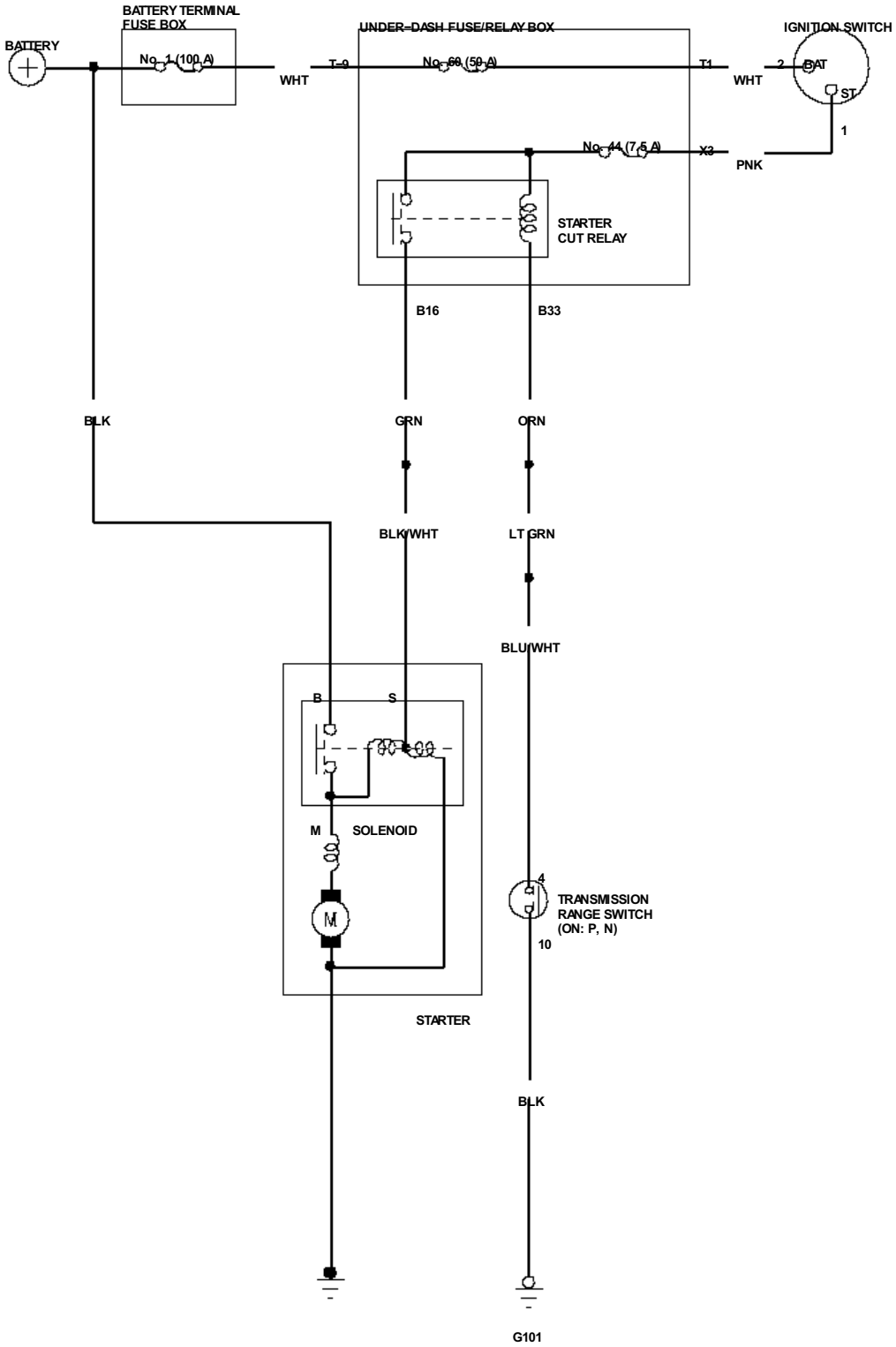
A/T



RHD model is shown, LHD model is similar.

Starting System Circuit Diagram

A/T model



A/T Assembly Removal

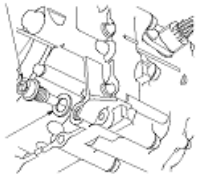
Special Tools Required

Engine support hanger
AAR-T1256-J00
This special tool is available from Snap-on Tools International, LLC.
NOTE:

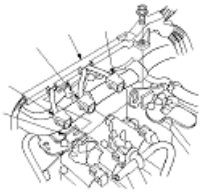
- Use fender covers to avoid damaging painted surfaces.
- Engine support hanger (AAR-T1256-J00) must be used with the side engine mount installed.

1. Remove the windshield wiper arms.
2. Do the battery removal procedure.
3. Remove the battery base.
4. Remove the cowl cover.
5. Fix the hood in a vertical position.
6. Remove the cowl cover stiffener (A), and remove the windshield wiper motor and center-front cowl cover (B).
7. Remove the air cleaner assembly.
8. Raise the vehicle on a lift, and make sure it is securely supported.
9. Remove the wheels.
10. Remove the splash shield.

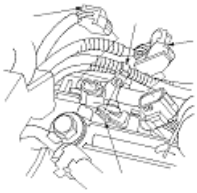
11. Remove the drain plug (A), and drain the automatic transmission fluid (ATF).
12. Reinstall the drain plug with a new sealing washer (B).



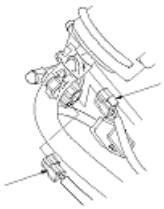
13. Disconnect the A/T clutch pressure control solenoid valve A connector (A), A/T clutch pressure control solenoid valve B connector (B), and A/T clutch pressure control solenoid valve C connector (C).
14. Remove the bolt securing the harness cover (D), and remove the harness cover from its bracket (E).



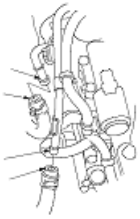
15. Disconnect the transmission range switch connector (A).
16. Disconnect the output shaft (countershaft) speed sensor connector (B), and remove the harness clamp (C) from its bracket (D).



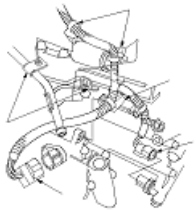
17. Disconnect the input shaft (mainshaft) speed sensor connector (A) and 2nd clutch transmission fluid pressure switch connector (B).



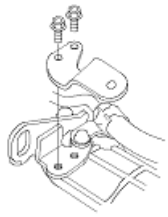
18. Remove the ATF cooler hoses (A) from the ATF cooler lines (B). Turn the ends of the cooler hoses up to prevent ATF from flowing out, then plug the cooler hoses and lines.
19. Check for any signs of leakage at the hose joints.



20. Remove the bolt securing the harness clamp bracket (A).
21. Disconnect the shift solenoid harness connector (B) and 3rd clutch transmission fluid pressure switch connector (C), and remove the harness clamps (D) from the clamp brackets (E).

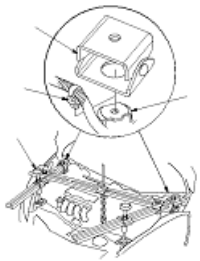


22. Remove the air cleaner housing mounting bracket from the transmission hanger.

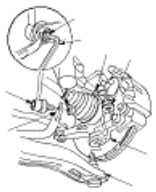


23. Install the hanger plate (A) to the bolt hole (B) at the air cleaner housing mounting bracket with the 8 x 1.25 mm bolt.

24. Remove the harness clamp (A) from its clamp bracket (B) located in front of the left damper top.
25. Set up the engine support hanger (AAR-T1256-J00). Carefully position the engine support hanger to the vehicle; position both cross-arm foot bases (C) over the harness clamp brackets on both sides, and position both front stands on the front bulkhead. Attach the hook to the hanger plate chain, tighten the wing nut by hand, and lift and support the engine.

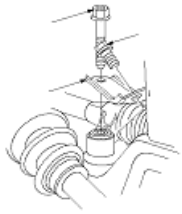


26. Insert a 5 mm Allen wrench (A) in the top of the ball joint pin (B), and remove the nuts (C), then separate the stabilizer link (D) from the stabilizer ends (E).
27. Remove the lock pin (F) and castle nuts (G), and separate the lower arms (H) from the knuckles (I).

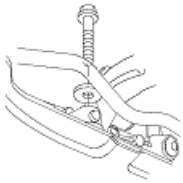


28. Remove the steering gearbox mounting bolt (A), bolt (B), and stiffener (C) on the right.

29. Remove the steering gearbox mounting bolt (A), bolt (B), and stiffener (C) on the left.

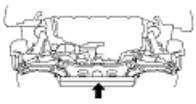


30. Remove the steering gearbox mounting bolt on the middle.

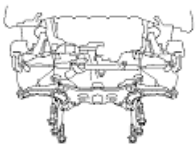


31. Place a jack under the transmission, raise it just enough to take it off of the lower torque rod, and remove the lower torque rod bolt (A) on the transmission.
32. Remove the lower torque rod nut (B) and bolt (C) on the front subframe, and remove the lower torque rod (D).
33. Remove the jack.

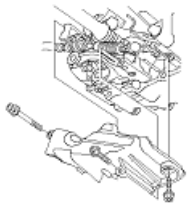
34. Support the front subframe with a wood piece and a jack.



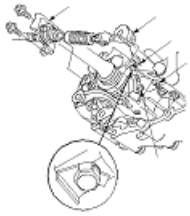
35. Remove the six bolts securing the front subframe.
36. Hang the steering gearbox to the body with a strap.



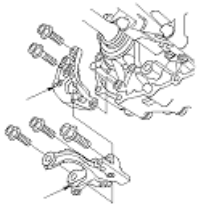
37. Remove the shift cable cover.



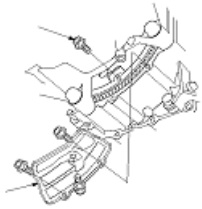
38. Pry up the lock tab of the lock washer (A), and remove the lock bolt (B) and lock washer.
39. Remove the bolts securing the shift cable holder (C), and separate the shift cable (D) from the selector control shaft end (E). Do not bend the shift cable excessively.



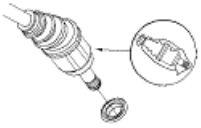
40. Remove the lower torque rod mounting bracket (A) and shift cable holder bracket (B).



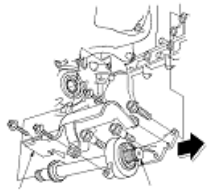
41. Remove the torque converter cover (A), and remove the drive plate bolts (B) (eight bolts) while rotating the crankshaft pulley.



42. Pry out the driveshafts from the differential and the intermediate shaft.
43. Coat all precision machined surfaces with clean engine oil, then put plastic bags over driveshaft ends.



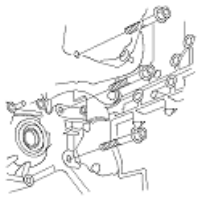
44. Remove the bolts securing the heat shield (A).
45. Remove the intermediate shaft (B) and heat shield.
46. Coat all precision finished surfaces with clean engine oil, then put plastic bags over intermediate shaft ends.



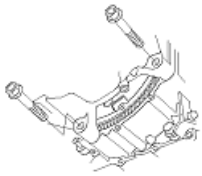
47. Remove the front and upper transmission housing mounting bolts.

48. Remove the transmission ground cable terminal (A) from the transmission mount bracket (B).
49. Place a jack under the transmission, raise it just enough to take it off of the mount, and remove the transmission mount and mount bracket.
50. Remove the jack.

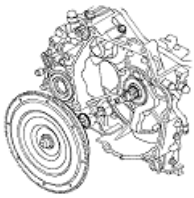
51. Remove the rear transmission housing mounting bolts.
52. Lower the transmission by loosening the wing nut on the engine support hanger, and tilt the engine just enough for the end of the transmission to clear the side frame.
53. Place a jack under the transmission.



54. Remove the lower transmission housing mounting bolts.
55. Slide the transmission away from the engine to remove it from the vehicle.



56. Remove the torque converter and dowel pins.
57. Inspect the drive plate, and replace it if it's damaged.



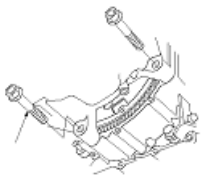
A/T Assembly Installation

Special Tools Required

Engine support hanger
AAR-T1256-J00
This special tool is available from Snap-on Tools International, LLC.
NOTE: Use fender covers to avoid damaging painted surfaces.

1. Install the torque converter (A) on the mainshaft (B) with the new O-ring (C).
2. Install the 14 mm dowel pins (D) in the torque converter housing.
3. Place the transmission on the jack, and raise the transmission to the engine level.

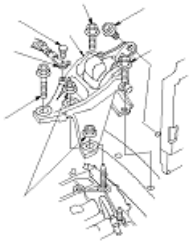
4. Attach the transmission to the engine, and install the lower transmission housing mounting bolts.



5. Install the rear transmission housing mounting bolt.

6. Install the front and upper transmission housing mounting bolts.

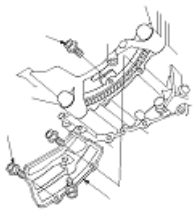
7. Place a jack under the transmission, raise it and secure the transmission mount and mount bracket (A) on the body and transmission housing with the new mounting bolts and new nuts loose.
8. Tighten the transmission mount bolts to the specified torque in the following order; on the middle (B), on the front (C), and on the rear (D).
9. Remove the jack, and tighten the bolt (E) and nuts (F) on the transmission mount bracket to the specified torque.
10. Install the transmission ground cable terminal (G).



11. Install the new set ring (A) on the intermediate shaft (B).
12. Clean the areas where the intermediate shaft contacts the transmission (differential) with solvent, and dry with compressed air. Apply ATF to the intermediate shaft splines, put the heat shield (C) on the intermediate shaft, then install the intermediate shaft; be sure not to allow dust or other foreign particles to enter the transmission.
13. Secure the heat shield with the mounting bolts.

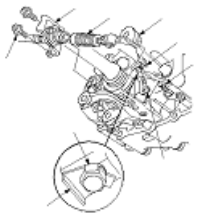
14. Install the new set ring (A) on the left driveshaft (B).
15. Clean the areas where the left driveshaft contacts the transmission (differential) with solvent, and dry with compressed air. Then install the left driveshaft; be sure not to allow dust or other foreign particles to enter the transmission. Turn the steering knuckle fully outward, and slide the driveshaft into the differential until you feel its set ring fully engage the side gear.
16. Apply right driveshaft inboard-joint splines with the recommended grease.
17. Slide the right driveshaft over the intermediate shaft splines until you feel the driveshaft fully engage the intermediate shaft set ring.

18. Attach the torque converter to the drive plate with eight bolts (A). Rotate the crankshaft pulley as necessary to tighten the bolts to 1/2 of the specified torque, then to the final torque, in a crisscross pattern. After tightening the last bolt, check that the crankshaft rotate freely.
19. Install the torque converter cover (B).

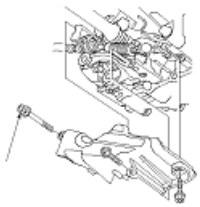


20. Install the shift cable holder bracket (A) and lower torque rod mounting bracket (B) on the transmission.

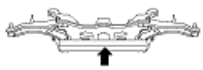
21. Install the control lever (A) over the control shaft (B). Do not twist the boot (C).
22. Secure the shift cable bracket (D) with the bolts.
23. Secure the control lever with the new lock washer (E) and the lock bolt (F); install the flange (G) of the lock washer with facing to control lever, then bend the lock tab (H) of the lock washer against the bolt head securely.



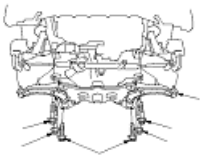
24. Install the shift cable cover.



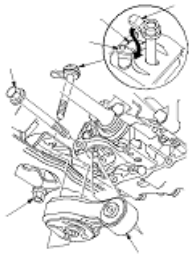
25. Support the front subframe with a wood piece and a jack.



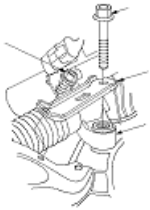
26. Lift the front subframe (A) up to body, and secure it with the new mounting bolts loose.
27. Tighten the right middle mounting bolt (B) first, then the left middle bolt (C), and the four remaining bolts (D) to the specified torque.



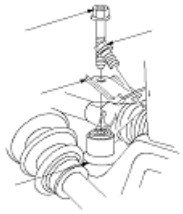
28. Place a jack under the transmission, raise it and attach the lower torque rod (A) in the mounting bracket and front subframe.
29. Install the mounting bolt (B), and set the bolt tongue (C) into the stop (D) through the guide (E), then loosely install the nut (F).
30. Loosely Install the mounting bolt (G).
31. Remove the jack, and tighten the bolt and nut to the specified torque.



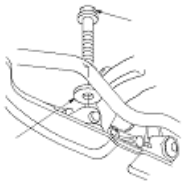
32. On the right side of the steering gearbox, secure the steering gear box (A) and stiffener (B) with the new mounting bolt (C) and the new bolt (D) loose.



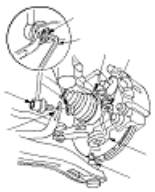
33. On the left side of the steering gearbox, secure the steering gear box (A) and stiffener (B) with the new mounting bolt (C) and the new bolt (D) loose.



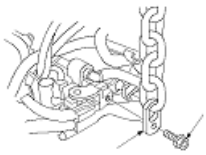
34. Loosely install the steering gearbox mounting bolt (A) and washer (B) on the middle.
35. Tighten the steering gearbox mounting bolts to the specified torque in the following order; on the right side, on the left side, and on the middle.
36. Tighten the bolts to the specified torque securing the right side stiffener, then left side stiffener.



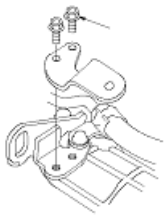
37. Connect the ball joints (A) to both knuckles (B), and install the new ball joint nuts (C). Tighten the nuts, then secure the nuts with the lock pin (D).
38. Connect the stabilizer links (E) to the stabilizer ends (F), and install the nuts (G). Insert a 5 mm Allen wrench (H) in the top of the ball joint pins (I), and tighten the nuts.
39. Remove the engine support hanger, and install the harness clamp in its bracket located in front of the left damper top.



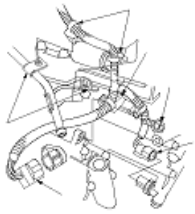
40. Remove the hanger plate (A) and bolt (B).



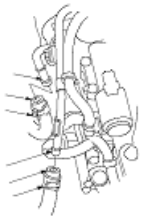
41. Install the air cleaner housing mounting bracket on the transmission hanger.



42. Secure the harness clamp bracket (A) with the bolt.
43. Connect the shift solenoid harness connector (B) and 3rd clutch transmission fluid pressure switch connector (C), and install the harness clamps (D) in the clamp brackets (E).

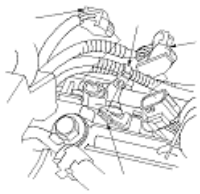


44. Connect the ATF cooler hoses (A) to the ATF cooler lines (B), and secure the hoses with the clips (C).



45. Connect the input shaft (mainshaft) speed sensor connector (A) and 2nd clutch transmission fluid pressure switch connector (B).

46. Connect the output shaft (countershaft) speed sensor connector (A), and install the harness clamp (B) on its bracket (C).
47. Connect the transmission range switch connector (D).



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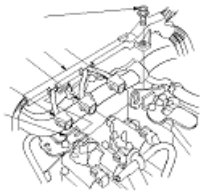
48. Install the harness cover (A) on its bracket (B), and secure the cover with the bolt.
49. Connect the A/T clutch pressure control solenoid valve A connector (C), A/T clutch pressure control solenoid valve C connector (D), and A/T clutch pressure control solenoid valve B connector (E).
50. Install the air cleaner assembly.



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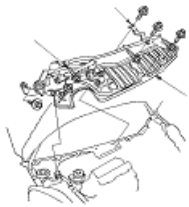
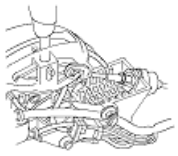
51. Install the windshield wiper motor and center-front cowl cover (A), and install the cowl cover stiffener (B).
52. Install the cowl cover.
53. Install the windshield wiper arms.
54. Refill the transmission with ATF.
55. Install the battery base.
56. Do the battery installation procedure.
57. Install the splash shield.
58. Install the wheels.
59. Set the parking brake. Start the engine, and shift the transmission through all positions three times. Check the shift lever operation, A/T gear position indicator operation, and shift cable adjustment.
60. Check and adjust the front wheel alignment.
61. Check the ATF level.
62. Do the road test.

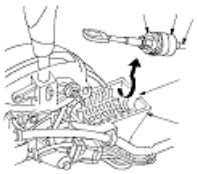


A/T Shift Cable Replacement

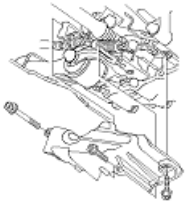
1. Raise the vehicle on a lift, or apply the parking brake, block rear wheels, and raise the front of the vehicle. Make sure it is securely supported.
2. Remove the splash shield.
3. Remove the center console.
4. Shift the transmission to N.
5. Remove the nut securing the shift cable end.



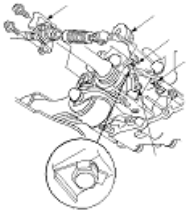
6. Rotate the socket holder (A) on the shift cable (B) a quarter turn; the corner (C) on the socket holder will be in the opening (D) of the shift lever bracket base (E). Then slide the holder to remove the shift cable from the bracket.



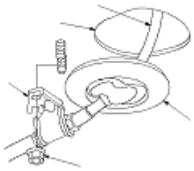
7. Remove the shift cable cover.



8. Pry up the lock tab of the lock washer (A), and remove the lock bolt (B) and lock washer.
9. Remove the bolts securing the shift cable holder (C), and separate the shift cable (D) from the selector control shaft end (E).
10. Remove the heat shield under the body.



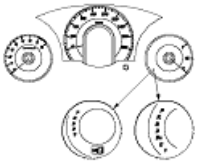
11. Remove the nut securing the shift cable bracket (A).
12. Remove the shift cable grommet (B), and pull out the shift cable (C).
13. Insert the new shift cable through the grommet hole (D), and install the grommet in its hole. Do not bend the shift cable excessively.
14. Secure the shift cable bracket with the nut.
15. Install the heat shield.



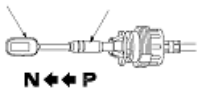
16. Install the control lever (A) over the control shaft (B). Do not twist the boot (C).
17. Secure the shift cable bracket (D) with the bolts.
18. Secure the control lever with the new lock washer (E) and the lock bolt (F); install the flange (G) of the lock washer with facing to the control lever, then bend the lock tab (H) of the lock washer against the bolt head securely.

19. Install the shift cable cover.

20. Turn the ignition switch to ON (II), and check that the N indicator comes on.



21. If necessary, push the shift cable (A) until it stops, then release it. Pull the shift cable back two steps so that the shift position is in N. Do not hold the shift cable guide (B) to adjust the shift cable.
22. Turn the ignition switch to LOCK (0).



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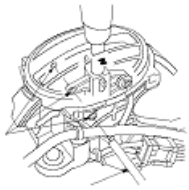
23. Insert a 6.0 mm (0.24 in.) pin (A) through the positioning holes (B) on the shift lever bracket base and into the positioning hole on the shift lever. Use only the 6.0 mm pin.
24. Check that the shift lever is secured in N.



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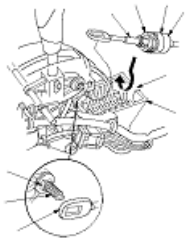
25. Rotate the socket holder (A) on the shift cable (B) to place the corner (C) on the holder opposite the opening (D) in the shift lever bracket base (E). Align the holder with the opening in the bracket, then slide the holder into the bracket. Install the shift cable end (F) over the mounting stud (G) by aligning its square hole with the square fitting (H) at the bottom of the stud. Rotate the holder a quarter turn until the holder stops to secure the shift cable. Do not install the shift cable by twisting the shift cable guide (I).



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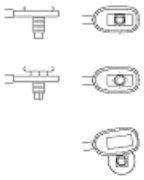
26. Check that the shift cable end is properly installed on the mounting stud.
27. If the cable end is out of position on the mounting stud, remove the shift cable from the bracket, and reinstall the shift cable. Do not install the shift cable end on the mounting stud while the shift cable in on the bracket. If the cable end rides on the bottom of the mounting stud, rotate the stud and align the square fitting with the hole.



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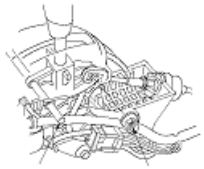
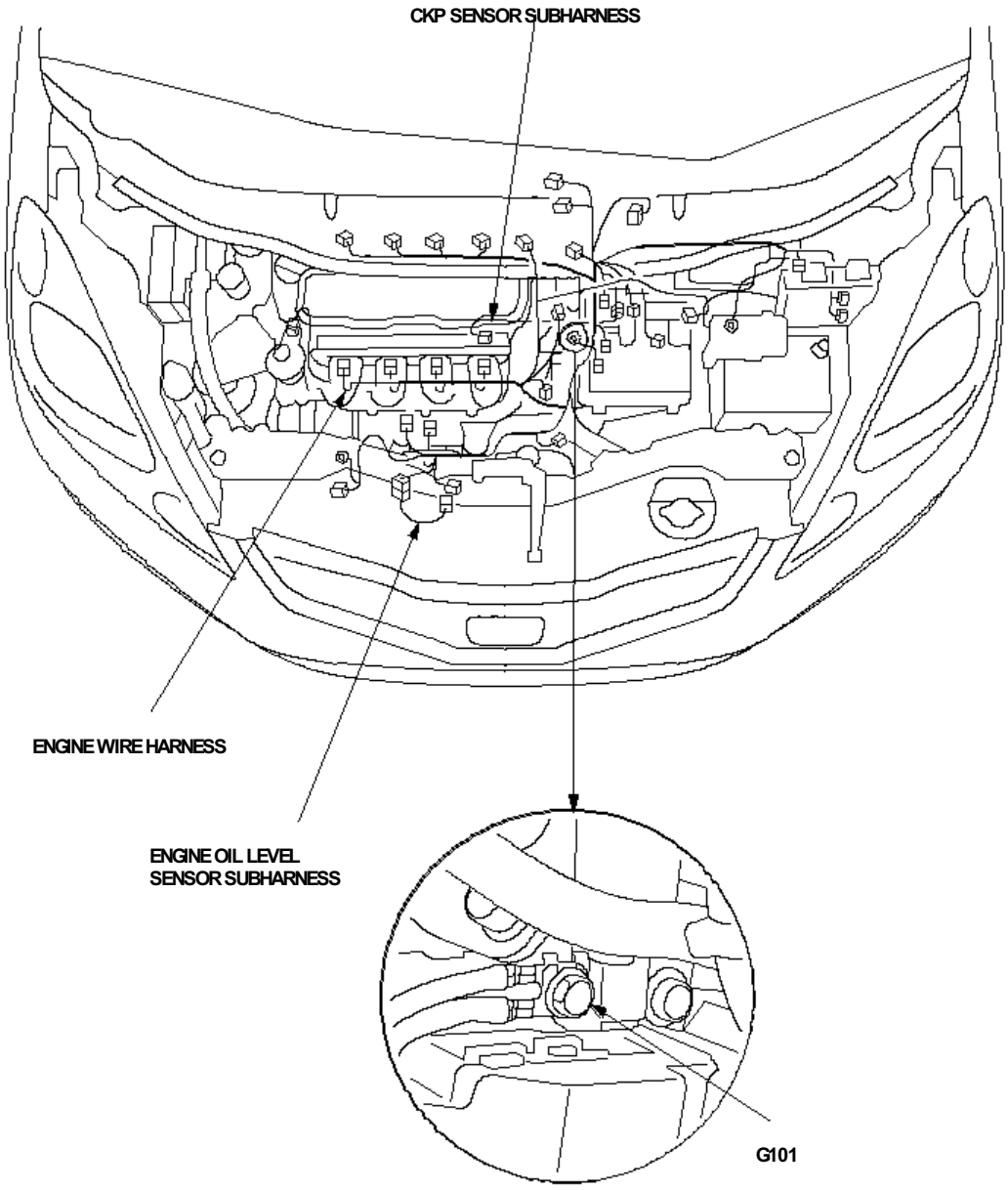
28. Secure the shift cable end with the nut (A).
29. Remove the 6.0 mm (0.24 in.) pin (B) that was installed to hold the shift lever.
30. Turn the ignition switch to ON (II). Move the shift lever to each position, and check that the A/T gear position indicator follows the transmission range switch.
31. Shift to P, and check that the shift lock works properly. Push the shift lock release, and check that the shift lever releases, and also check that the shift lever locks when it is shifted back into P.
32. Reinstall the center console.



Engine Wire Harness, CKP Sensor Subharness, and Oil Level Sensor Subharness Locations

M/T



RHD model is shown, LHD model is similar.

Safety Messages

Safety Messages

Your safety, and the safety of others, is very important. To help you make informed decisions, we have provided safety messages, and other safety information throughout this manual. Of course, it is not practical or possible to warn you about all the hazards associated with servicing this vehicle. You must use your own good judgment.
You will find important safety information in a variety of forms including:

- **Safety Labels –** on the vehicle.
- **Safety Messages –** preceded by a safety alert symbol and one of three signal words, DANGER, WARNING, or CAUTION.
  These signal words mean:

  You WILL be KILLED or SERIOUSLY HURT if you don't follow instructions.
  You CAN be KILLED or SERIOUSLY HURT if you don't follow instructions.
  You CAN be HURT if you don't follow instructions.

- **Instructions –** how to service this vehicle correctly and safely.

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HONDA MOTOR CO., LTD.
Service Publication Office

Service Precautions

General

⚠CAUTION

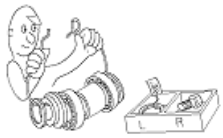
Observe all safety precautions and notes while working.

- Protect all painted surfaces and seats against dirt and scratches with a clean cloth or vinyl cover.

- Work safety and give your work your undivided attention. When either the front or rear wheels are to be raised, block the remaining wheels securely. Communicate at frequently as possible when work involves two or more workers. Do not run the engine unless the shop or working area is well ventilated.

- Before removing or disassembling parts, they must be inspected carefully to isolate the cause for which service is necessary. Observe all safety notes and precautions and follow the proper procedures as described in this manual.

- Mark or place all removed parts in order in a parts rack so they can be reassembled in their original places.



- Use the special tool when use of such a tool is specified.

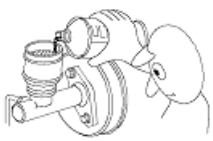
- Parts must be assembled with the proper torque according to the maintenance standards established.
- When tightening a series of bolts or nuts, begin with the center or large diameter bolts and tighten them in crisscross pattern in two or more steps.

- Use new packings, gaskets, O-rings, and cotter pins whenever reassembling.
- Do not reuse parts that must be required to replace. Always replace them.

- Use Honda parts and lubricants or those equivalent. When parts are to be reused, they must be inspected carefully to make sure they are not damaged or deteriorated and are in good usable condition.

- Coat or fill parts with specified grease as specified. Clean all removed parts with solvent upon disassembly.

- Brake fluid and hydraulic components
  - When replenishing the system, use extreme care to prevent dust and dirt from entering the system.
  - Do not mix different brands of fluid as they may not be compatible.
  - Do not reuse drained brake fluid.
  - Because brake fluid can cause damage to painted and resin surfaces, care should be taken not to spill it on such materials. If spilled accidentally, quickly rinse it with water or warm water from painted or resin surfaces.
  - After disconnecting brake hoses or pipes, be sure to plug the openings to prevent loss of brake fluid.
  - Clean all disassembled parts only in clean BRAKE FLUID. Blow open all holes and passages with compressed air.
  - Keep disassembled parts from air-borne dust and abrasives.
  - Check that parts are clean before assembly.



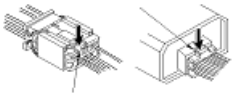
- Avoid oil or grease getting on rubber parts and tubes, unless specified.
- When you apply the silicone grease, make sure not to adhere to the terminal part of connectors and surrounding switches. Also do not touch the switches and the terminal part of connector by hands or glove that adheres the silicone grease.
- When you apply the spray that including the silicone, cover with something such as cloth to avoid not to disperse the terminal part of connectors and surrounding switches.
- Upon assembling, check every part for proper installation and operation.

Electrical Troubleshooting Information

Before Troubleshooting

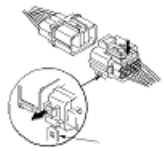
1. Check applicable fuses in the appropriate fuse/relay box.
2. Check the battery for damage, state of charge, and clean and tighten the connections.
   NOTICE
   - Do not quick-charge a battery unless the battery ground cable has been disconnected, otherwise you will damage the alternator diodes.
   - Do not attempt to crank the engine with the battery ground cable loosely connected or you will severely damage the wiring.
3. Check the drive belt tension.

Handling Connectors

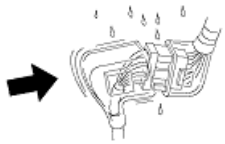


- Make sure the connectors are clean and have no loose wire terminals.
- Make sure multiple cavity connectors are packed with grease (except watertight connectors).
- All connectors have push-down release type locks (A).

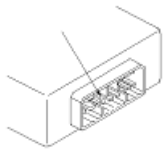
- Some connectors have a clip on their side used to attach them to a mounting bracket on the body or on another component. This clip has a pull type lock.
- Some mounted connectors cannot be disconnected unless you first release the lock and remove the connector from its mount bracket (A).



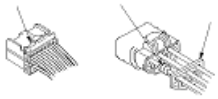
- Never try to disconnect connectors by pulling on their wires; pull on the connector halves instead.
- Always reinstall plastic covers.



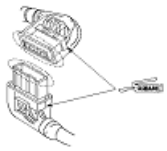
- Before connecting connectors, make sure the terminals (A) are in place and not bent.



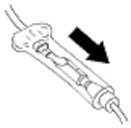
- Check for loose retainer (A) and rubber seals (B).



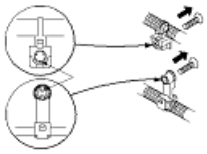
- The backs of some connectors are packed with grease. Add grease if necessary. If the grease is contaminated, replace it.



- Insert the connector all the way and make sure it is securely locked.
- Position wires so that the open end of the cover faces down.

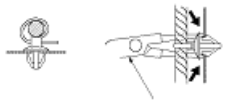


Handling Wires and Harnesses



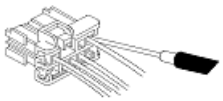
- Secure wires and wire harnesses to the frame with their respective wire ties at the designated locations.
- Remove clips carefully; don't damage their locks (A).

- Slip pliers (A) under the clip base and through the hole at an angle, then squeeze the expansion tabs to release the clip.



- After installing harness clips, make sure the harness doesn't interfere with any moving parts.
- Keep wire harnesses away from exhaust pipes and other hot parts, from sharp edges of brackets and holes, and from exposed screws and bolts.
- Seat grommets in their grooves properly (A). Do not leave grommets distorted (B).

Testing and Repairs



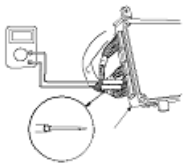
- Do not use wires or harnesses with broken insulation. Replace them or repair them by wrapping the break with electrical tape.
- After installing parts, make sure that no wires are pinched under them.
- When using electrical test equipment, follow the manufacturer's instructions and those described in this manual.
- If possible, insert the probe of the tester from the wire side (except waterproof connector).

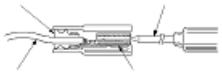
- Use a probe with a tapered tip.
- Refer to the instructions in the Honda Terminal Kit for identification and replacement of connector terminals.

⚠CAUTION

- Puncturing the insulation on a wire can cause poor or intermittent electrical connections.
- For testing at connectors, bring the tester probe into contact with the terminal from the connector side of wire harness connectors in the engine compartment.
  For female connectors, just tough lightly with the tester probe and do not insert the probe.

When checking any control module(s) or unit(s) connector terminals, gently slide the sharp tester probe from the wire side into the connector until it comes in contact with the terminal end of the wire.





Five-step Troubleshooting

1. Verify The Complaint
   Turn on all the components in the problem circuit to verify the customer complaint. Note the symptoms. Do not begin disassembly or testing until you have narrowed down the problem area.

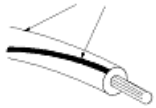
2. Analyze The Schematic
   Look up the schematic for the problem circuit. Determine how the circuit is supposed to work by tracing the current paths from the power feed through the circuit components to ground. If several circuits fail at the same time, the fuse or ground is a likely cause.
   Based on the symptoms and your understanding of the circuit operation, identify one or more possible causes of the problem.

3. Isolate The Problem By Testing The Circuit
   Make circuit tests to check the diagnosis you made in Step 2 . Keep in mind that a logical, simple procedure is the key to efficient troubleshooting. Test for the most likely cause of failure first. Try to make tests at points that are easily accessible.

4. Fix The Problem
   Once the specific problem is identified, make the repair. Be sure to use proper tools and safe procedures.

5. Make Sure The Circuit Works
   Turn on all components in the repaired circuit in all modes to make sure you've fixed the entire problem. If the problem was a blown fuse, be sure to test all of the circuits on the fuse. Make sure no new problems turn up and the original problem does not recur.

Wire Color Codes



The following abbreviations are used to identify wire colors in the circuit schematics:

WHT.	White
YEL.	Yellow
BLK.	Black
BLU.	Blue
GRN.	Green
RED.	Red
ORN.	Orange
PNK.	Pink
BRN.	Brown
GRY.	Gray
PUR.	Purple
LT BLU.	Light Blue
LT GRN.	Light Green

The wire insulation has one color or one color with another color stripe. The second color is the stripe.

Motor noise from sunshade

Diagnostic procedure

1. Check for a loose motor.
2. Check for a worn gear or bearing.
3. Check for a deformed cable assembly.
4. Check for dirt or debris.

Sunshade does not move, but motor turns

Diagnostic procedure

1. Check for foreign matter stuck between the guide rail and the slider.
2. Make sure the cable assembly is attached properly.
3. Check for a loose inner cable.
4. Check for a defective gear or inner cable.
5. Check for a connect shoe.

Sunshade does not move and motor does not turn (sunshade can be moved with 4 mm hexagonal wrench)

Diagnostic procedure

1. Check for a run down battery.
2. Check for a blown fuse.
3. Check for a faulty sunshade switch.
4. Check for a defective motor control unit.

Sunshade does not stop at proper flush closed position

Diagnostic procedure

1. Reset the sunshade control unit.

Sunshade moves in a jerking motion (moves 40 mm (1.57 in.), stops for 0.4 seconds, and repeats)

Diagnostic procedure

1. Reset the sunshade control unit.

During auto close operation, sunshade reverses when no object is trapped

Diagnostic procedure

1. Check for sunshade circuit.
2. Reset the sunshade control unit.

Sunshade moves, but there is no AUTO function

Diagnostic procedure

1. Reset the sunshade control unit.

Glass Roof Sunshade Symptom Troubleshooting Index

Symptom	Diagnostic procedure
Motor noise from sunshade	1Check for a loose motor. 2Check for a worn gear or bearing. 3Check for a deformed cable assembly. 4Check for dirt or debris.
Sunshade does not move, but motor turns	1Check for foreign matter stuck between the guide rail and the slider. 2Make sure the cable assembly is attached properly. 3Check for a loose inner cable. 4Check for a defective gear or inner cable. 5Check for a connect shoe.
Sunshade does not move and motor does not turn (sunshade can be moved with 4 mm hexagonal wrench)	1Check for a run down battery. 2Check for a blown fuse. 3Check for a faulty sunshade switch. 4Check for a defective motor control unit.
Sunshade does not stop at proper flush closed position	Reset the sunshade control unit.
Sunshade moves in a jerking motion (moves 40 mm (1.57 in.), stops for 0.4 seconds, and repeats)	Reset the sunshade control unit.
During auto close operation, sunshade reverses when no object is trapped	1Check for sunshade circuit. 2Reset the sunshade control unit.
Sunshade moves, but there is no AUTO function	Reset the sunshade control unit.

Electronic Control System

The functions of the fuel and emission control systems are managed by the engine control module (ECM) on vehicles with manual transmissions or the powertrain control module (PCM) on vehicles with automatic transmissions.

Self-diagnosis

The ECM/PCM detects the failure of a signal from a sensor or from another control unit and stores a Temporary DTC or a DTC. Depending on the failure, a DTC is stored in either the first or the second drive cycle. When a DTC is stored, the ECM/PCM turns on the malfunction indicator lamp (MIL) by a signal sent to the gauge via F-CAN.

- **One Drive Cycle Detection Method**
  When an abnormality occurs in the signal from a sensor or from another control unit, the ECM/PCM stores a DTC for the failure and turns on the MIL immediately.
- **Two Drive Cycle Detection Method**
  When an abnormality occurs in the signal from a sensor or from another control unit in the first drive cycle, the ECM/PCM stores a Temporary DTC. The MIL does not come on at this time. If the failure continues in the second drive cycle, the ECM/PCM stores a DTC and turns on the MIL.

Fail-safe Function

When an abnormality occurs in the signal from a sensor or from another control unit, the ECM/PCM ignores that signal and substitutes a pre-programmed value, for them that allows the engine to continue running. This causes a DTC to be stored and the MIL to come on.

MIL Bulb Check

When the ignition switch is turned to ON (II), the ECM/PCM turns on the MIL via the F-CAN for 2 seconds to check the bulb condition.

Self Shut Down (SSD) Mode

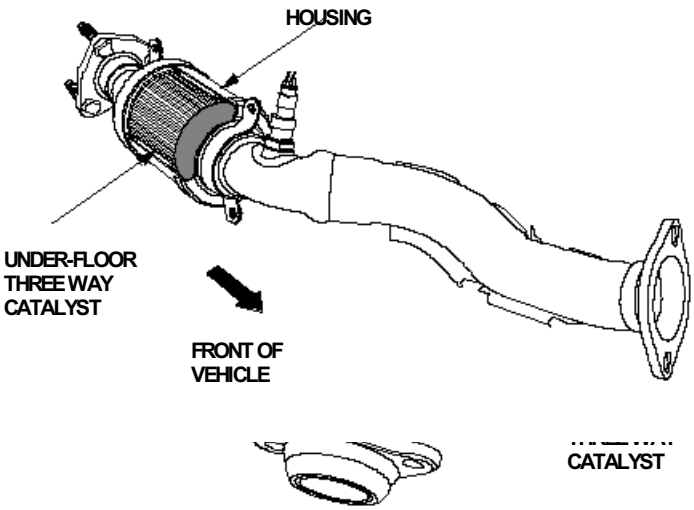
After the ignition switch is turned to LOCK (0), the ECM/PCM stays on (up to 15 minutes). If the ECM/PCM connector is disconnected during this time, the ECM/PCM may be damaged. To cancel this mode, disconnect the negative cable from the battery or jump the SCS line with the HDS after the ignition switch is turned to LOCK (0).

Catalytic Converter System

Warm Up Three Way Catalytic Converter (WU-TWC) and Under-Floor Three Way Catalytic Converter (TWC)

The WU-TWC/TWC converts hydrocarbons (HC), carbon monoxide (CO), and oxides of nitrogen (NOx) in the exhaust gas to carbon dioxide (CO_2), nitrogen (N_2), and water vapor.

WU-TWC (ATTACHED TO THE CYLINDER HEAD)



Exhaust Gas Recirculation (EGR) System

Refer to the system diagram to see a functional layout of the system.

EGR Valve

The EGR valve lowers peak combustion temperatures and reduces oxides of nitrogen emissions (NOx) by recirculating exhaust gas through the intake manifold and into the combustion chambers.

Evaporative Emission (EVAP) Control System

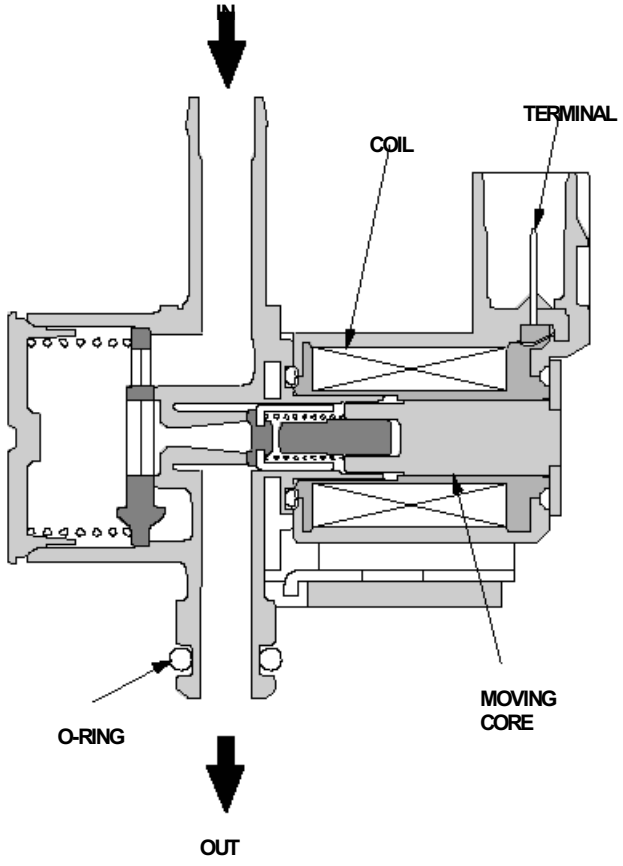
Refer to the system diagram to see a functional layout of the system.

EVAP Canister

The EVAP canister temporarily stores fuel vapor from the fuel tank until it can be purged back into the engine and burned.

EVAP Canister Purge Valve

When the engine coolant temperature is below 60 °C (140 °F), the ECM/PCM turns off the EVAP canister purge valve cutting vacuum to the EVAP canister.

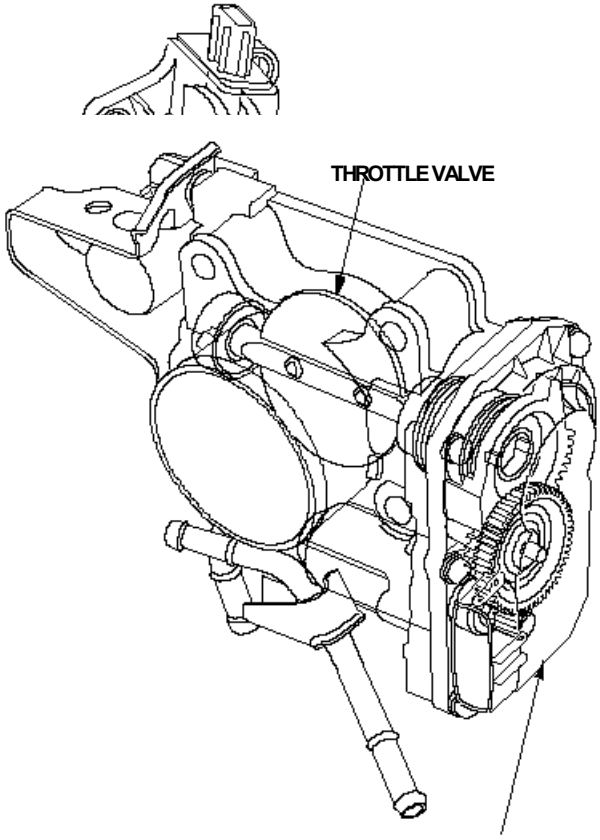


Electronic Throttle Control System

The throttle is electronically controlled by the electronic throttle control system. Refer to the system diagram to see a functional layout of the system.
Idle control: When the engine is idling, the ECM/PCM controls the throttle actuator to maintain the proper idle speed according to engine loads.
Acceleration control: When the accelerator pedal is pressed, the ECM/PCM opens the throttle valve depending on the accelerator pedal position (APP) sensor signal.
Cruise control: The ECM/PCM controls the throttle actuator to maintain set speed when the cruise control is operating. The throttle actuator takes the place of the cruise control actuator.

Accelerator Pedal Position (APP) Sensor

As the accelerator pedal position changes, the sensor varies the signal voltage to the ECM/PCM.

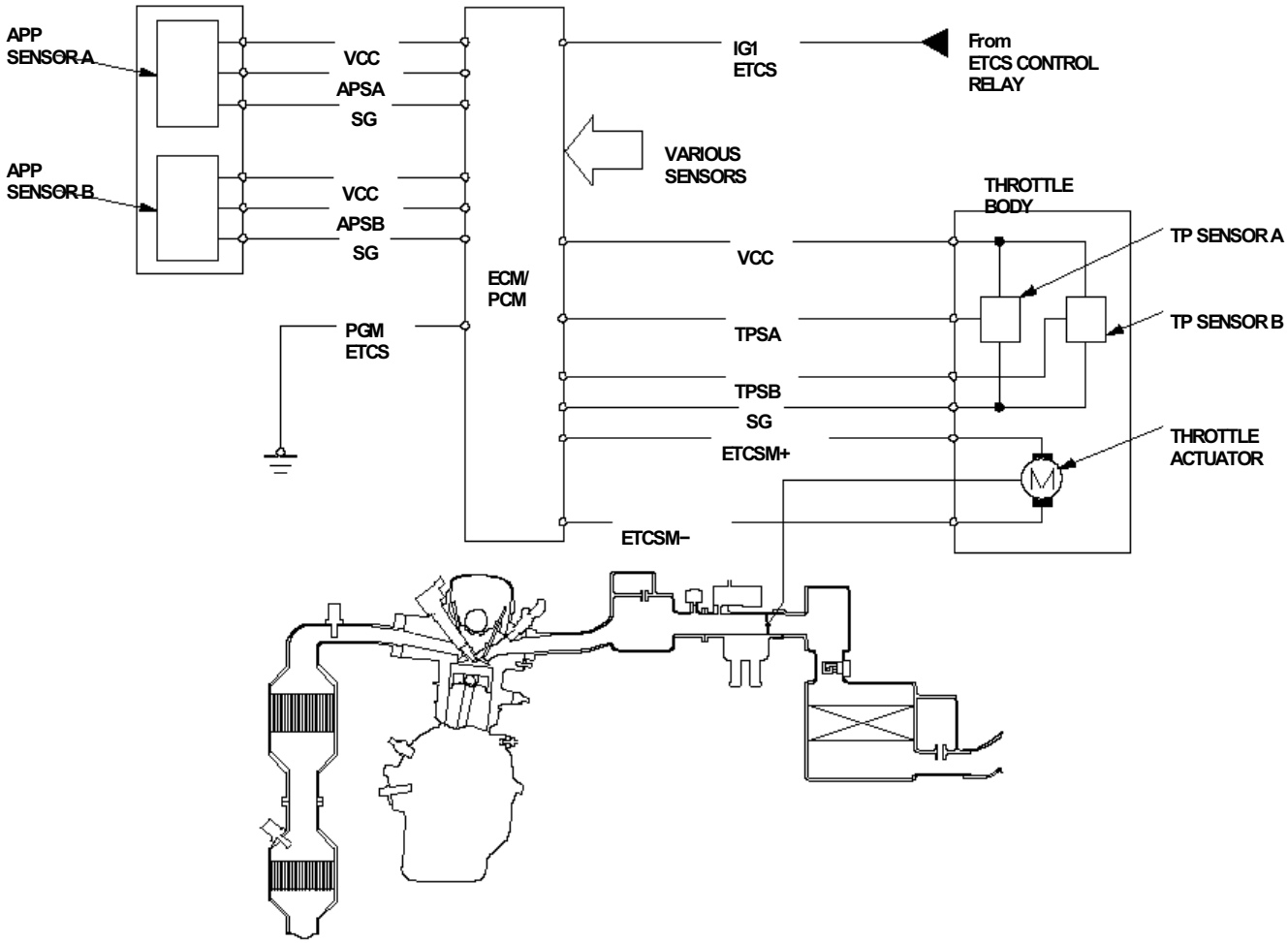


THROTTLE POSITION (TP) SENSOR and THROTTLE ACTUATOR

alve is heated by engine coolant from the cylinder head to prevent

Electronic Throttle Control System Diagram

The electronic throttle control system consists of the throttle actuator, throttle position (TP) sensor A/B, accelerator pedal position (APP) sensor A/B, the electronic throttle control system (ETCS) control relay, and the ECM/PCM.



PGM-FI System

The programmed fuel injection (PGM-FI) system is a sequential multiport fuel injection system.

Alternator Control

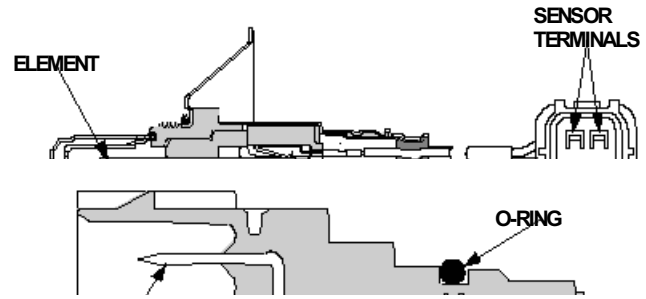
The alternator signals the ECM/PCM during charging.

Air Conditioning (A/C) Compressor Clutch Relay

When the ECM/PCM receives a demand for cooling from the A/C system, it delays the compressor from being energized, and enriches the mixture to assure smooth transition to the A/C mode.

Air Fuel Ratio (A/F) Sensor

The A/F sensor operates over a wide air/fuel range. The A/F sensor is installed upstream of the warm up three way catalytic converter (WU-TWC), and sends signals to the ECM/PCM which varies the duration of fuel injection accordingly.



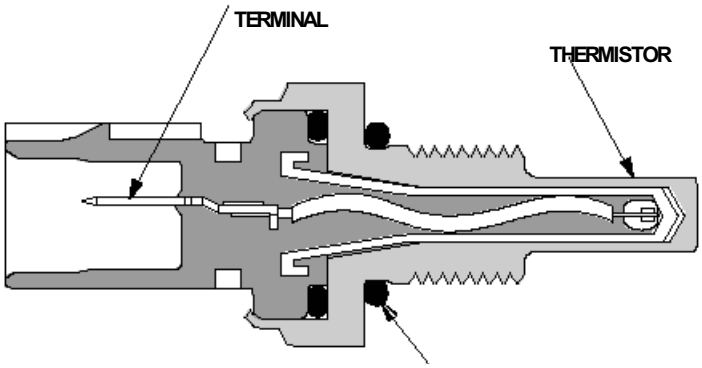
voltage signal that modifies the basic duration of the fuel injection

ntial fuel injection to each cylinder.

ine ignition timing, timing for the fuel injection of each cylinder, and

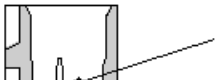
MAGNET

ance decreases as the engine coolant temperature increases.

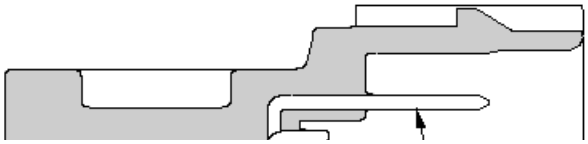


eds and manifold absolute pressures. It also adjusts the timing

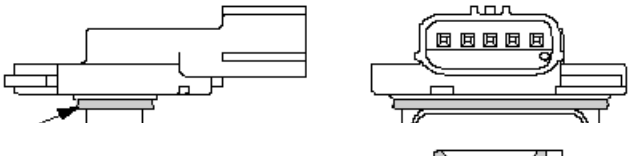
speeds and manifold pressures. The basic discharge duration, after
nsors to obtain the final discharge duration.
s in the fuel system and set DTCs (diagnostic trouble code) if needed.

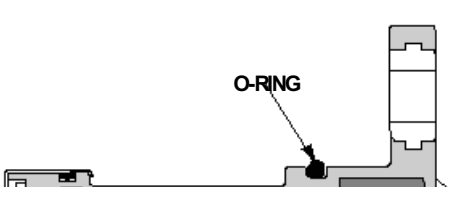


ECM/PCM.

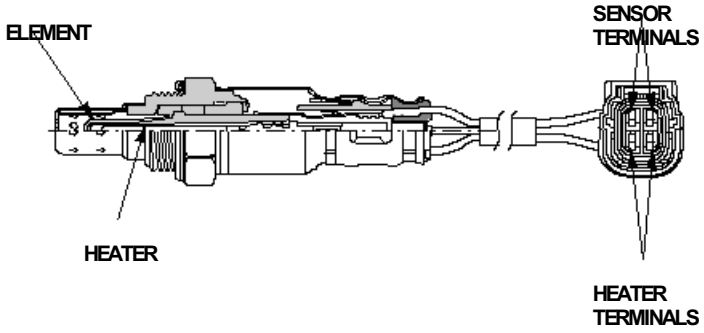


wire, cold film and a thermistor. It is located in the intake air passage.
mperature and air flow. The control circuit in the MAF sensor controls
ltage in the control circuit, then output to the ECM/PCM.





of the three way catalytic converter (TWC), and sends signals to the
tput, the sensor has an internal heater. The ECM/PCM compares the
ndary HO2S is installed upstream of the under-floor three way


ELEMENT
SENSOR TERMINALS
HEATER
HEATER TERMINALS

Idle Control System

When the engine is cold, the A/C compressor is on, the transmission is in gear, the brake pedal is pressed, the power steering load is high, or the alternator is charging, the ECM/PCM controls current to the throttle actuator to maintain the correct idle speed.

Brake Pedal Position Switch

The brake pedal position switch signals the ECM/PCM when the brake pedal is pressed.

Fuel Supply System

Fuel Cutoff Control

During deceleration with the throttle valve closed, current to the injectors is cut off to improve fuel economy at engine speeds over 850 rpm (min^{-1}) (A/T) (M/T: 910 rpm (min^{-1})). Fuel cutoff also occurs when the engine speed exceeds 7,000 rpm (min^{-1}) (L15A7 engine) (L13Z1: 6,600 rpm (min^{-1})), regardless of the position of the throttle valve, to protect the engine from over-rewing. When the vehicle is stopped, the ECM/PCM cuts the fuel at engine speeds over 5,000 rpm (min^{-1}) (A/T), 6,600 rpm (min^{-1}) (L13Z1 engine M/T) (L15A7 engine M/T: 6,800 rpm (min^{-1})). On a cold engine, fuel cut occurs at a lower engine speed.

Fuel Pump Control

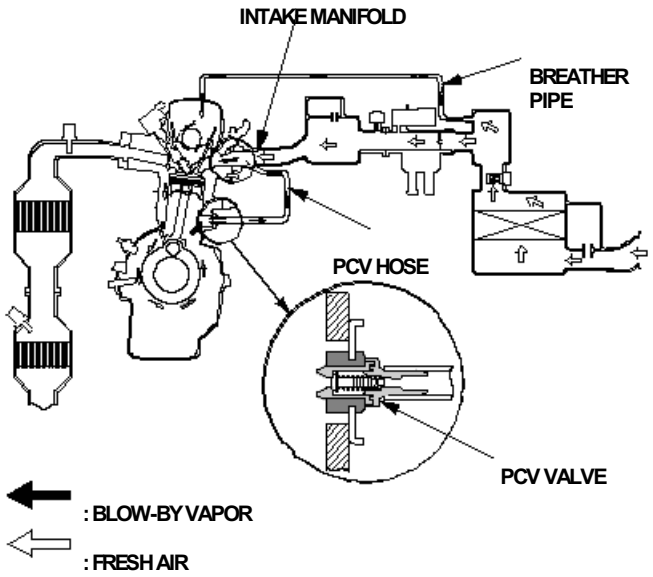
When the ignition is turned on, the ECM/PCM grounds PGM-FI main relay 2 which feeds current to the fuel pump for 2 seconds to pressurize the fuel system. With the engine running, the ECM/PCM grounds PGM-FI main relay 2 and feeds current to the fuel pump. When the engine is not running and the ignition is on, the ECM/PCM cuts ground to PGM-FI main relay 2 which cuts current to the fuel pump.

PGM-FI Main Relay 1 and 2

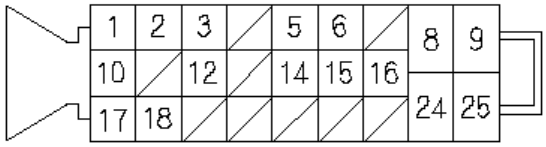
PGM-FI main relay 1 is energized whenever the ignition switch is ON (II) to supply battery voltage to the ECM/PCM, power to the injectors, and power for PGM-FI main relay 2. PGM-FI main relay 2 is energized to supply power to the fuel pump for 2 seconds when the ignition switch is turned to ON (II), and when the engine is cranking or running.

Positive Crankcase Ventilation (PCV) System

The PCV valve prevents blow-by gasses from escaping into the atmosphere by venting them into the intake manifold.



ABS Modulator-Control Unit Inputs and Outputs for 25P Connector

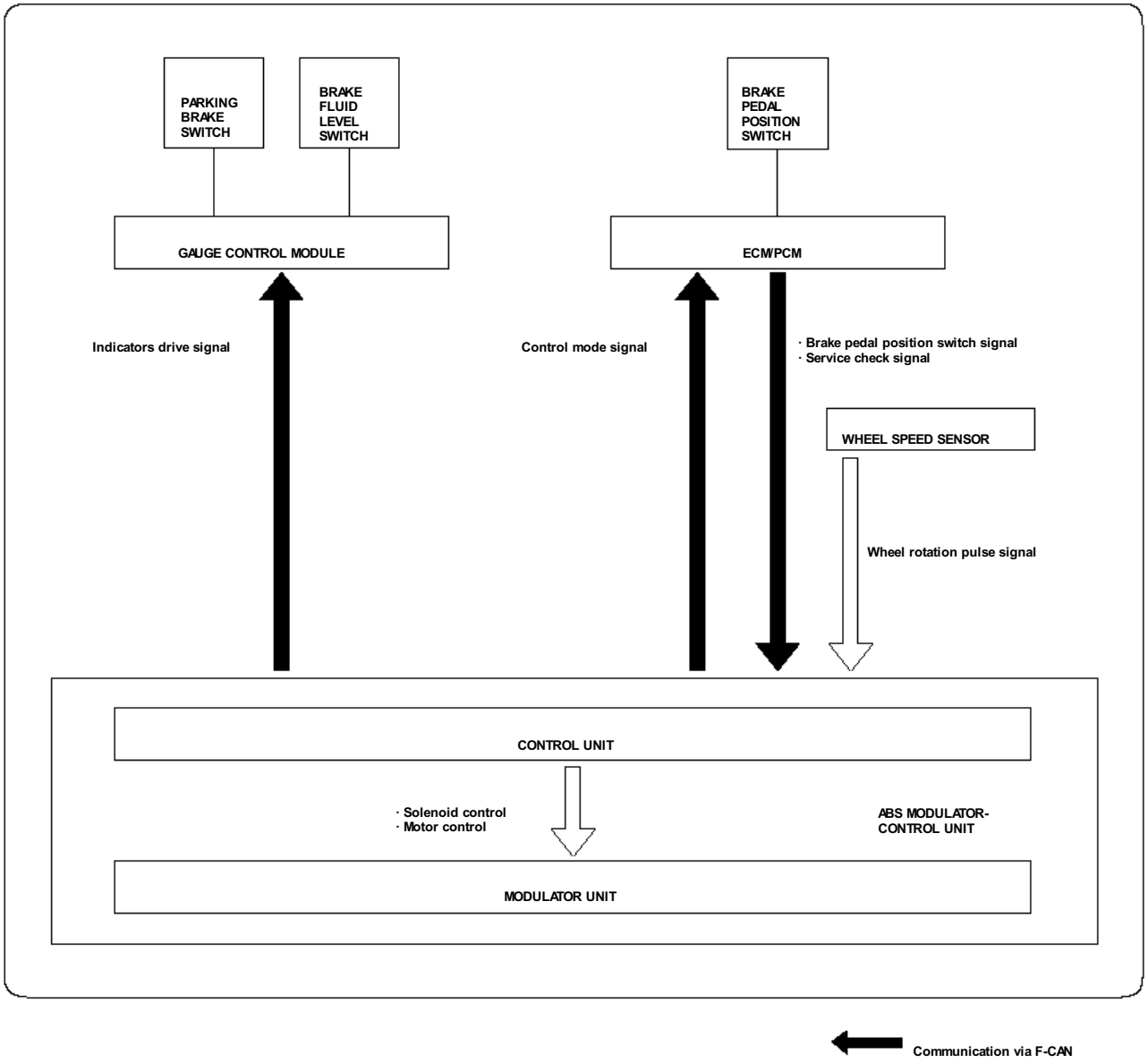


Wire side of female terminals

[illegible]				
10	BLU	K-LINE	Communication with HDS	———
12	ORN	FL +B	Detects left-front wheel speed sensor signal	———
14	YEL	RL +B	Detects left-rear wheel speed sensor signal	———
15	GRY	RR-GND	Detects right-rear wheel speed sensor signal	———
16	PUR	IG1	Power source for activating the system	With ignition switch ON (II): battery voltage
17	RED	CAN-L	F-CANcommunication circuit	———
18	PNK	FR-GND	Detects right-front wheel speed sensor signal	———
24	BLK	GND	Ground for the ABS modulator-control unit	Less than 0.5 V at all times
25	BLK	MR-GND	Ground for the pump motor	Less than 0.5 V at all times

System Outline

This system is composed of the ABS modulator-control unit, the wheel speed sensors, and the system indicators in the gauge control module. The ABS modulator-control unit controls the anti-lock brake and the brakes distribution functions.

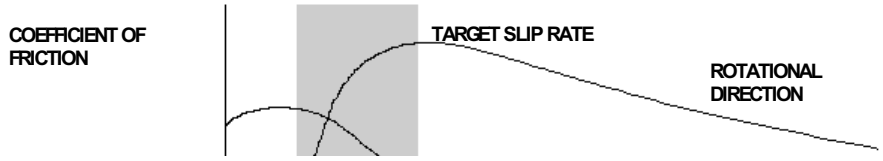


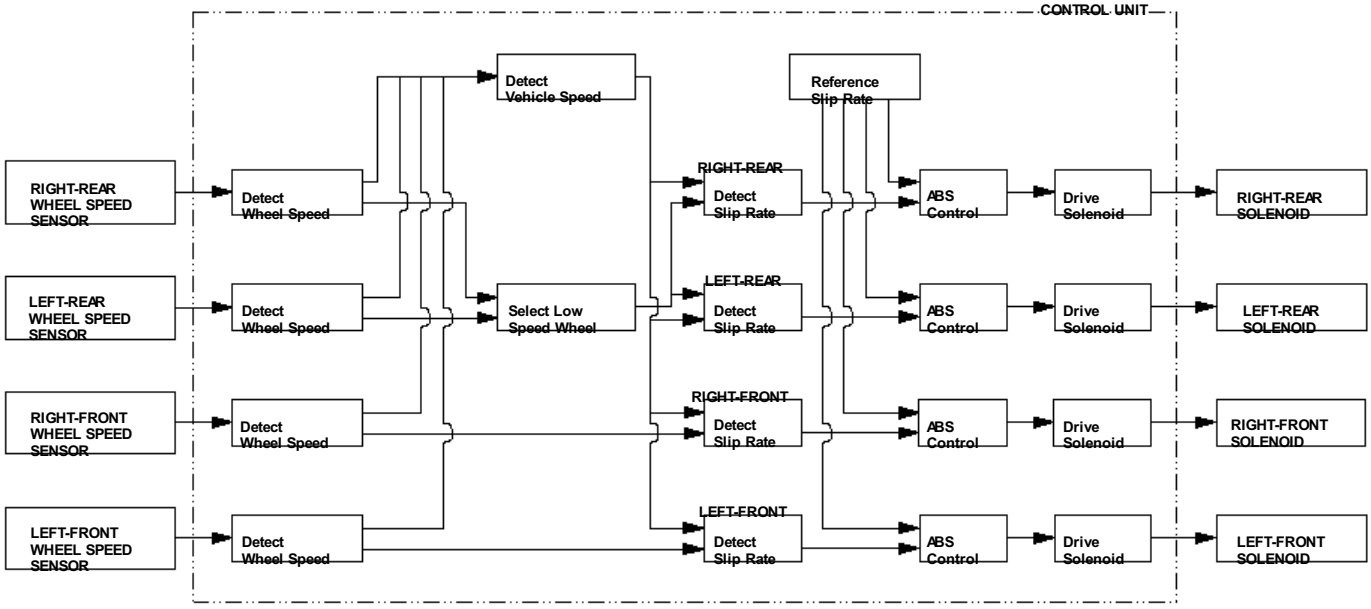
ABS Features

Anti-lock Control

Without ABS, when the brake pedal is pressed while driving, the wheels sometimes lock before the vehicle comes to a stop. In such an event, the maneuverability of the vehicle is reduced if the front wheels are locked, and the stability of the vehicle is reduced if the rear wheels are locked, creating an extremely unstable condition. With ABS, the system precisely controls the slip rate of the wheels to ensure maximum grip force from the tyres, and it thereby ensures maneuverability and stability of the vehicle. The ABS calculates the slip rate of the wheels based on the four wheel speeds, and then it controls the brake fluid pressure to reach the target slip rate.

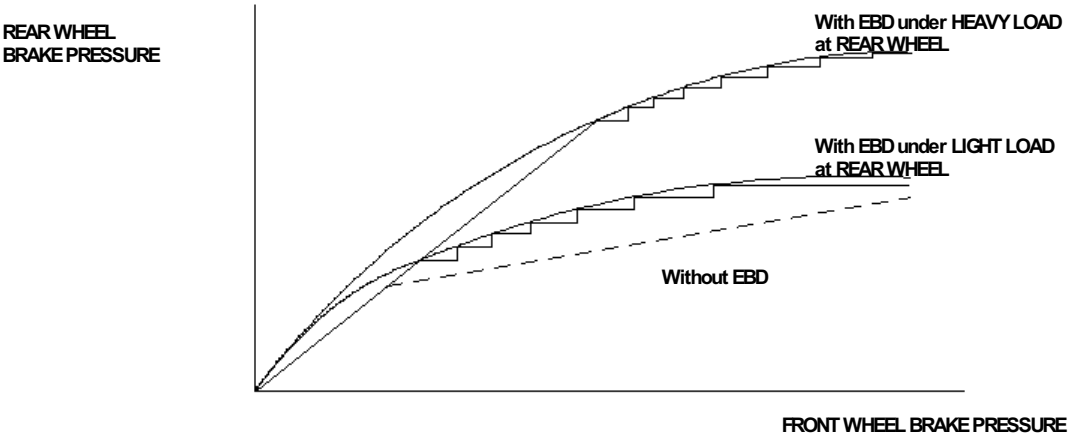
Grip force of tyre and road surface





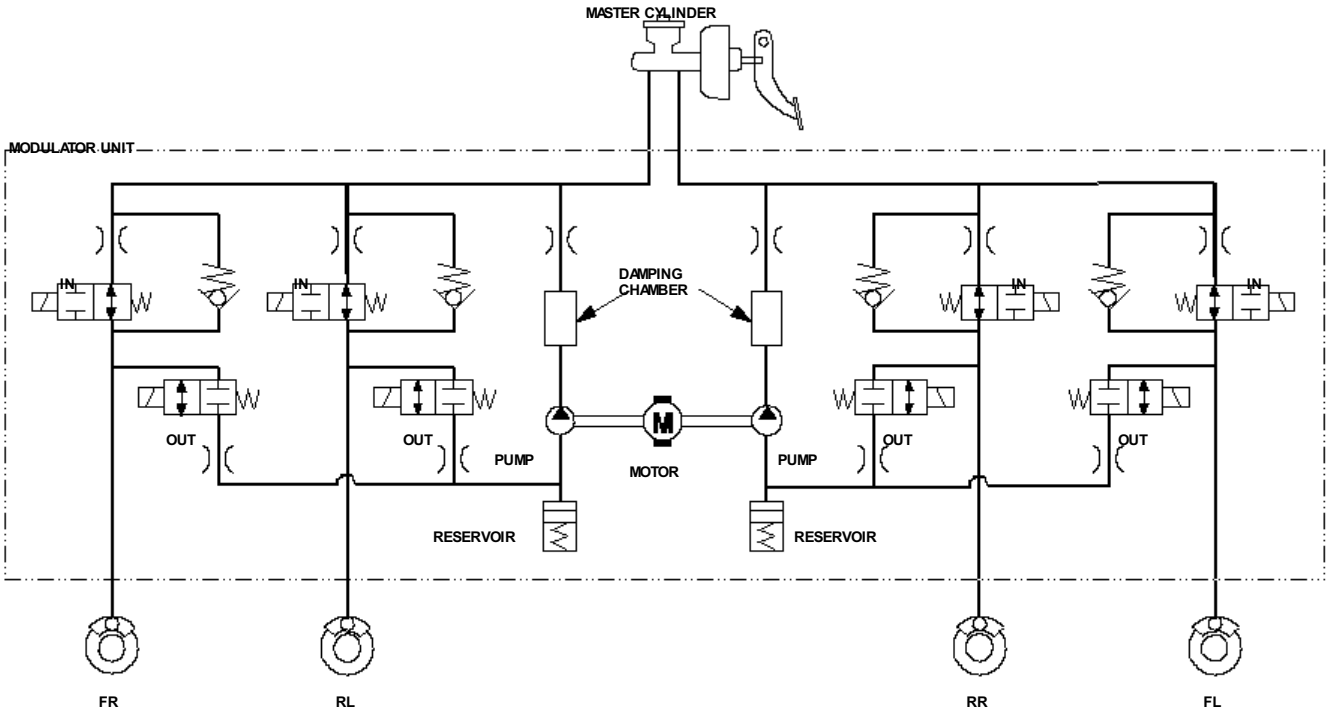
EBD Features

The electronic brake distribution (EBD) feature helps control vehicle braking by adjusting the rear brake force in accordance with the rear wheel load before the ABS operates. Based on the wheel speed sensor signals, the control unit uses the modulator to control the rear brakes individually. When the rear wheel speed is less than the front wheel speed, the ABS modulator-control unit retains the current rear brake fluid pressure by closing the inlet valve in the modulator. As the rear wheel speed increases and approaches the front wheel speed, the ABS modulator-control unit increases the rear brake fluid pressure by momentarily opening the inlet valve. This whole process is repeated very rapidly. While this is happening, kickback at the brake pedal.



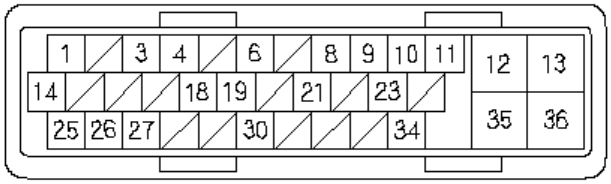
Modulator Unit

The ABS modulator consists of the inlet solenoid valve, the outlet solenoid valve, the reservoir, the pump, the pump motor, and the damping chamber. The modulator reduces the caliper fluid pressure directly. It is a circulating-type modulator because the brake fluid circulates through the caliper, the reservoir, and the master cylinder. The hydraulic control has three modes; pressure intensifying, pressure retaining, and pressure reducing. The hydraulic circuit is an independent four channel type; one channel for each wheel.



IN: INLET SOLENOID VALVE (NORMALLY OPEN)
OUT: OUTLET SOLENOID VALVE (NORMALLY CLOSED)

VSA Modulator-control Unit Inputs and Outputs for 36P Connector

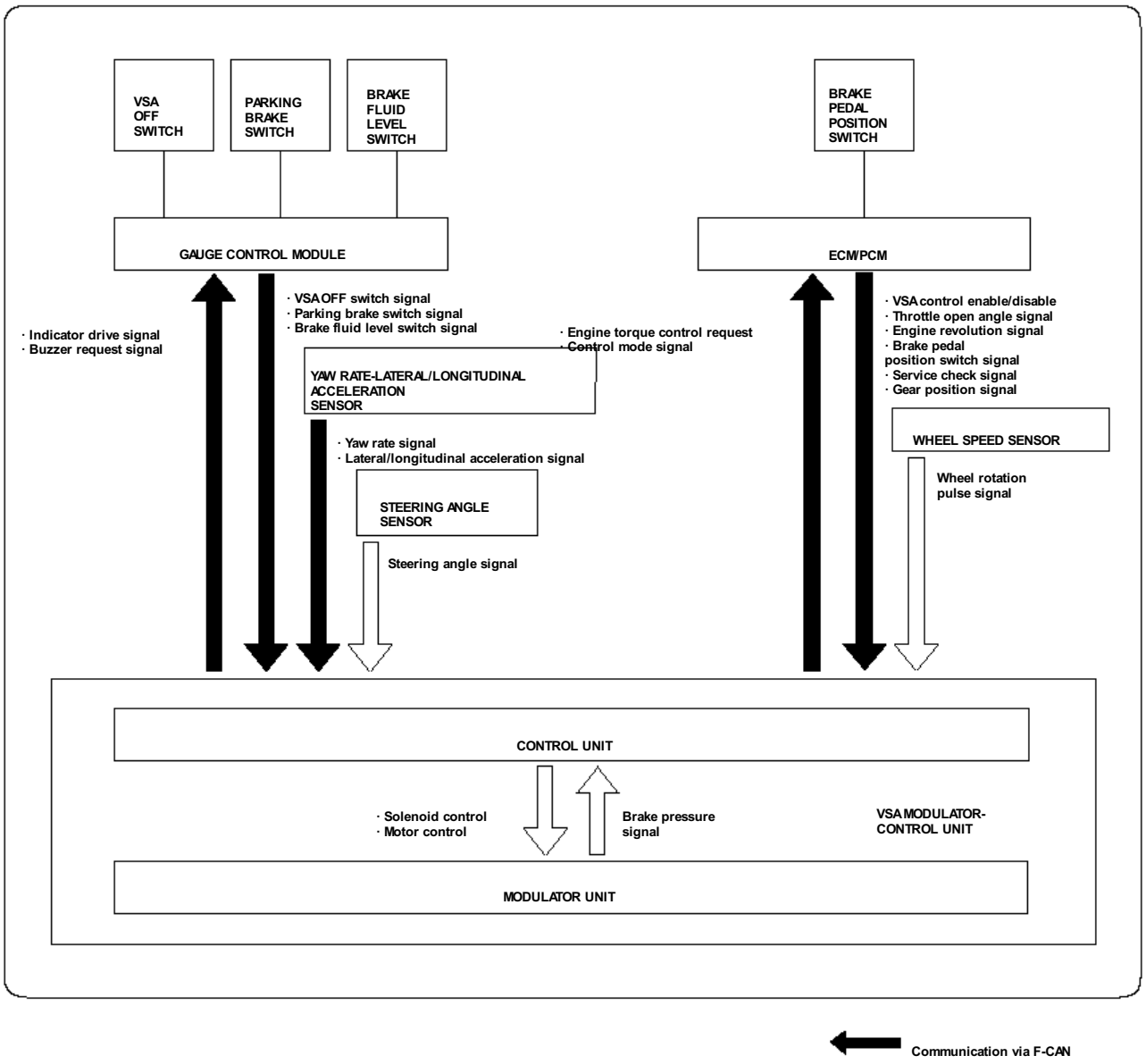


Wire side of female terminals

Terminal number	Wire color	Terminal sign	Description	Measurement (Disconnect the VSA modulator-control unit 36P connector)		
				Terminals	Conditions	Results
21	YEL	RL +B	Detects left-rear wheel speed sensor signal	———	———	———
23	GRN	FR +B	Detects right-front wheel speed sensor signal			
25	RED	WEN	Detects write enable signal			
26	BLU	STR-D	Detects steering angle sensor signal			
27	GRN	STR-B	Detects steering angle sensor signal			
30	GRY	IG1	Power source for activating the system	30−GND	Ignition switch ON (II)	Battery voltage
34	BLU	SGND	Ground for the steering angle sensor	———	———	———
35	BLK	GND	Ground for the VSA modulator-control unit	35−GND	At all times	Continuity
36	BLK	MR-GND	Ground for the pump motor	36−GND	At all times	Continuity

System Outline

This system is composed of the VSA modulator-control unit, the wheel speed sensors, the steering angle sensor, and the yaw rate-lateral/longitudinal acceleration sensor, and the system indicators in the gauge control module. The VSA modulator-control unit controls the ABS, EBD, TCS, VSA, HSA, and brake assist with the brake pressure of each wheel and reduces engine torque.



ABS Features

Anti-lock Control

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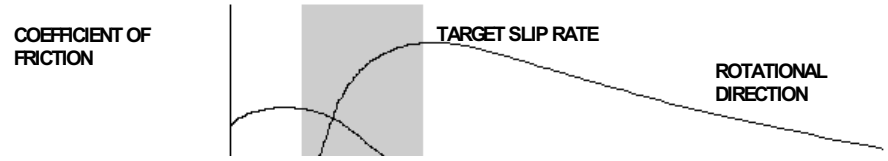
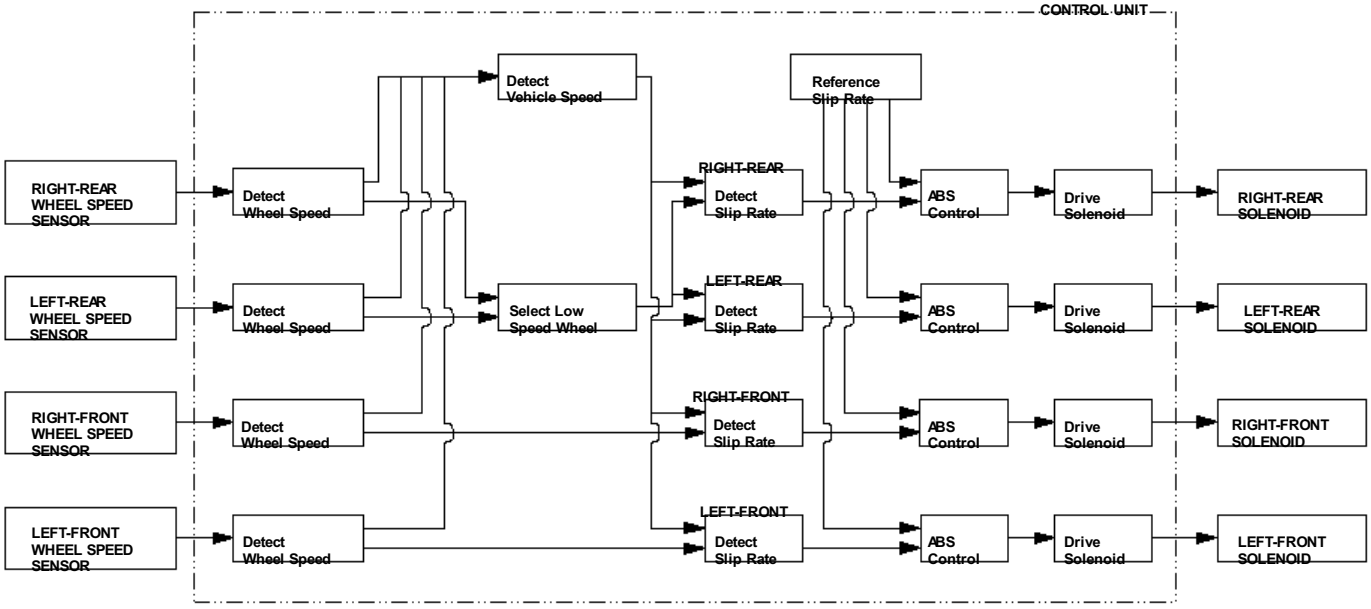
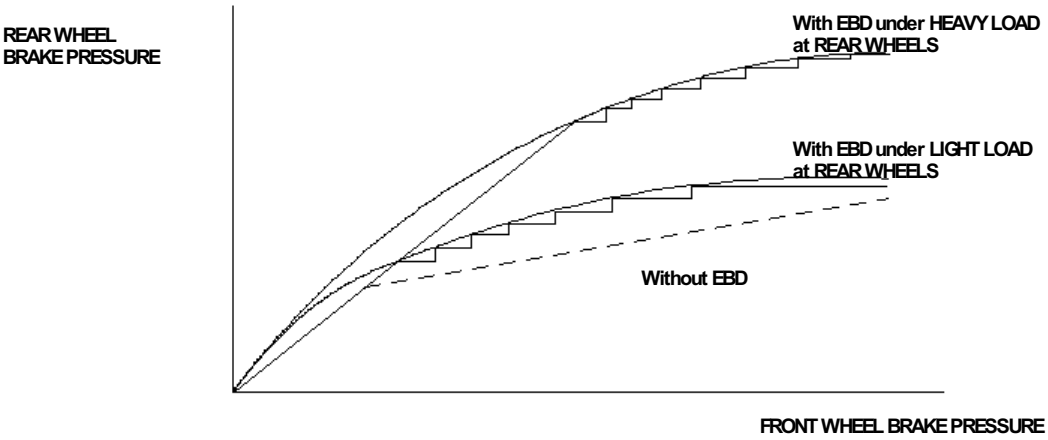
Grip force of tyre and road surface





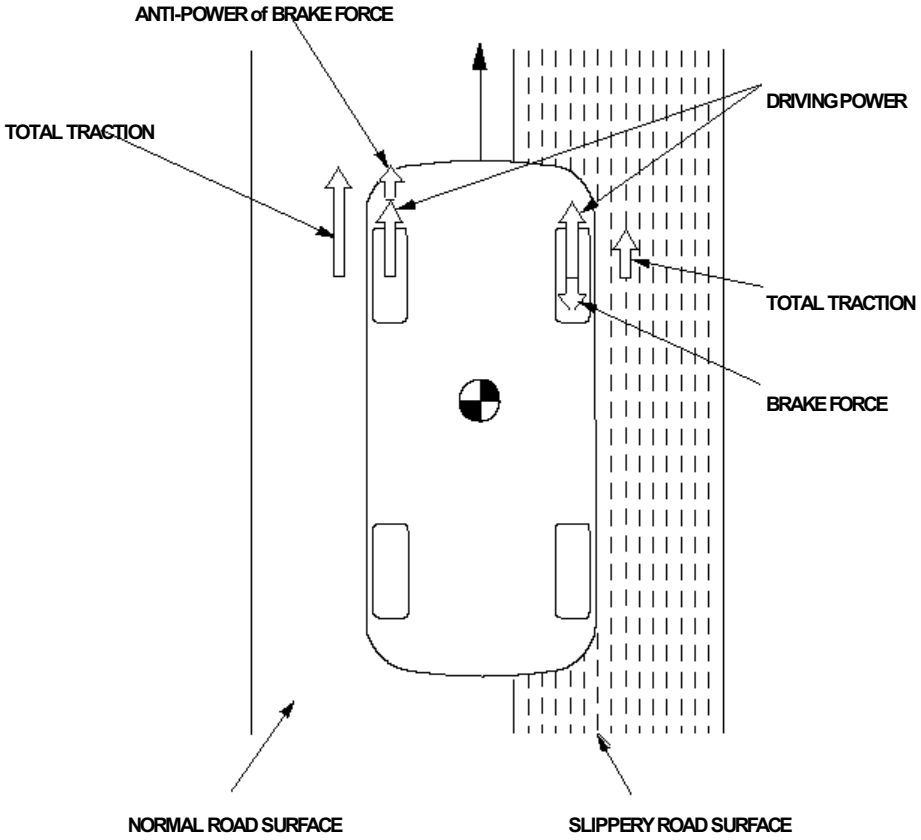
EBD Features

The electronic brake distribution (EBD) feature helps control vehicle braking by adjusting the rear brake force in accordance with the rear wheel load before the ABS operates. Based on the wheel speed sensor signals, the control unit uses the modulator to control the rear brakes individually. When the rear wheel speed is less than the front wheel speed, the VSA modulator-control unit retains the current rear brake fluid pressure by closing the inlet valve in the modulator. As the rear wheel speed increases and approaches the front wheel speed, the VSA modulator-control unit increases the rear brake fluid pressure by momentarily opening the inlet valve. This whole process is repeated very rapidly. While this is happening, kickback may be felt at the brake pedal.



TCS Features

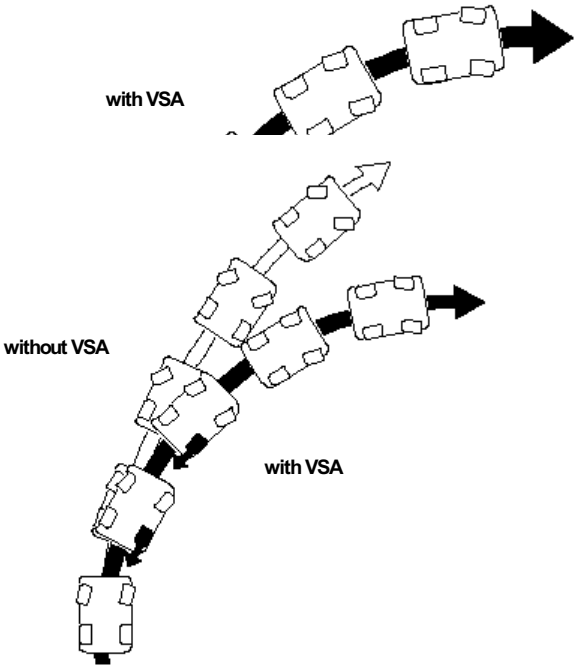
When a drive wheel loses traction on a slippery road surface and starts to spin, the VSA modulator-control unit applies brake pressure to the spinning wheel and sends an engine torque control request to the ECM/PCM to slow the spinning wheel and keep traction.



VSA System Features

Oversteer control

Applies the brake to the front and rear outside wheels



The brake increases the yaw rate toward the turning direction

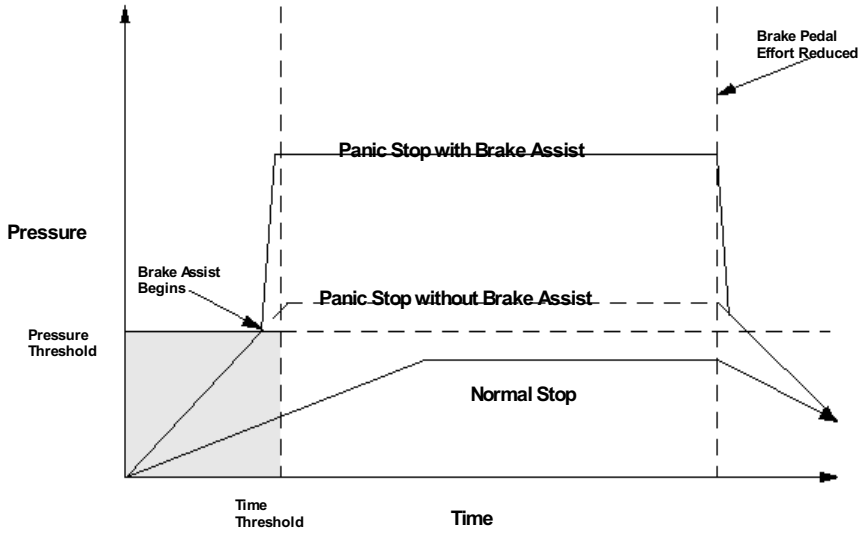
The throttle control effect;
· reduces vehicle speed
· increases cornering force

Brake Assist Features

Brake assist helps ensure that any driver can achieve the full braking potential of the vehicle by increasing brake system pressure in a panic situation, bringing the vehicle into a full ABS stop.

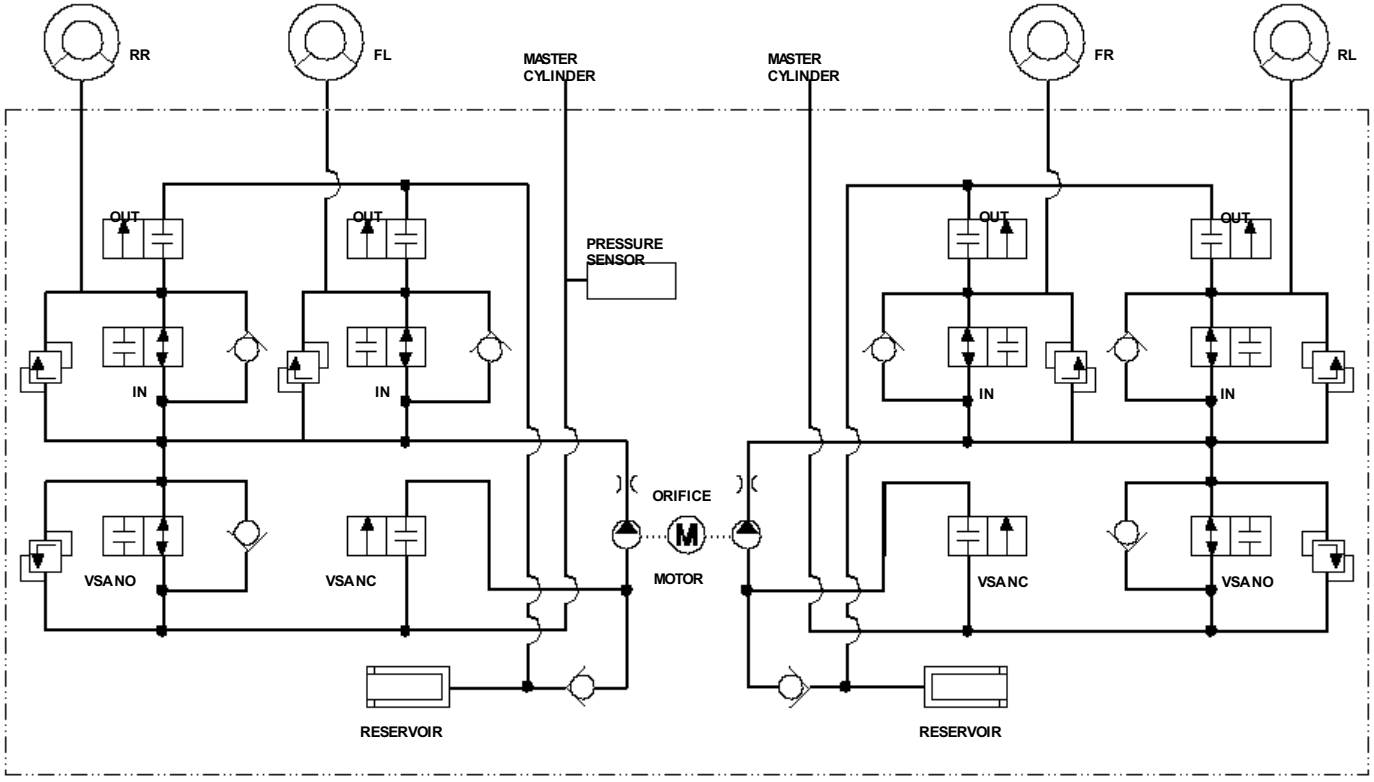
If during a panic stop the VSA modulator-control unit determines that the brake system pressure increases above a threshold in less than a certain amount of time, the VSA modulator-control unit engages brake assist.

Because the brake system pressure crossed the pressure threshold before the time threshold had expired, the VSA modulator-control unit goes into brake assist mode.



Modulator Unit

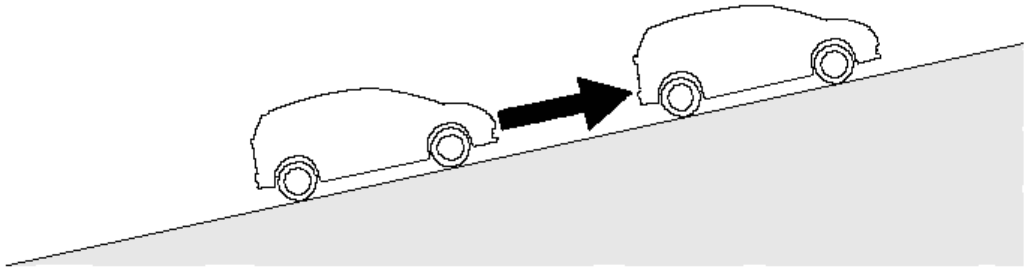
The modulator unit consists of the inlet solenoid valve, the outlet solenoid valve, the VSA NO (normally open) solenoid valve, the VSA NC (normally closed) solenoid valve, the reservoir, the pump, and the pump motor.
The hydraulic control has three modes of ABS action; pressure intensifying, pressure retaining, and pressure reducing. Pressure intensifying mode (VSA) is a combination of the TCS, VSA, and brake assist action.
The hydraulic circuit is an independent four channel type; one channel for each wheel.

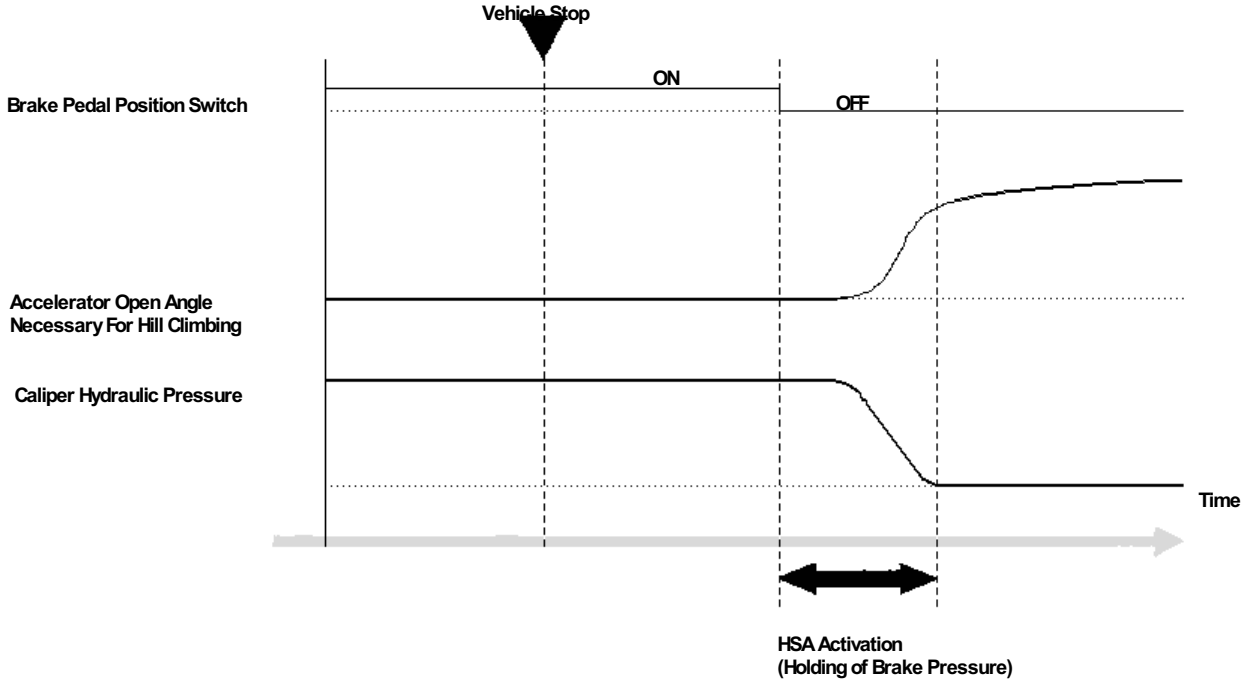


IN: INLET SOLENOID VALVE (NORMALLY OPEN)
OUT: OUTLET SOLENOID VALVE (NORMALLY CLOSED)

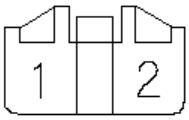
HSA (Hill Start Assist) Features

Prevents vehicle from rolling back when changing from brake to accelerator pedal on a hill. Operate an angle of inclination from the yaw rate-lateral/longitudinal acceleration sensor signal after having judged that a vehicle stopped from all wheel speed sensor signals, and calculate the aim fluid pressure that accepted an angle of inclination. When the VSA modulator-control unit recognized that a driver removed brakes from a pressure sensor signal, maintain fluid pressure in constant time.



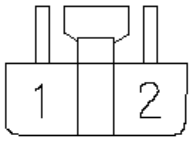


EPS Control Unit Inputs and Outputs for Connector A (2P)



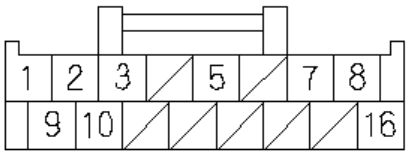
Wire side of female terminals

EPS Control Unit Inputs and Outputs for Connector B (2P)



Wire side of female terminals

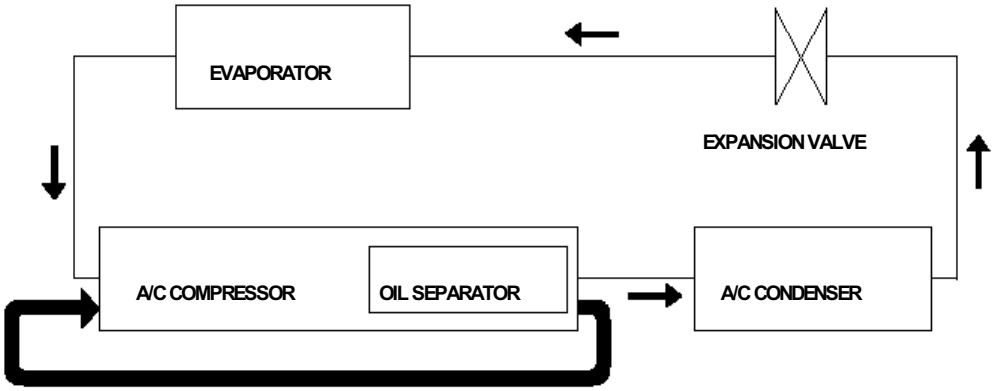
EPS Control Unit Inputs and Outputs for Connector C (16P)

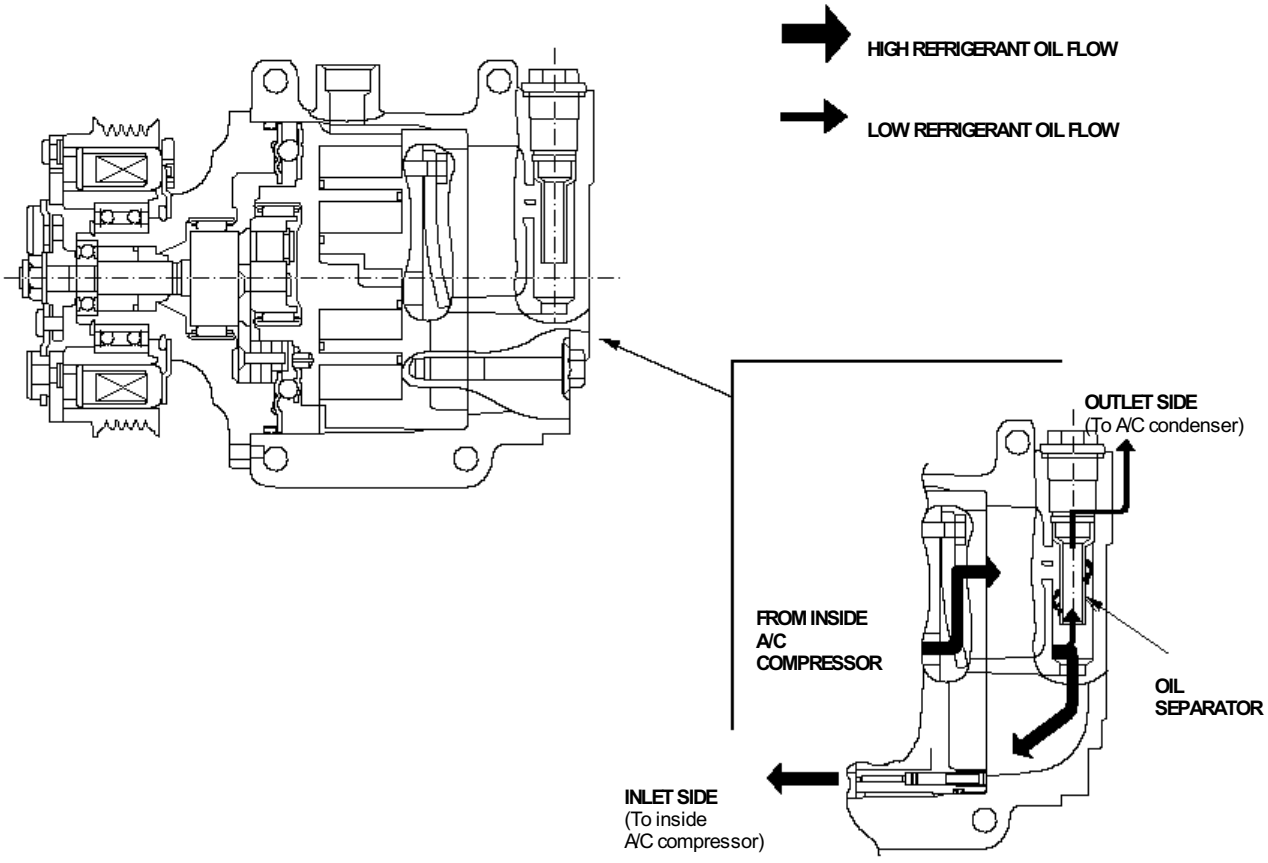


Wire side of female terminals

Oil Separator

Oil emission from the A/C compressor to the A/C line is reduced by placing the oil separator in the A/C compressor. This results in a thinner oil film inside of the heat exchangers (A/C condenser and evaporator). Air conditioning efficiency is increased without sacrificing engine performance.





Overview

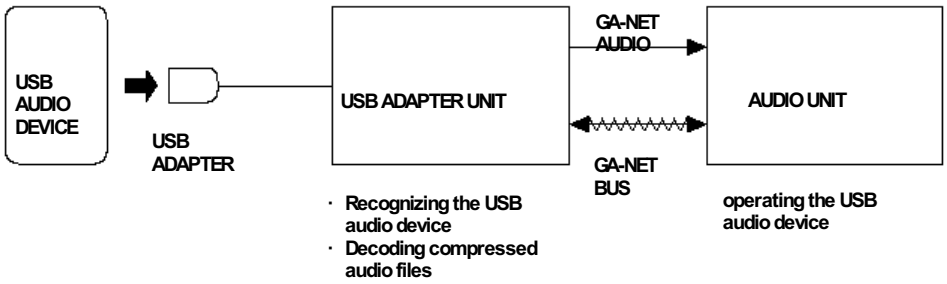
The audio unit acts as the processor for all audio functions. Select audio functions from the audio unit buttons (on the center panel) or the audio remote switch (on the steering wheel). The audio display provides the current audio status. The audio unit are supporting playback function of compressed audio files (MP3/WMA) recorded on CD-R/RW.
The audio system is equipped with the auxiliary input jack (AUX) in the center panel. The system will accept auxiliary audio input using a 3.5 mm stereo miniplug.
The audio unit has a built-in EEPROM (electrically erasable programmable read-only memory). This memory holds the audio presets (AM/FM radio frequency, sound settings, etc.) even when the battery is disconnected.
For some models, a security signal is daisy-chained between the audio and vehicle components for integration into the vehicle's security system.

Speed-sensitive volume compensation (SVC)

The audio system is equipped with speed-sensitive volume compensation (SVC). The audio unit receives the vehicle speed pulse (VSP) from the ECM/PCM. The system processes the speed input and increases the audio system volume level as the vehicle speed increases to compensate for the various interior noises that occur at higher speeds. When the vehicle slows down, the volume returns to its normal level. The SVC has four settings: SVC OFF, LOW, MID and HIGH that can be adjusted using the audio unit. The SVC comes from the factory with the MID set as the default (see the owner's manual for more information).

USB adapter

The audio system supports the external compressed audio files input using USB adapter. The audio unit is supporting GA-NET address and commands for the USB adapter unit. While connecting the USB audio device to the USB adapter, the audio unit can control the USB audio device, also audio unit can provide power supply to the USB audio device through the USB. For connecting the USB audio device, use the USB adapter cable included with the accessory kit (see owner's manual).



	1 GB have been tested.
Audio remote switch	The switches on the steering wheel that control the audio system.
Auxiliary jack	Allows the customer to use a portable audio device to input audio recordings.
Balance	A control that changes the relative volume of the left and right channels.
Band	A range of frequencies between two definite limits. Bands are assigned by the Federal Communications Commission for specific uses.
Bass	An adjustment for the low frequency sounds of around 160 Hz and below.
Byte	A unit of storage for computer files and memory. A CD holds approximately 700 million bytes.
Cassette	Audio or video magnetic tape container having two reels. Customers can insert it for play back
Compact flash	A standard for small-size (3 x 4 cm), memory cards used in mobile computers, PDAs, digital cameras. Compact flash memory cards are available in size of 32 MB up to 4 GB or more and can be played in the audio PC slot. Sizes above 1 GB have not been tested.
CD (Compact Disc)	A 4.5-inch plastic disc containing digital audio recording that is played optically on a laser equipped player. Never use discs with a paper label. In a hot vehicle, labels can curl up and jam the unit.
CD (audio disc) changer	CD player that can store and play more than one CD. Two types are available. Some units accept CDs fed into the changer one at a time, and others accept a magazine (with CDs stacked in a container).
CD player	A component designed to play compact disc recordings using a laser optical pickup. The signal from a CD player usually requires amplification.
Decibels (db)	A method of measuring sound or radio signal strength received by the audio unit antenna.
Distortion	Inexact reproduction of an audio signal caused by playing music at levels the audio system cannot handle.
Dolby (noise reduction)	A processing system developed by Dolby Laboratories that reduces the background noise on recording media. The result is a cleaner playback from the audio system.
DUET	A serial data communication line used for sub display.
DVD (Digital Versatile Disc)	A 4.5-inch CD-like format used for storing movies with digital audio and video features. The DVD-A format is a DVD format designed for DVD audio systems. Some vehicles can play DVD and DVD-A formats.
Equalizer	A device that changes the relative volume of individual frequency bands to suit personal tastes of the listener.
Fader	The control that adjusts the relative volume levels of front and rear speakers in a four-speaker system.
Format	To prepare a PC Card to receive files this function is done on a PC. Always choose either FAT or FAT32, as the NTFS format is not accepted by the system. Pick the default sectors for the format method selected.
FM (Frequency Modulation)	The form of modulation used for radio and television sound transmission in most of the world. Less prone to interference than AM. The FM broadcast band covers roughly 87.7 to 107.9 MHz.

Audio Glossary

Item	Definition
GA-Net	The GA-Net allows the audio unit to communicate with all the audio and navigation components in a vehicle. If there is an open in the GA-Net, components or the entire audio and navigation system may appear inoperative.
GB (Gigabyte)	A unit of memory or disk storage equal to billion bytes (1000 million bytes).
HDD	Abbreviation for hard disc drive. They are sensitive to heat and it is not recommended that they be used in the PC card slot for playing audio files.
Hertz (HZ)	The unit of frequency equal to one cycle per second (cps). One kilohertz (kHz) equals 1,000 cps; one megahertz (MHz) equals 1 million cps.
Integrated amplifier	A component that combines a pre amp and a power amp into a single unit. A receiver combines an integrated amp and a tuner into a single unit.

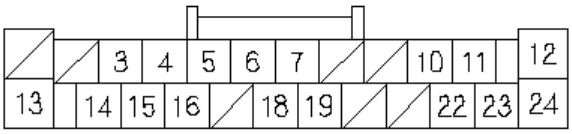
Item	Definition
Jewel case	The hard plastic case that contains a compact disc or DVD. Always use a jewel case to prevent scratches on the underside of a CD or DVD.
LCD (Liquid Crystal Display)	A type of digital display that changes reflectance or transmittance when an electrical field is applied to it.
Memory	Circuitry or devices that hold information in electrical or magnetic form, such as the AM/FM radio presets.
MB (Megabyte)	One million bytes. Written as 1 MB. Megabytes are used as a measure of digital storage space. For example, a CD can hold 650 MB.
Mic	An abbreviation for microphone. For vehicles with navigation, the microphone accepts navigation voice commands to control audio and navigation functions.
MP3 music files	MP3 is an audio coding format. MP3 is a popular audio compression format on the Internet and computers. CDs and PC cards with these files can be played on some vehicle's audio system.
Mute	When the navigation gives guidance, the front speakers are muted (no music). When you use the voice control system, all of the speakers are muted.
Noise	Unwanted random sounds like buzzing, hiss, pops, static, whine, etc.
PC card	The slot used for playing MP3 and WMA music files. The PC card is usually a combination of a small flash card in a PCMCIA adaptor that slides into the slot. The ATA, SD, and compact flash types of cards have been tested up to 1 GB.
PCMCIA	A computer standard for the slot that the PC card slides into. Another term for the PC card slot.
Processor	The part of an audio device that performs task/calculations. In the audio unit the processor handles muting to allow the navi to speak voice commands, and the decoding/playback of the sound files etc.
Radio	A head unit that combines a tuner, a preamplifier, and often a power-amplifier.
Route guidance (RG)	Spoken voice used for turn-by-turn navigation from the audio speakers.
SCF (Cold Start Fix) screens	These screens are displayed if the system requires a GPS initialization. The vehicle should be moved outside into an open area away from buildings/power lines.
Stereo	A recording of at least two channels where you can hear sound or music from the left or right side.
SD (Secure Digital) card	This compact type of memory card allows for fast data transfer and has built-in security functions. SD cards have a small write-protection switch on the side.
Shield	A metallic foil or braided wire layer surrounding conductors which are designed to prevent electrostatic or electromagnetic interference (noise) from external sources such as buzzing, or popping sounds heard on the speakers.
Speaker (Loudspeaker)	A device that converts electrical energy into acoustical energy (sound).
Speed-sensitive volume compensation (SVC)	The SVC increases the audio volume to compensate for increased interior noise when the vehicle drivers at freeway speeds.
Subwoofer	A loudspeaker made to reproduce the lowest audio frequencies, approx 25 Hz to 125 Hz.

Audio Glossary

Item	Definition
Track	A sound recording on a CD, tape, or PC card.
Treble	An adjustment to control the volume of the high frequency sounds.
Tuner	A component (or part of a component) that receives radio signals and selects one broadcast from many.
Tweeter	A speaker designed to reproduce the higher frequencies (treble) only.
USB	Universal Serial Bus. USB is used for playing the compressed audio files (MP3, WMA, and AAC) on the external device through the audio unit.
Voice coil	A coil of wire wrapped around a tube and then attached to the speaker cone or diaphragm. When an audio signal is applied, the coil becomes an electromagnet and interacts with the permanent magnet causing the come or diaphragm to vibrate. We interpret this vibrations as sound.
Volume control	Allows you to control the loudness of the music.
WMA music file	Windows Media Audio File. This is an accepted format for music files to be played on either a CD-R, a CD-RW or a PC card.

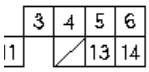
Audio Unit Connector for Inputs and Outputs

AUDIO UNIT CONNECTOR A (24P)

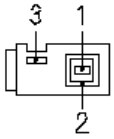


Wire side of female terminals

AUDIO UNIT CONNECTOR C (14P)
(With USB adapter)

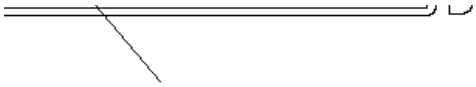


AUDIO UNIT CONNECTOR D (3P)



terminals

Terminal side of female terminals



AUDIO UNIT CONNECTOR A (24P)

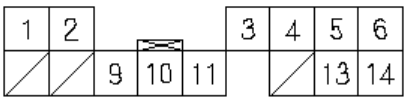
AUDIO UNIT CONNECTOR C (14P)

AUDIO UNIT CONNECTOR D (3P)

A23	LT BLU	Left front door speaker (+) (FR L+)
A24	PNK	No. 1 (10 A) fuse in the under-dash fuse/relay box (+B)

*1: With security system
*2: With remote audio control

AUDIO UNIT CONNECTOR C (14P)(With USB adapter)



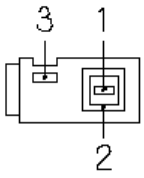
Wire side of female terminals

Connects to
GA-NET BUS SH)
3 and No. 14 (GA-NET AUDIO SH)

": The shielded wires have a heat-shrink tube insulating the outside of the wire. The color of the insulating tube, typically black or dark gray, may not match the color of the wire listed on the schematic.

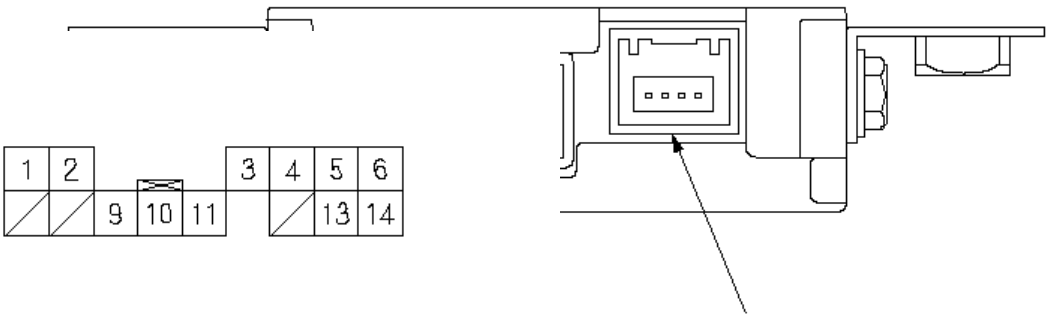
AUDIO UNIT CONNECTOR D (3P)

Connects to



Terminal side of female terminals

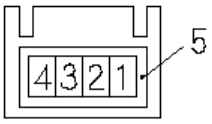
USB Adapter Connector for Inputs and Outputs



Wire side of female terminals

": The shielded wires have a heat-shrink tube insulating the outside of the wire. The color of the insulating tube, typically black or dark gray, may not match the color of the wire listed on the schematic.

USB ADAPTER UNIT CONNECTOR B (5P)



Terminal side of female terminals

Connects to
2, No. 3 and No. 4 (USB SH)

Security Alarm System

The security alarm system is armed automatically after the doors, hood, and tailgate are closed and locked. For the system to arm, the ignition switch must be off, the key must be removed, and the MICU must receive signals that the doors, hood, and tailgate are closed and locked. The alarm can be disarmed at any time by unlocking the driver's door with the key or pressing the UNLOCK button on the transmitter.

When everything is closed and locked, the only inputs that are grounded, and have 0 V, are the driver's door lock knob switch (LOCK position), and the audio unit. In other words, all of the other switches are open, and have about 5 V with system awake and 1 V in sleep mode. The security indicator in the gauge control module begins to flash immediately after the vehicle is completely closed and locked, and 15 seconds later, the security system arms. If the security indicator does not flash, the system is not arming.

If one of the switches is misadjusted or shorted internally, or there is a short in the circuit, the security system will not arm. As long as the control unit continues to receive a ground signal (0 V) , it senses that the vehicle is not closed and locked , and the system will not arm. A switch that is slightly misadjusted can cause the alarm to sound for no apparent reason. In this case, a significant change in outside air temperature, the vibration of a passing truck, or someone bumping into the vehicle could cause the alarm to sound. There is no glass breakage or motion detector feature.

If anything is opened or improperly unlocked after the system is armed, the control unit receives a ground signal from that switch, and the 1−5 V reference drops to 0 V . If the audio unit connectors is disconnected, the input loses its ground, and the input voltage goes to 1−5 V. The system sounds the alarm when any of these occur:

- A door or the tailgate is forced open
- A door is unlocked without using the key or the transmitter
- The hood is opened
- The audio unit is disconnected

When the system sounds the alarm, the horns sound and the exterior lights flash for 2 minutes. The alarm can be stopped at any time by unlocking the driver's door with the key or by pressing any button on the transmitter.

Keyless Entry System

The keyless entry system is integrated with the MICU . The MICU receives LOCK and UNLOCK signals from the immobilizer-keyless control unit (with built-in receiver).

The keyless entry system allows you to lock and unlock the vehicle with the transmitter. When you press the LOCK button, all doors lock.

2 motion type: When you press the UNLOCK button once, only the driver's door unlocks. The other doors will unlock when you press the button a second time.

NOTE: Using the custom setting with the HDS, the functionality of the system can be changed so that all the doors unlock with the first press of the transmitter UNLOCK button.

1 motion type: When you press the UNLOCK button, all doors unlock.

The doors will not lock with the transmitter if a door is not fully closed , or if the key is in the ignition switch.

When the switch for the ceiling light is in the center (DOOR) position, it will come on when UNLOCK button is pressed. If a door is not opened, the light will go off in about 30 seconds, and the doors will relock. If the doors are locked with the transmitter within 30 seconds, the light will go off immediately.

Ultrasonic System

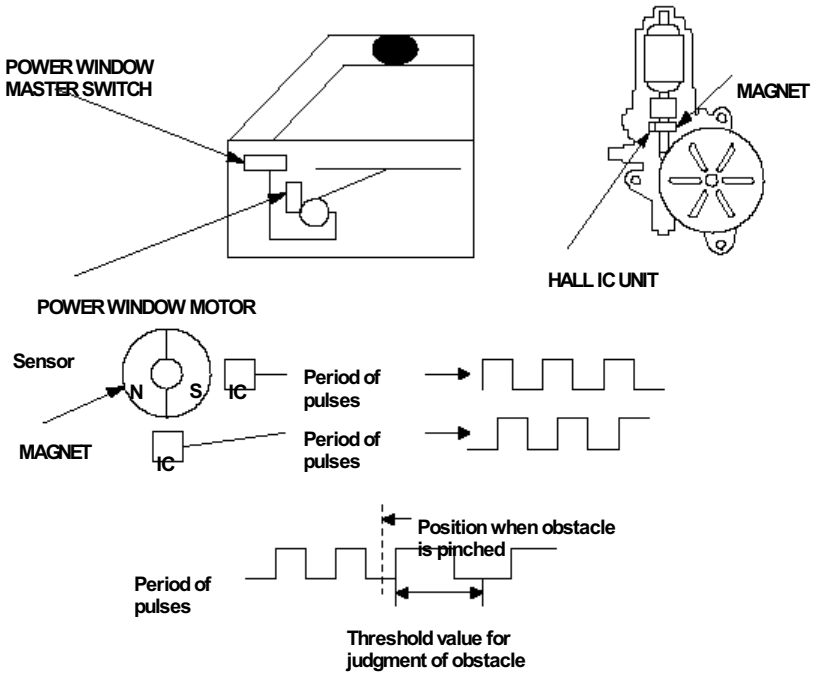
The system consists of the ultrasonic sensor and the alarm control siren that is a combined control unit and self powered siren.
The ultrasonic sensor uses the ultrasonic Doppler technology. It saturates the volume of the vehicle with 40 kHz ultrasounds, convert the received signal that is generated by any moving target inside the volume into a rectangular wave characterized by the Doppler frequency, which is analyzed by a dedicated algorithm, in-built the microcontroller.
The alarm control siren communicates with the ultrasonic sensor and the MICU. If the alarm control siren receives an arm command from the MICU, it enters the arm mode after default period time (stored in EEPROM memory) of 10 seconds.
If the alarm control siren receives alarm command from the ultrasonic sensor or the MICU during arm condition, alarm control siren activates the internal siren.
The system has the power supply line '+B Tamper' function (cutting wire protection). If one or both power supply wires (+B, GND) are tampered during arm condition, the system changes to alarm mode. If the alarm condition remains, the alarm control siren will trigger in alarm 10 times (programmable in EEPROM memory).
The system has the serial line 'alarm comm line tamper' function (not authorized disarm attempt. If wrong identification code is received by the alarm control siren, the system changes to alarm mode. The alarm control siren will generate up to 10 alarm triggers for each arm cycle (programmable in EEPROM memory).
The system has the serial line 'alarm comm line polling' function (connection monitoring). If this wire is interrupted during arm mode the system change to alarm condition. If the alarm condition remains, the alarm control siren will trigger in alarm 10 times (programmable in EEPROM memory).

Door Lock System

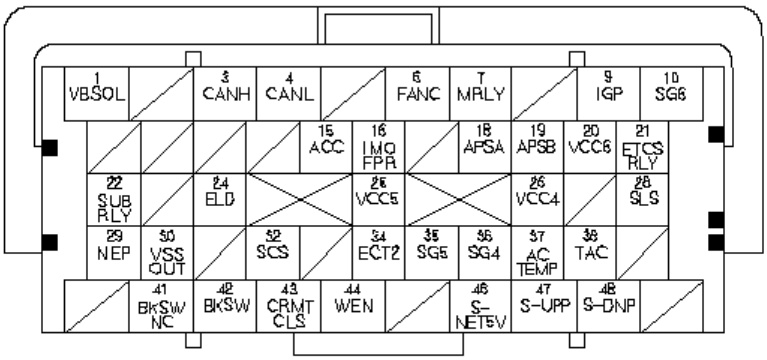
The system has a pair of circuits between door lock actuators (including the tailgate lock actuator and fuel lid lock actuator) and the MICU to improve safety of the system. One if for driver's side door lock actuators and fuel lid lock actuator, and another is for front passenger's side door lock actuators and tailgate lock actuator. Each circuit has two fuses, and even if one of the fuses is blown, at least driver's side and fuel lid, or front passenger's side and tailgate actuators work normally. When one fuse is blown, another fuse in the same circuit must be checked (for example, when the No. 35 fuse is blown, the No. 49 fuse also must be checked).

Auto Reverse Operation

The system is composed of the power window master switch and the driver's power window motor.
The driver's power window motor incorporates a pulser which generates pulses during the motor's operation and sends the pulses to the driver's power window control unit. As soon as the power window control unit detects no pulses from the pulser, the driver's power window control unit makes the power window motor stop and reverse. If the window is more than halfway closed, it will reverse to half open position. If the window is less than halfway closed, it will stop and reverse about 70 mm (2.8 inches). This is to prevent pinching an obstacle during AUTO UP operation. The auto reverse operation is not active when the switch is held in the up position.



ECM/PCM Inputs and Outputs at Connector A (□) (49P)

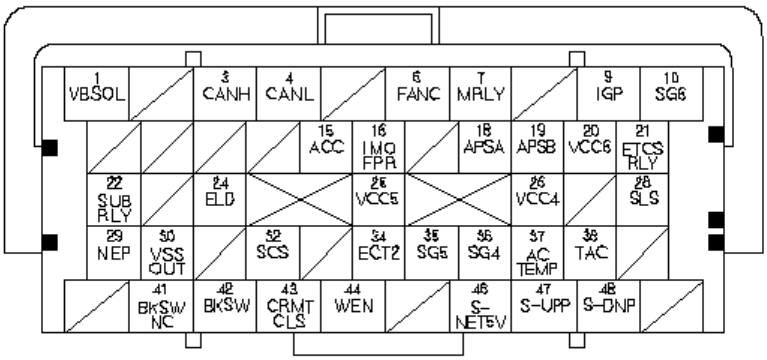


Terminal side of female terminals

16	BRN	IMOFPR (IMMOBILIZER FUEL PUMP RELAY)	Drives PGM-FI main relay 2	About 0 V for 2 seconds after turning ignition switch ON (II), then battery voltage With the engine running: about 0 V
18	ORN	APSA (ACCELERATOR PEDAL POSITION (APP) SENSOR A)	Detects APP sensor A signal	With ignition switch ON (II) and accelerator pedal pressed: about 4.5 V With ignition switch ON (II) and accelerator pedal released: about 1.0 V
19	LT BLU	APSB (ACCELERATOR PEDAL POSITION (APP) SENSOR B)	Detects APP sensor B signal	With ignition switch ON (II) and accelerator pedal pressed: about 2.3 V With ignition switch ON (II) and accelerator pedal released: about 0.5 V
20	GRN	VCC6 (SENSOR VOLTAGE)	Provides sensor reference voltage	With ignition switch ON (II): about 5.0 V
21	RED	ETCSRLY (ELECTRONIC THROTTLE CONTROL SYSTEM (ETCS) CONTROL RELAY)	Drives electronic throttle control system (ETCS) control relay	With ignition switch ON (II): about 0 V
22	ORN	SUBRLY (PGM-FI SUBRELAY)	Drives A/F sensor relay	With ignition switch ON (II): about 0 V
24	PNK	ELD (ELECTRICAL LOAD DETECTOR (ELD))	Detects ELD signal	With ignition switch ON (II): about 0.1−4.8 V (depending on electrical load)

*1: A/T

ECM/PCM Inputs and Outputs at Connector A (□) (49P)

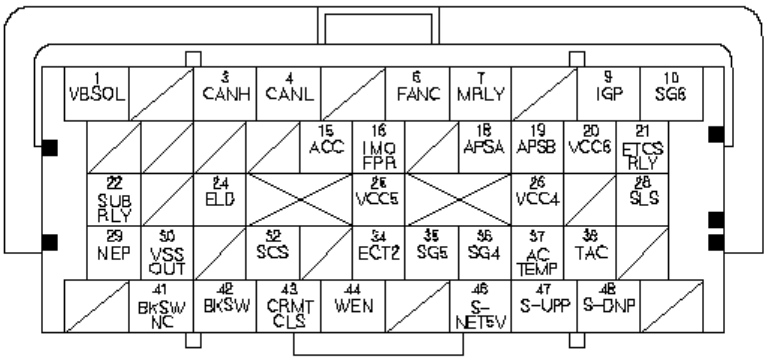


Terminal side of female terminals

		DIAL)	signal (depending on A/C temperature dial)	
38	ORN	TAC (EVAPORATOR TEMPERATURE SENSOR)	Detects evaporator sensor signal	With ignition switch ON (II): about 0.1−4.8 V (depending on evaporator temperature)
41 *2	BRN	BKSWNC (BRAKE PEDAL POSITION SWITCH)	Detects brake pedal position switch signal	With ignition switch ON (II) and brake pedal released: battery voltage With ignition switch ON (II) and brake pedal pressed: about 0 V
42	LT GRN	BKSW (BRAKE PEDAL POSITION SWITCH)	Detects brake pedal position switch signal	With brake pedal released: about 0 V With brake pedal pressed: battery voltage

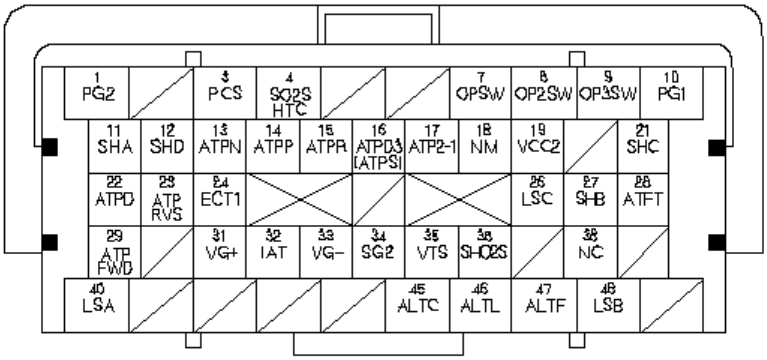
*1: A/T
*2: With cruise control
*5: KZ, KP models

ECM/PCM Inputs and Outputs at Connector A (□) (49P)



Terminal side of female terminals

ECM/PCM Inputs and Outputs at Connector B (△) (49P)

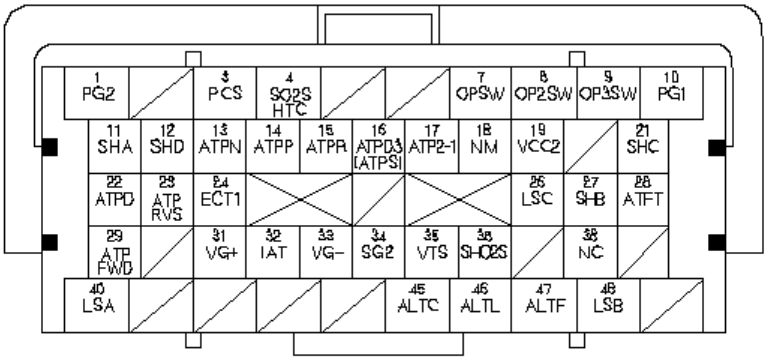


Terminal side of female terminals

		TRANSMISSION FLUID PRESSURE SWITCH)	fluid pressure switch input signal	Without 3rd clutch pressure: about 5.0 V With 3rd clutch pressure: about 0 V
10	BLK	PG1 (POWER GROUND)	Ground circuit for ECM/PCM circuit	Less than 0.5 V at all times
11 *1	BLU/BLK	SHA (SHIFT SOLENOID VALVE A)	Drives shift solenoid valve A	With engine running in D (in 2nd and 4th gears), S (in 2nd and 4th gears), D3 (in 2nd gear), and 2: battery voltage With engine running in P, R, N, 1, D (in 1st, 3rd, and 5th gears), S (in 1st, 3rd, and 5th gears), D3 (in 1st and 3rd gears): about 0 V
12 *1	GRN/RED	SHD (SHIFT SOLENOID VALVE D)	Drives shift solenoid valve D	With engine running in P, R: battery voltage With engine running in N: about 0 V
13 *1	RED/BLK	ATPN (TRANSMISSION RANGE SWITCH N POSITION)	Detects transmission range switch N position input signal	In N: about 0 V In any position other than N: battery voltage
14 *1	BLU/BLK	ATPP (TRANSMISSION RANGE SWITCH P POSITION)	Detects transmission range switch P position input signal	In P: about 0 V In any position other than P: battery voltage
15 *1	WHT	ATPR (TRANSMISSION RANGE SWITCH R POSITION)	Detects transmission range switch R position input signal	In R: about 0 V In any position other than R: battery voltage
16 *7	RED	ATPD3 (TRANSMISSION RANGE SWITCH D3 POSITION)	Detects transmission range switch D3 position input signal	In D3: about 0 V In any position other than D3: battery voltage
16 *6	RED	ATPS (TRANSMISSION RANGE SWITCH S POSITION)	Detects transmission range switch S position input signal	In S: about 0 V In any position other than S: battery voltage

*1: A/T
*6: A/T (with paddle shifter model)
*7: A/T (without paddle shifter model)

ECM/PCM Inputs and Outputs at Connector B (△) (49P)

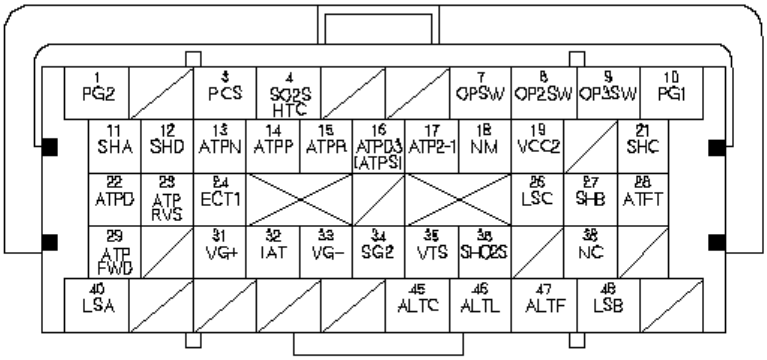


Terminal side of female terminals

24	RED/WHT	ECTT (ENGINE COOLANT TEMPERATURE (ECT) SENSOR 1)	Detects ECT sensor 1 signal	With ignition switch ON (II): about 0.1–4.0 V (depending on engine coolant temperature)
26 *1	BLU/YEL	LSC (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C)	Drives A/T clutch pressure control solenoid valve C	With ignition switch ON (II): duty controlled
27 *1	GRN/WHT	SHB (SHIFT SOLENOID VALVE B)	Drives shift solenoid valve B	With engine running in R, 1, D (in 1st, 4th, and 5th gears), S (in 1st, 4th, and 5th gears), D3 (in 1st gear): battery voltage With engine running in P, N, 2, D (in 2nd and 3rd gears), D3 (in 2nd and 3rd gears), S (in 2nd and 3rd gears): about 0 V
28 *1	RED/YEL	ATFT (ATF TEMPERATURE SENSOR)	Detects ATF temperature signal	With ignition switch ON (II): about 0.2−4.0 V (depending on ATF temperature)
29 *1	BLU/YEL	ATPFWD (TRANSMISSION RANGE SWITCH FWD POSITION)	Detects transmission range switch D, D3, 2, and S positions input signal	In D, D3, 2 and S: about 0 V In any position other than D, D3, 2 and S: battery voltage

*1: A/T
*7: A/T (without paddle shifter model)

ECM/PCM Inputs and Outputs at Connector B (△) (49P)

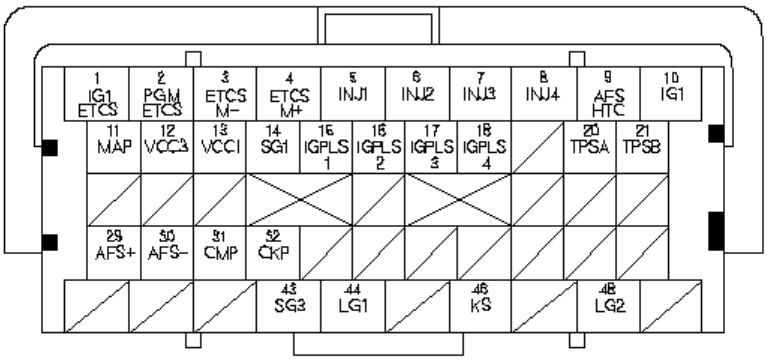


Terminal side of female terminals

		SENSOR)		
40 *1	RED/BLK	LSA (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A)	Drives A/T clutch pressure control solenoid valve A	With ignition switch ON (II): duty controlled
45	WHT/GRN	ALTC (ALTERNATOR CONTROL)	Sends alternator control signal	With fully warmed up engine running: about 5.0 V(depending on electrical load)
46	WHT/BLU	ALTL (ALTERNATOR L SIGNAL)	Detects alternator L signal	With ignition switch ON (II): about 0 V With engine running: battery voltage
47	WHT/RED	ALTF (ALTERNATOR FR SIGNAL)	Detects alternator FR signal	With engine running: about 2.6−3.4 V (depending on electrical load)
48 *1	BRN/WHT	LSB (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B)	Drives A/T clutch pressure control solenoid valve B	With ignition switch ON (II): duty controlled

*1: A/T

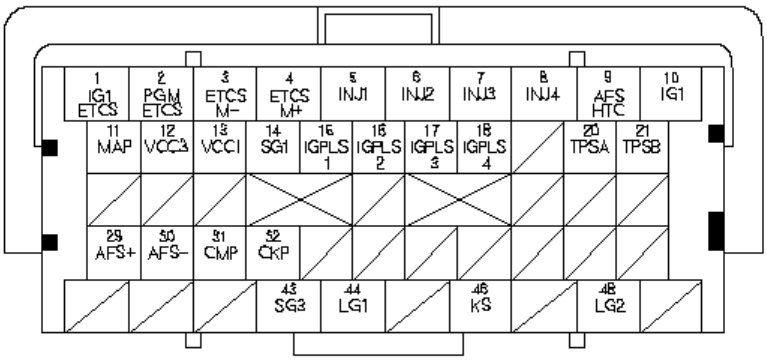
ECM/PCM Inputs and Outputs at Connector C (○) (49P)



Terminal side of female terminals

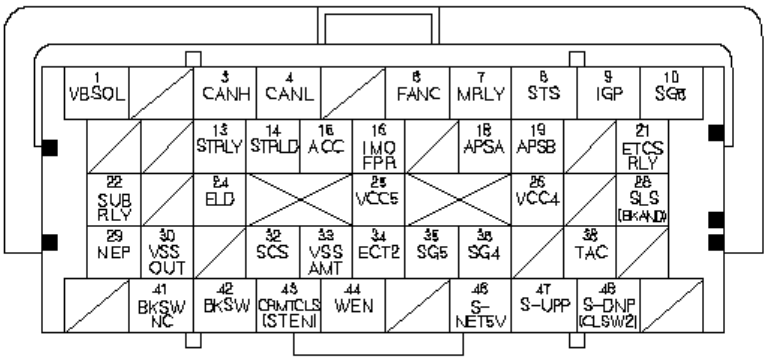
10	BLK/RED	IG1 (IGNITION SIGNAL)	Detects ignition signal	With ignition switch ON (II): battery voltage
11	GRN/RED	MAP (MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR)	Detects MAP sensor signal	With ignition switch ON (II): about 3.0 V At idle: about 1.0 V (depending on engine speed)
12	BLU	VCC3 (SENSOR VOLTAGE)	Provides sensor reference voltage	With ignition switch ON (II): about 5.0 V
13	YEL/RED	VCC1 (SENSOR VOLTAGE)	Provides sensor reference voltage	With ignition switch ON (II): about 5.0 V
14	GRN/WHT	SG1 (SENSOR GROUND)	Sensor ground	Less than 0.5 V at all times
15	WHT	IGPLS1 (No. 1 IGNITION COIL PULSE)	Drives No. 1 ignition coil	With ignition switch ON (II): about 0 V With engine running: pulses
16	WHT/GRN	IGPLS2 (No. 2 IGNITION COIL PULSE)	Drives No. 2 ignition coil	
17	WHT/BLK	IGPLS3 (No. 3 IGNITION COIL PULSE)	Drives No. 3 ignition coil	
18	WHT/BLU	IGPLS4 (No. 4 IGNITION COIL PULSE)	Drives No. 4 ignition coil	
20	RED/BLK	TPSA (THROTTLE POSITION (TP) SENSOR A)	Detects TP sensor A signal	With throttle fully closed: about 0.8 V
21	RED	TPSB (THROTTLE POSITION (TP) SENSOR B)	Detects TP sensor B signal	With throttle fully closed: about 1.7 V

ECM/PCM Inputs and Outputs at Connector C (○) (49P)



Terminal side of female terminals

ECM/PCM Inputs and Outputs at Connector A (□) (49P)

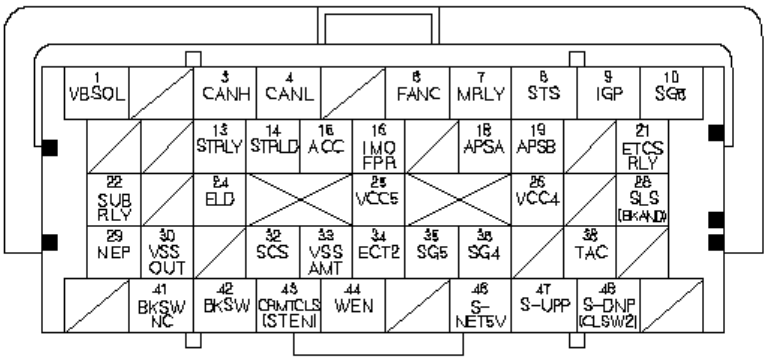


Terminal side of female terminals

13 *8	PUR	STRLY (STARTER CONTROL RELAY)	Drives starter cut relay	With ignition switch OFF: about 0 V With starter switch ON (III): battery voltage
14 *8	GRY	STRLD (STARTER SIGNAL LOAD)	Detects starter signal	With ignition switch OFF: about 2.5 V With starter switch ON (III) and brake pedal released: about 0 V With starter switch ON (III) and brake pedal pressed: battery voltage
15 *10	PNK	ACC (A/C COMPRESSOR CLUTCH RELAY)	Drives A/C compressor clutch relay	With compressor ON: about 0 V With compressor OFF: battery voltage
16	BRN	IMOFPR (IMMOBILIZER FUEL PUMP RELAY)	Drives PGM-FI main relay 2	About 0 V for 2 seconds after turning ignition switch ON (II), then battery voltage With the engine running: about 0 V
18	ORN	APSA (ACCELERATOR PEDAL POSITION (APP) SENSOR A)	Detects APP sensor A signal	With ignition switch ON (II) and accelerator pedal pressed: about 4.5 V With ignition switch ON (II) and accelerator pedal released: about 1.0 V
19	LT BLU	APSB (ACCELERATOR PEDAL POSITION (APP) SENSOR B)	Detects APP sensor B signal	With ignition switch ON (II) and accelerator pedal pressed: about 2.3 V With ignition switch ON (II) and accelerator pedal released: about 0.5 V

*1: A/T
*8: i-SHIFT system
*10: With A/C

ECM/PCM Inputs and Outputs at Connector A (□) (49P)

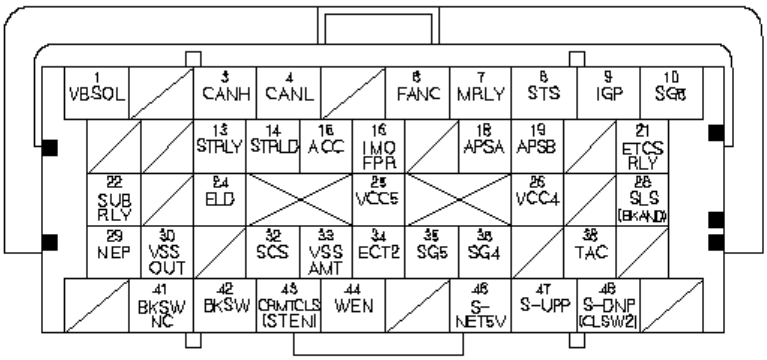


Terminal side of female terminals

				With service check signal opened: about 5.0 V
33 *8	LT BLU	VSSAMT (VEHICLE SPEED SIGNAL OUTPUT)	Sends vehicle speed sensor signal	With ignition switch OFF: pulses With ignition switch ON (II): pulses
34	LT GRN	ECT2 (ENGINE COOLANT TEMPERATURE (ECT) SENSOR 2)	Detects ECT sensor 2 signal	With ignition switch ON (II): about 0.1−4.8 V (depending on engine coolant temperature)
35	WHT	SG5 (SENSOR GROUND)	Sensor ground	Less than 0.5 V at all times
36	BLU	SG4 (SENSOR GROUND)	Sensor ground	Less than 0.5 V at all times
38 *10	ORN	TAC (EVAPORATOR TEMPERATURE SENSOR)	Detects evaporator sensor signal	With ignition switch ON (II): about 0.1−4.8 V (depending on evaporator temperature)
41 *2	BRN	BKSWNC (BRAKE PEDAL POSITION SWITCH)	Detects brake pedal position switch signal	With ignition switch ON (II) and brake pedal released: battery voltage With ignition switch ON (II) and brake pedal pressed: about 0 V
42	LT GRN	BKSW (BRAKE PEDAL POSITION SWITCH)	Detects brake pedal position switch signal	With brake pedal released: about 0 V With brake pedal pressed: battery voltage

*1: A/T
*2: i-SHIFT system, with cruise control
*8: i-SHIFT system
*10: With A/C

ECM/PCM Inputs and Outputs at Connector A (□) (49P)

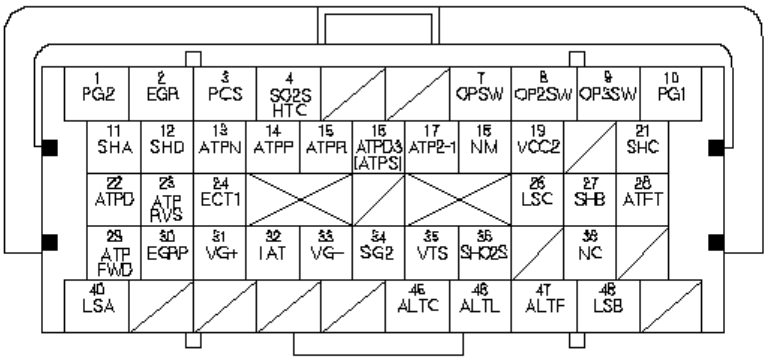


Terminal side of female terminals

			switch A signal	voltage With ignition switch ON (II) and clutch pedal pressed: about 0 V

*3: M/T with cruise control
*4: A/T (with paddle shifter model)
*8: i-SHIFT system
*9: KE, KG models (M/T with shift indicator lamp (SIL))

ECM/PCM Inputs and Outputs at Connector B (△) (49P)

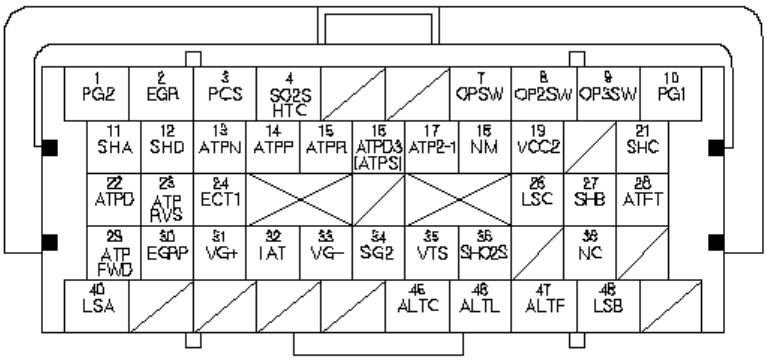


Terminal side of female terminals

		PRESSURE SWITCH)		With 2nd clutch pressure: about 0 V
9 *1	BLU/WHT	OP3SW (3RD CLUTCH TRANSMISSION FLUID PRESSURE SWITCH)	Detects 3rd clutch transmission fluid pressure switch input signal	With ignition switch ON (II): Without 3rd clutch pressure: about 5.0 V With 3rd clutch pressure: about 0 V
10	BLK	PG1 (POWER GROUND)	Ground circuit for ECM/PCM circuit	Less than 0.5 V at all times
11 *1	BLU/BLK	SHA (SHIFT SOLENOID VALVE A)	Drives shift solenoid valve A	With engine running in D (in 2nd and 4th gears), S (in 2nd and 4th gears), D3 (in 2nd gear), and 2: battery voltage With engine running in P, R, N, 1, D (in 1st, 3rd, and 5th gears), S (in 1st, 3rd, and 5th gears), D3 (in 1st and 3rd gears): about 0 V
12 *1	GRN/RED	SHD (SHIFT SOLENOID VALVE D)	Drives shift solenoid valve D	With engine running in P, R: battery voltage With engine running in N: about 0 V
13 *1	RED/BLK	ATPN (TRANSMISSION RANGE SWITCH N POSITION)	Detects transmission range switch N position input signal	In N: about 0 V In any position other than N: battery voltage
14 *1	BLU/BLK	ATPP (TRANSMISSION RANGE SWITCH P POSITION)	Detects transmission range switch P position input signal	In P: about 0 V In any position other than P: battery voltage
15 *1	WHT	ATPR (TRANSMISSION RANGE SWITCH R POSITION)	Detects transmission range switch R position input signal	In R: about 0 V In any position other than R: battery voltage

*1: A/T
*11: KE, KG models

ECM/PCM Inputs and Outputs at Connector B (△) (49P)

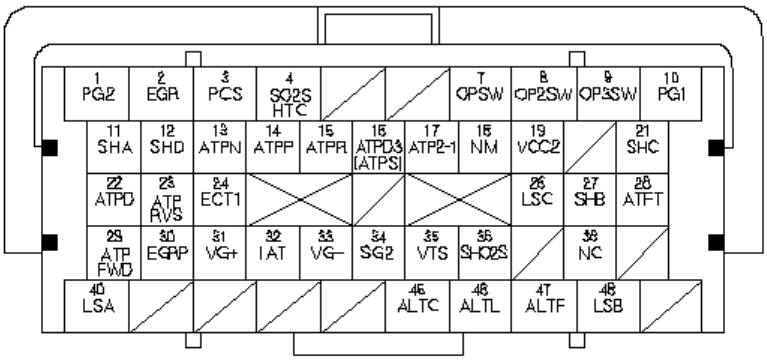


Terminal side of female terminals

22 *1	PNK	ATPD (TRANSMISSION RANGE SWITCH D POSITION)	Detects transmission range switch D position input signal	In D: about 0 V In any position other than D: battery voltage
23 *1	YEL	ATPRVS (TRANSMISSION RANGE SWITCH RVS POSITION)	Detects transmission range switch R position input signal	In R: about 0 V In any position other than R: battery voltage
24	RED/WHT	ECT1 (ENGINE COOLANT TEMPERATURE (ECT) SENSOR 1)	Detects ECT sensor 1 signal	With ignition switch ON (II): about 0.1−4.8 V (depending on engine coolant temperature)
26 *1	BLU/YEL	LSC (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C)	Drives A/T clutch pressure control solenoid valve C	With ignition switch ON (II): duty controlled
27 *1	GRN/WHT	SHB (SHIFT SOLENOID VALVE B)	Drives shift solenoid valve B	With engine running in R, 1, D (in 1st, 4th, and 5th gears), S (in 1st, 4th, and 5th gears), D3 (in 1st gear): battery voltage With engine running in P, N, 2, D (in 2nd and 3rd gears), D3 (in 2nd and 3rd gears), S (in 2nd and 3rd gears): about 0 V
28 *1	RED/YEL	ATFT (ATF TEMPERATURE SENSOR)	Detects ATF temperature signal	With ignition switch ON (II): about 0.2−4.0 V (depending on ATF temperature)
29 *1	BLU/YEL	ATPFWD (TRANSMISSION RANGE SWITCH FWD POSITION)	Detects transmission range switch D, D3, 2, and S positions input signal	In D, D3, 2 and S: about 0 V In any position other than D, D3, 2 and S: battery voltage

*1: A/T
*6: A/T (with paddle shifter model)
*7: A/T (without paddle shifter model)

ECM/PCM Inputs and Outputs at Connector B (△) (49P)

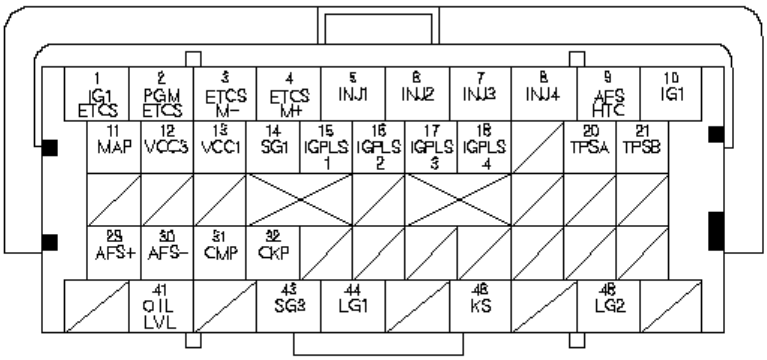


Terminal side of female terminals

38	BLK/WHT	NC (OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR)	Detects output shaft (countershaft) speed sensor signal	With ignition switch ON (II): about 0 V or about 5.0 V With driving: pulses
40 *1	RED/BLK	LSA (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A)	Drives A/T clutch pressure control solenoid valve A	With ignition switch ON (II): duty controlled
45	WHT/GRN	ALTC (ALTERNATOR CONTROL)	Sends alternator control signal	With fully warmed up engine running: about 5.0 V(depending on electrical load)
46	WHT/BLU	ALTL (ALTERNATOR L SIGNAL)	Detects alternator L signal	With ignition switch ON (II): about 0 V With engine running: battery voltage
47	WHT/RED	ALTF (ALTERNATOR FR SIGNAL)	Detects alternator FR signal	With engine running: about 2.6−3.4 V (depending on electrical load)
48 *1	BRN/WHT	LSB (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B)	Drives A/T clutch pressure control solenoid valve B	With ignition switch ON (II): duty controlled

*1: A/T
*11: KE, KG models

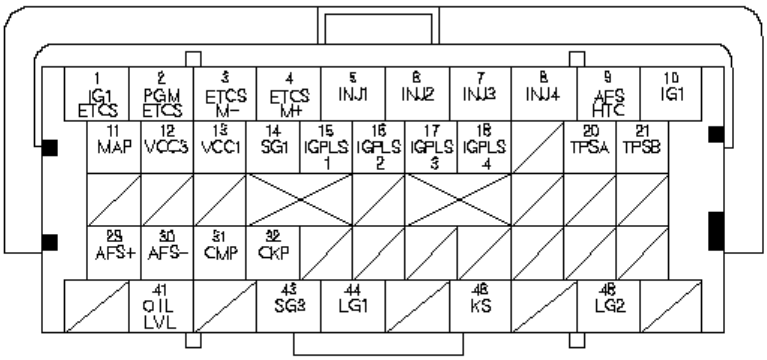
ECM/PCM Inputs and Outputs at Connector C (○) (49P)



Terminal side of female terminals

10	BLK/RED	IG1 (IGNITION SIGNAL)	Detects ignition signal	With ignition switch ON (II): battery voltage
11	GRN/RED	MAP (MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR)	Detects MAP sensor signal	With ignition switch ON (II): about 3.0 V At idle: about 1.0 V (depending on engine speed)
12	BLU	VCC3 (SENSOR VOLTAGE)	Provides sensor reference voltage	With ignition switch ON (II): about 5.0 V
13	YEL/RED	VCC1 (SENSOR VOLTAGE)	Provides sensor reference voltage	With ignition switch ON (II): about 5.0 V
14	GRN/WHT	SG1 (SENSOR GROUND)	Sensor ground	Less than 0.5 V at all times
15	WHT	IGPLS1 (No. 1 IGNITION COIL PULSE)	Drives No. 1 ignition coil	With ignition switch ON (II): about 0 V With engine running: pulses
16	WHT/GRN	IGPLS2 (No. 2 IGNITION COIL PULSE)	Drives No. 2 ignition coil	
17	WHT/BLK	IGPLS3 (No. 3 IGNITION COIL PULSE)	Drives No. 3 ignition coil	
18	WHT/BLU	IGPLS4 (No. 4 IGNITION COIL PULSE)	Drives No. 4 ignition coil	
20	RED/BLK	TPSA (THROTTLE POSITION (TP) SENSOR A)	Detects TP sensor A signal	With throttle fully closed: about 0.8 V
21	RED	TPSB (THROTTLE POSITION (TP) SENSOR B)	Detects TP sensor B signal	With throttle fully closed: about 1.7 V

ECM/PCM Inputs and Outputs at Connector C (○) (49P)

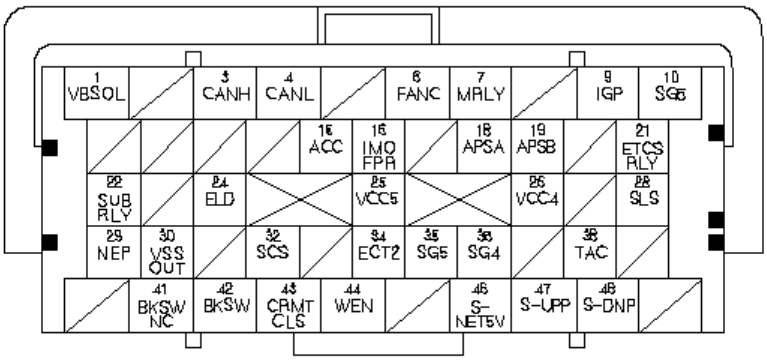


Terminal side of female terminals

			circuit	

*11: KE, KG models

ECM/PCM Inputs and Outputs at Connector A (□) (49P)

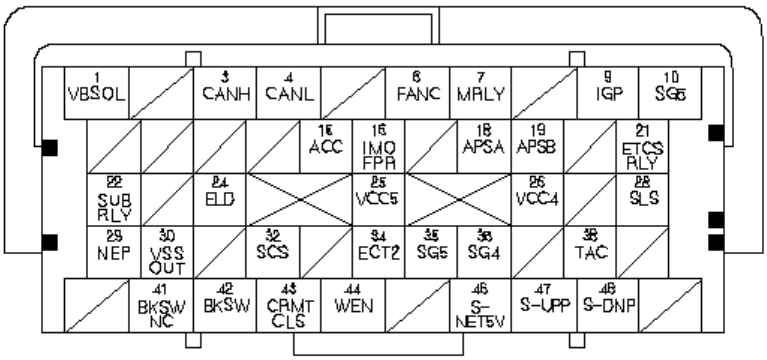


Terminal side of female terminals

16	BRN	IMOFPR (IMMOBILIZER FUEL PUMP RELAY)	Drives PGM-FI main relay 2	About 0 V for 2 seconds after turning ignition switch ON (II), then battery voltage With the engine running: about 0 V
18	ORN	APSA (ACCELERATOR PEDAL POSITION (APP) SENSOR A)	Detects APP sensor A signal	With ignition switch ON (II) and accelerator pedal pressed: about 4.5 V With ignition switch ON (II) and accelerator pedal released: about 1.0 V
19	LT BLU	APSB (ACCELERATOR PEDAL POSITION (APP) SENSOR B)	Detects APP sensor B signal	With ignition switch ON (II) and accelerator pedal pressed: about 2.3 V With ignition switch ON (II) and accelerator pedal released: about 0.5 V
21	RED	ETCSRLY (ELECTRONIC THROTTLE CONTROL SYSTEM (ETCS) CONTROL RELAY)	Drives electronic throttle control system (ETCS) control relay	With ignition switch ON (II): about 0 V
22	ORN	SUBRLY (PGM-FI SUBRELAY)	Drives A/F sensor relay	With ignition switch ON (II): about 0 V
24	PNK	ELD (ELECTRICAL LOAD DETECTOR (ELD))	Detects ELD signal	With ignition switch ON (II): about 0.1−4.8 V (depending on electrical load)

*1: A/T

ECM/PCM Inputs and Outputs at Connector A (□) (49P)

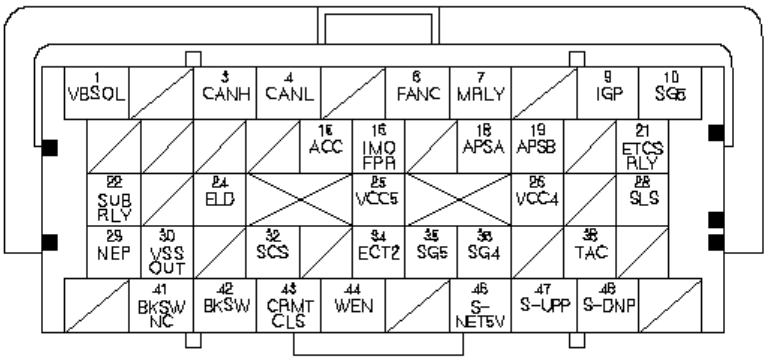


Terminal side of female terminals

		TEMPERATURE SENSOR)		evaporator temperature)
41 *2	BRN	BKSWNC (BRAKE PEDAL POSITION SWITCH)	Detects brake pedal position switch signal	With ignition switch ON (II) and brake pedal released: battery voltage With ignition switch ON (II) and brake pedal pressed: about 0 V
42	LT GRN	BKSW (BRAKE PEDAL POSITION SWITCH)	Detects brake pedal position switch signal	With brake pedal released: about 0 V With brake pedal pressed: battery voltage

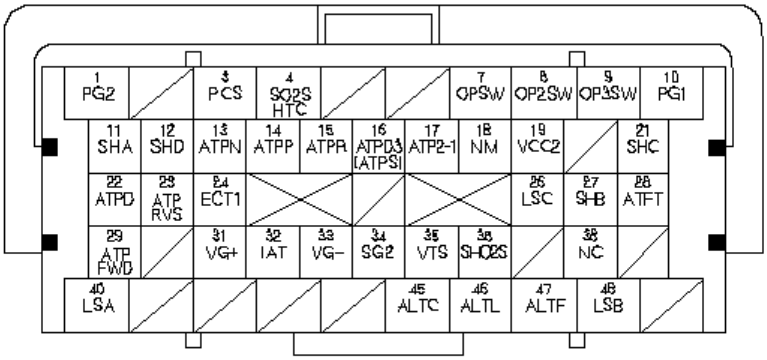
*1: A/T
*2: With cruise control

ECM/PCM Inputs and Outputs at Connector A (□) (49P)



Terminal side of female terminals

ECM/PCM Inputs and Outputs at Connector B (△) (49P)

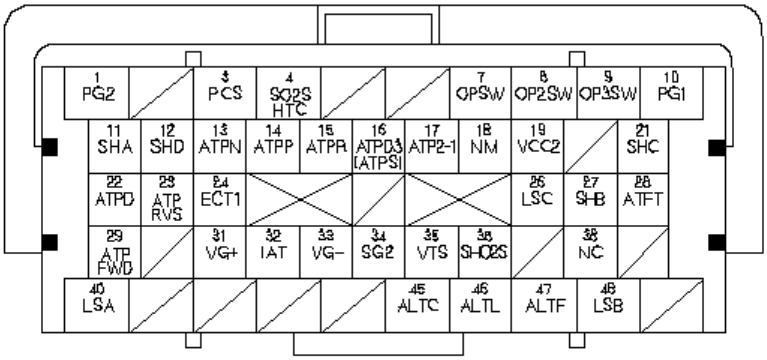


Terminal side of female terminals

		TRANSMISSION FLUID PRESSURE SWITCH)	fluid pressure switch input signal	Without 3rd clutch pressure: about 5.0 V With 3rd clutch pressure: about 0 V
10	BLK	PG1 (POWER GROUND)	Ground circuit for ECM/PCM circuit	Less than 0.5 V at all times
11 *1	BLU/BLK	SHA (SHIFT SOLENOID VALVE A)	Drives shift solenoid valve A	With engine running in D (in 2nd and 4th gears), S (in 2nd and 4th gears), D3 (in 2nd gear), and 2: battery voltage With engine running in P, R, N, 1, D (in 1st, 3rd, and 5th gears), S (in 1st, 3rd, and 5th gears), D3 (in 1st and 3rd gears): about 0 V
12 *1	GRN/RED	SHD (SHIFT SOLENOID VALVE D)	Drives shift solenoid valve D	With engine running in P, R: battery voltage With engine running in N: about 0 V
13 *1	RED/BLK	ATPN (TRANSMISSION RANGE SWITCH N POSITION)	Detects transmission range switch N position input signal	In N: about 0 V In any position other than N: battery voltage
14 *1	BLU/BLK	ATPP (TRANSMISSION RANGE SWITCH P POSITION)	Detects transmission range switch P position input signal	In P: about 0 V In any position other than P: battery voltage
15 *1	WHT	ATPR (TRANSMISSION RANGE SWITCH R POSITION)	Detects transmission range switch R position input signal	In R: about 0 V In any position other than R: battery voltage
16 *7	RED	ATPD3 (TRANSMISSION RANGE SWITCH D3 POSITION)	Detects transmission range switch D3 position input signal	In D3: about 0 V In any position other than D3: battery voltage
16 *6	RED	ATPS (TRANSMISSION RANGE SWITCH S POSITION)	Detects transmission range switch S position input signal	In S: about 0 V In any position other than S: battery voltage

*1: A/T
*6: A/T (with paddle shifter model)
*7: A/T (without paddle shifter model)

ECM/PCM Inputs and Outputs at Connector B (△) (49P)

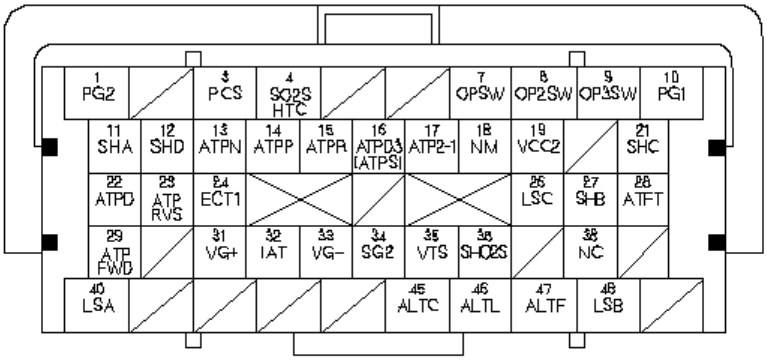


Terminal side of female terminals

24	RED/WHT	ECT1 (ENGINE COOLANT TEMPERATURE (ECT) SENSOR 1)	Detects ECT sensor 1 signal	With ignition switch ON (II): about 0.1–4.8 V (depending on engine coolant temperature)
26 *1	BLU/YEL	LSC (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C)	Drives A/T clutch pressure control solenoid valve C	With ignition switch ON (II): duty controlled
27 *1	GRN/WHT	SHB (SHIFT SOLENOID VALVE B)	Drives shift solenoid valve B	With engine running in R, 1, D (in 1st, 4th, and 5th gears), S (in 1st, 4th, and 5th gears), D3 (in 1st gear): battery voltage With engine running in P, N, 2, D (in 2nd and 3rd gears), D3 (in 2nd and 3rd gears), S (in 2nd and 3rd gears): about 0 V
28 *1	RED/YEL	ATFT (ATF TEMPERATURE SENSOR)	Detects ATF temperature signal	With ignition switch ON (II): about 0.2–4.0 V (depending on ATF temperature)
29 *1	BLU/YEL	ATPFWD (TRANSMISSION RANGE SWITCH FWD POSITION)	Detects transmission range switch D, D3, 2, and S positions input signal	In D, D3, 2 and S: about 0 V In any position other than D, D3, 2 and S: battery voltage

*1: A/T
*7: A/T (without paddle shifter model)

ECM/PCM Inputs and Outputs at Connector B (△) (49P)

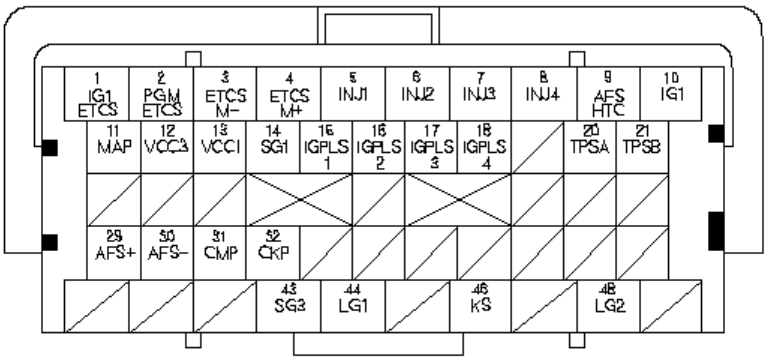


Terminal side of female terminals

		SENSOR)		
40 *1	RED/BLK	LSA (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A)	Drives A/T clutch pressure control solenoid valve A	With ignition switch ON (II): duty controlled
45	WHT/GRN	ALTC (ALTERNATOR CONTROL)	Sends alternator control signal	With fully warmed up engine running: about 5.0 V(depending on electrical load)
46	WHT/BLU	ALTL (ALTERNATOR L SIGNAL)	Detects alternator L signal	With ignition switch ON (II): about 0 V With engine running: battery voltage
47	WHT/RED	ALTF (ALTERNATOR FR SIGNAL)	Detects alternator FR signal	With engine running: about 2.6−3.4 V (depending on electrical load)
48 *1	BRN/WHT	LSB (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B)	Drives A/T clutch pressure control solenoid valve B	With ignition switch ON (II): duty controlled

*1: A/T

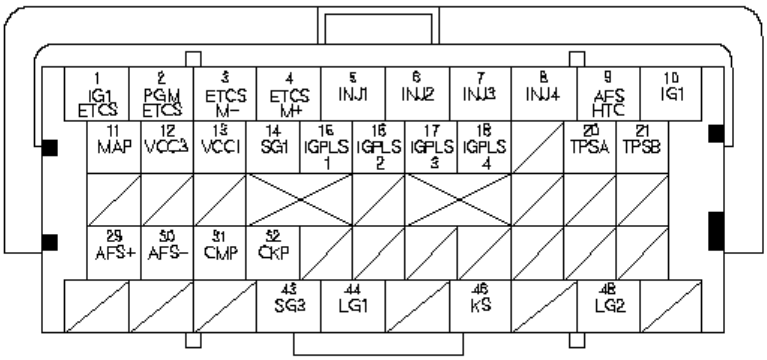
ECM/PCM Inputs and Outputs at Connector C (○) (49P)



Terminal side of female terminals

10	BLK/RED	IG1 (IGNITION SIGNAL)	Detects ignition signal	With ignition switch ON (II): battery voltage
11	GRN/RED	MAP (MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR)	Detects MAP sensor signal	With ignition switch ON (II): about 3.0 V At idle: about 1.0 V (depending on engine speed)
12	BLU	VCC3 (SENSOR VOLTAGE)	Provides sensor reference voltage	With ignition switch ON (II): about 5.0 V
13	YEL/RED	VCC1 (SENSOR VOLTAGE)	Provides sensor reference voltage	With ignition switch ON (II): about 5.0 V
14	GRN/WHT	SG1 (SENSOR GROUND)	Sensor ground	Less than 0.5 V at all times
15	WHT	IGPLS1 (No. 1 IGNITION COIL PULSE)	Drives No. 1 ignition coil	With ignition switch ON (II): about 0 V With engine running: pulses
16	WHT/GRN	IGPLS2 (No. 2 IGNITION COIL PULSE)	Drives No. 2 ignition coil	
17	WHT/BLK	IGPLS3 (No. 3 IGNITION COIL PULSE)	Drives No. 3 ignition coil	
18	WHT/BLU	IGPLS4 (No. 4 IGNITION COIL PULSE)	Drives No. 4 ignition coil	
20	RED/BLK	TPSA (THROTTLE POSITION (TP) SENSOR A)	Detects TP sensor A signal	With throttle fully closed: about 0.8 V
21	RED	TPSB (THROTTLE POSITION (TP) SENSOR B)	Detects TP sensor B signal	With throttle fully closed: about 1.7 V

ECM/PCM Inputs and Outputs at Connector C (○) (49P)



Terminal side of female terminals

General Operation

The automatic transmission is a combination of a three-element torque converter and a triple-shaft electronically controlled unit which provides five speeds forward and one reverse. The entire unit is positioned in line with the engine.

Torque Converter, Shafts, Gears, and Clutches

The torque converter consists of a pump, turbine, and stator assembly in a single unit. The converter housing (pump) is connected to the engine crankshaft and turns as the engine runs. Around the outside of the torque converter is a ring gear which meshes with the starter drive gear when the engine is being started. The entire torque converter assembly serves as a flywheel while transmitting power to the transmission mainshaft. The transmission has three parallel shafts; the mainshaft, the countershaft and the secondary shaft. The mainshaft is in line with the engine crankshaft, and includes the 3rd and 5th clutches, and gears for 3rd, 5th, reverse, and idler. The mainshaft reverse gear is integral with the mainshaft 5th gear. The countershaft includes the gears for 1st, 2nd, 3rd, 4th-5th, reverse, park, and the final drive. The countershaft 4th-5th gear enables the shared use of the secondary shaft 4th gear and the mainshaft 5th gear. The countershaft 4th-5th gear and the countershaft reverse gear can be locked to the countershaft providing the 4th, 5th or reverse gear, depending on which way the selector is moved. The final drive gear is integral with the countershaft. The secondary shaft includes the 1st, 2nd, and 4th clutches, and gears for 1st, 2nd, 4th, and idler. The idler gear shaft is located between the mainshaft and secondary shaft, and the idler gear transmits power between the mainshaft and the secondary shaft. The gears on the mainshaft and the secondary shaft are in constant mesh with those on the countershaft. When certain combinations of gears in the transmission are engaged by the clutches, power is transmitted through the mainshaft, to the secondary shaft, then to the countershaft to provide drive.

Electronic Control

The electronic control system consists of the powertrain control module (PCM), sensors, and seven solenoid valves. Shifting and lock-up are electronically controlled for comfortable driving under all conditions. The PCM is located in the engine compartment.

Hydraulic Control

The valve bodies include the main valve body, the regulator valve body, and the servo body. They are bolted to the torque converter housing. The main valve body contains the manual valve, cut valve B, shift valves A, C, and D, the relief valve, the lock-up control valve, the cooler check valve, the servo control valve, and the ATF pump gears. The regulator valve body contains the regulator valve, the torque converter check valve, the lock-up shift valve, the 1st accumulator, and the 3rd accumulator. The servo body contains the servo valve, shift valve B, cut valve A, accumulators for 2nd, 4th, and 5th, and shift solenoid valves A, B, C, and D. Fluid from the regulator passes through the manual valve to the various control valves. The 2nd, 3rd, and 4th clutches receive fluid from their respective feed pipes, and the 1st and the 5th clutches receive fluid from the internal hydraulic circuit.

Shift Control Mechanism

To shift gears, the PCM controls shift solenoid valves A, B, C, and D, and A/T clutch pressure control solenoid valves A, B, and C, while receiving input signals from various sensors and switches located throughout the vehicle. The shift solenoid valves shift the positions of the shift valves to switch the port to send hydraulic pressure to the clutches. A/T clutch pressure control solenoid valves A, B, and C control CPC regulate their respective pressure, and pressurize to the clutches to engage it and its corresponding gear.

Lock-up Mechanism

The lock-up mechanism operates in all five gears in D, in 3rd gear in D3, and in 3rd and 4th gears in S. The pressurized fluid is drained from the back of the torque converter through a fluid passage, causing the torque converter clutch piston to be held against the torque converter cover. As this takes place, the mainshaft rotates at the same speed as the engine crankshaft. Together with hydraulic control, the PCM optimizes the timing and volume of the lock-up mechanism. While shift solenoid valve D is turned on and off by the PCM, shift solenoid valve D pressure switches the lock-up shift valve lock-up on and off. A/T clutch pressure control solenoid valve A and the lock-up control valve control the volume of the lock-up conditions.

Gear Selection - Seven-position Transmission

The shift lever has seven positions; P: PARK, R: REVERSE, N: NEUTRAL, D: DRIVE 1st through 5th gear ranges, D3: DRIVE 1st through 3rd gear ranges, 2: SECOND, and 1: FIRST.

Position	Description
P: PARK	Front wheels locked; park pawl engaged with park gear on countershaft. All clutches are released.
R: REVERSE	Reverse; reverse selector engaged with countershaft reverse gear and 5th clutch engaged.
N: NEUTRAL	All clutches are released.
D: DRIVE (1st through 5th)	General driving; starts off in 1st, shifts automatically to 2nd, 3rd, 4th, then 5th, depending on vehicle speed and accelerator pedal position. Downshifts through 4th, 3rd, 2nd, and 1st on deceleration to stop. The lock-up mechanism operates in all five gears.
D3: DRIVE (1st through 3rd)	Used for rapid acceleration at highway speeds and general driving, up-hill and down-hill driving; starts off in 1st, shifts automatically to 2nd, then 3rd, depending on vehicle speed and accelerator pedal position. Downshifts through 2nd and 1st on deceleration to stop. The lock-up mechanism operates in 3rd gear.
2: SECOND	Used for engine braking or better traction starting off on loose or slippery surfaces; stays in 2nd gear, does not shift up and down.
1: FIRST	Used for engine braking; stays in 1st gear, does not shift up.

Starting is possible only in P and N because of a slide-type neutral-safety switch.

General Operation (cont'd)

Gear Selection - Five-position Transmission

The shift lever has five positions; P: PARK, R: REVERSE, N: NEUTRAL, D: DRIVE 1st through 5th gear ranges, and S: DRIVE 1st through 4th gear ranges with automatic shift mode and 1st through 5th gear ranges with sequential shift mode.

Position		Description
P: PARK		Front wheels locked; park pawl engaged with park gear on countershaft. All clutches are released.
R: REVERSE		Reverse; reverse selector engaged with countershaft reverse gear and 5th clutch engaged.
N: NEUTRAL		All clutches are released.
D: DRIVE (1st through 5th)		General driving; starts off in 1st, shifts automatically to 2nd, 3rd, 4th, then 5th, depending on vehicle speed and accelerator pedal position. Downshifts through 4th, 3rd, 2nd, and 1st on deceleration to stop. D-paddle shift mode is also equipped; the transmission can be shifted gears manually with steering wheel-mounted upshift and downshift paddle shifters under certain particular conditions. The lock-up mechanism operates in all five gears.
S: DRIVE	Automatic shift mode (1st through 4th)	Used for rapid acceleration at highway speeds and general driving, up-hill and down-hill driving; starts off in 1st, shifts automatically to 2nd, 3rd then 4th, depending on vehicle speed and accelerator pedal position. Downshifts through 3rd, 2nd and 1st on deceleration to stop. The lock-up mechanism operates in 3rd and 4th gears.
	Sequential shift mode (1st through 5th)	Manual gear shift driving with steering wheel-mounted upshift and downshift paddle shifters; vehicle can start off in 1st gear, and does not upshift automatically. Vehicle can also start off in 2nd gear, and does not upshift and downshift automatically. Downshifts automatically to 1st on deceleration to stop. The lock-up mechanism operates in 2nd, 3rd, 4th, and 5th gears.

Starting is possible only in P and N because of a slide-type neutral-safety switch.

Automatic Transmission (A/T) Gear Position Indicator

The A/T gear position indicator in the gauge control module shows which shift lever position has been selected without having look down at the console.

Shift Indicator and M indicator - Five-position Transmission

When the transmission is switched into the sequential shift mode, the shift indicator in the gauge control module displays the gear selected, and the M indicator next to the shift indicator comes on. The shift indicator also displays the gear selected in the D-paddle shift mode, but the M indicator does not come on.

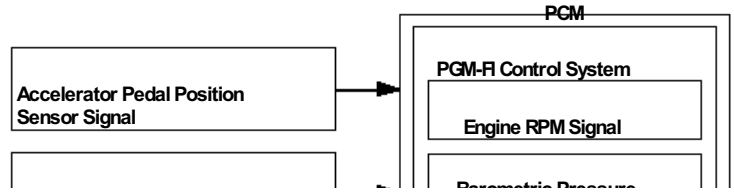
Electronic Control System

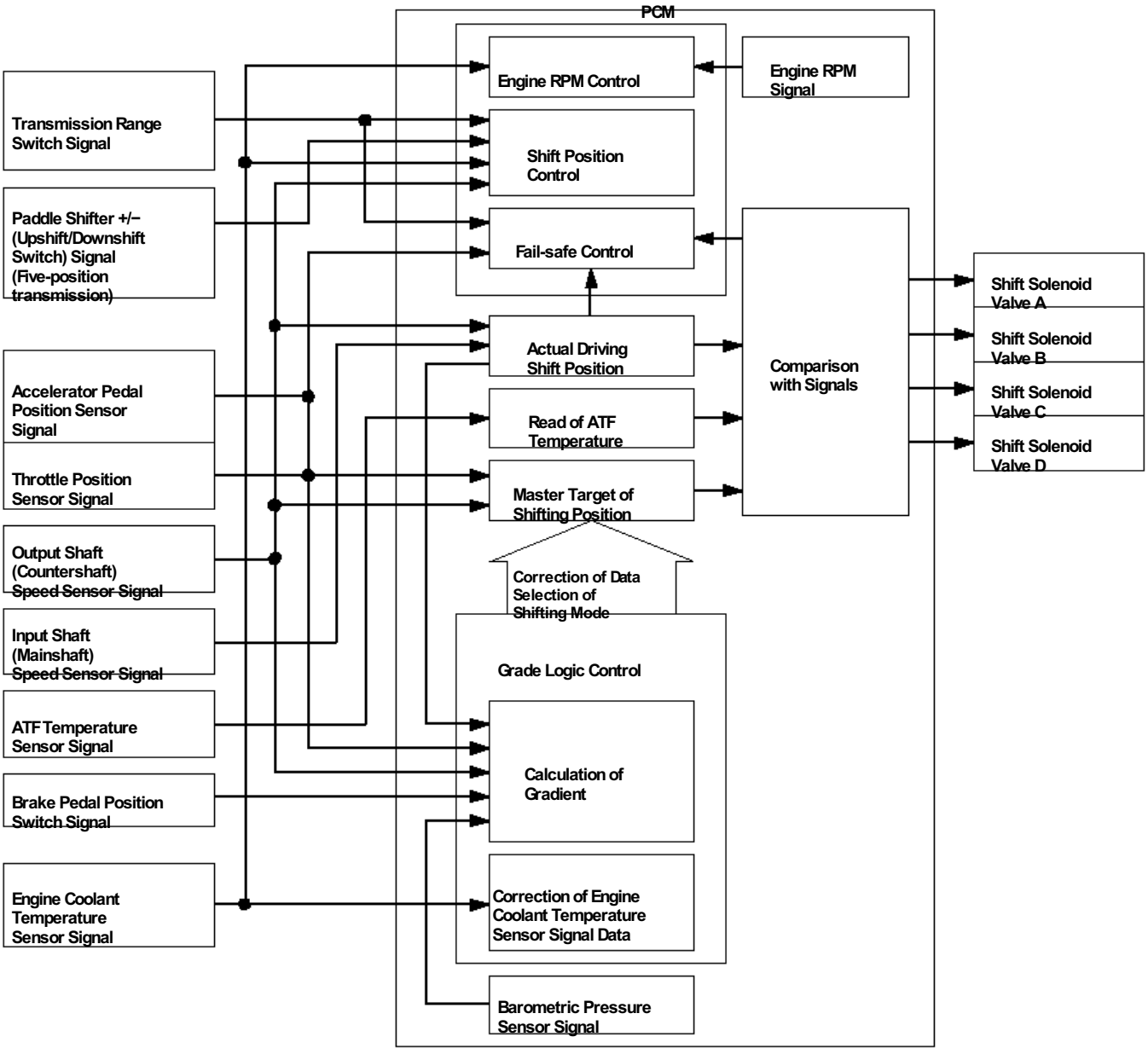
Electronic Control

The electronic control system consists of the powertrain control module (PCM), sensors, and seven solenoid valves. Shifting and lock-up are electronically controlled for comfortable driving under all conditions.

Functional Diagram

The PCM receives input signals from the sensors, switches, and other control units, processes data, and outputs signals for the engine control system and A/T control system. The A/T control system includes shift control, clutch pressure control, and lock-up control. The PCM switches the shift solenoid valves and the A/T clutch pressure control solenoid valves ON and OFF to control gear selection and torque converter clutch lock-up.





Electronic Control System (cont'd)

Shift Control - Shift Solenoid Valves

Shift solenoid valves use the ON-OPEN/OFF-CLOSE type; the shift solenoid valve opens the port of shift solenoid valve pressure while the shift solenoid valve is turned ON by the PCM, and closes the port when shift solenoid valve is OFF.
The combination of driving signals to shift solenoid valves A, B, C, and D are shown in the table.

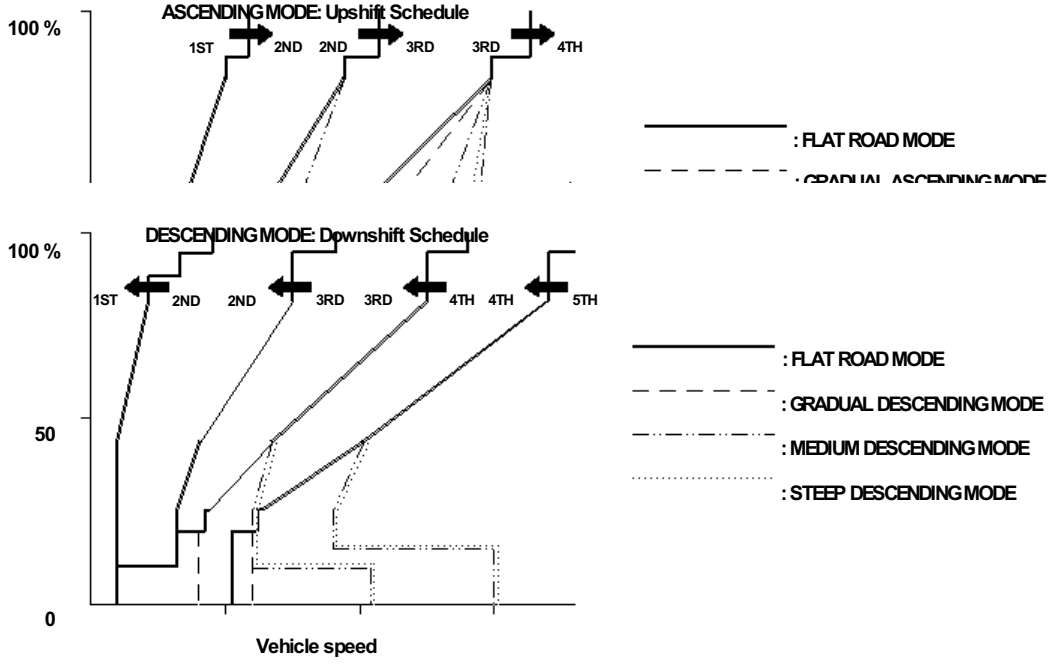
Position	Gear Position	Shift Solenoid Valve			
		A	B	C	D
D, D3, and S	Shifting from N	OFF	OFF	OFF	OFF
	Stays in 1st	OFF	ON	OFF	OFF or ON
	Shifting gears between 1st and 2nd	ON	ON	OFF	OFF or ON
	Stays in 2nd	ON	OFF	OFF	OFF or ON
	Shifting gears between 2nd and 3rd	OFF	OFF	OFF	OFF or ON
	Stays in 3rd	OFF	OFF	ON	OFF or ON
D and S	Shifting gears between 3rd and 4th	ON	OFF	ON	OFF or ON
	Stays in 4th	ON	ON	ON	OFF or ON
D	Shifting gears between 4th and 5th	OFF	ON	ON	OFF or ON
	Stays in 5th	OFF	ON	OFF	OFF or ON
S with sequential shift mode	1st	OFF	ON	OFF	OFF or ON
	2nd	ON	OFF	OFF	OFF or ON
	3rd	OFF	OFF	ON	OFF or ON
	4th	ON	ON	ON	OFF or ON
	5th	OFF	ON	OFF	OFF or ON
2	2nd	ON	OFF	OFF	OFF
1	1st	OFF	ON	OFF	OFF
N	Neutral	OFF	OFF	OFF	OFF
R	Shifting from P and N	OFF	OFF	ON	ON
	Stays in reverse	OFF	ON	ON	ON
	Reverse inhibit control	ON	OFF	ON	OFF
P	Park	OFF	OFF	OFF	ON

Shift Control - Grade Logic Control

The grade logic control system is used to control shifting in D, D3 (seven-position transmission), and S with automatic shift mode (five-position transmission). The PCM compares actual driving conditions with programmed driving conditions, based on the input from the throttle position sensor, the accelerator pedal position sensor, the engine coolant temperature sensor, the barometric pressure sensor, the brake pedal position switch signal, and the shift lever position signal, to control shifting while the vehicle is ascending or descending a slope.

Grade Logic Control: Ascending Control

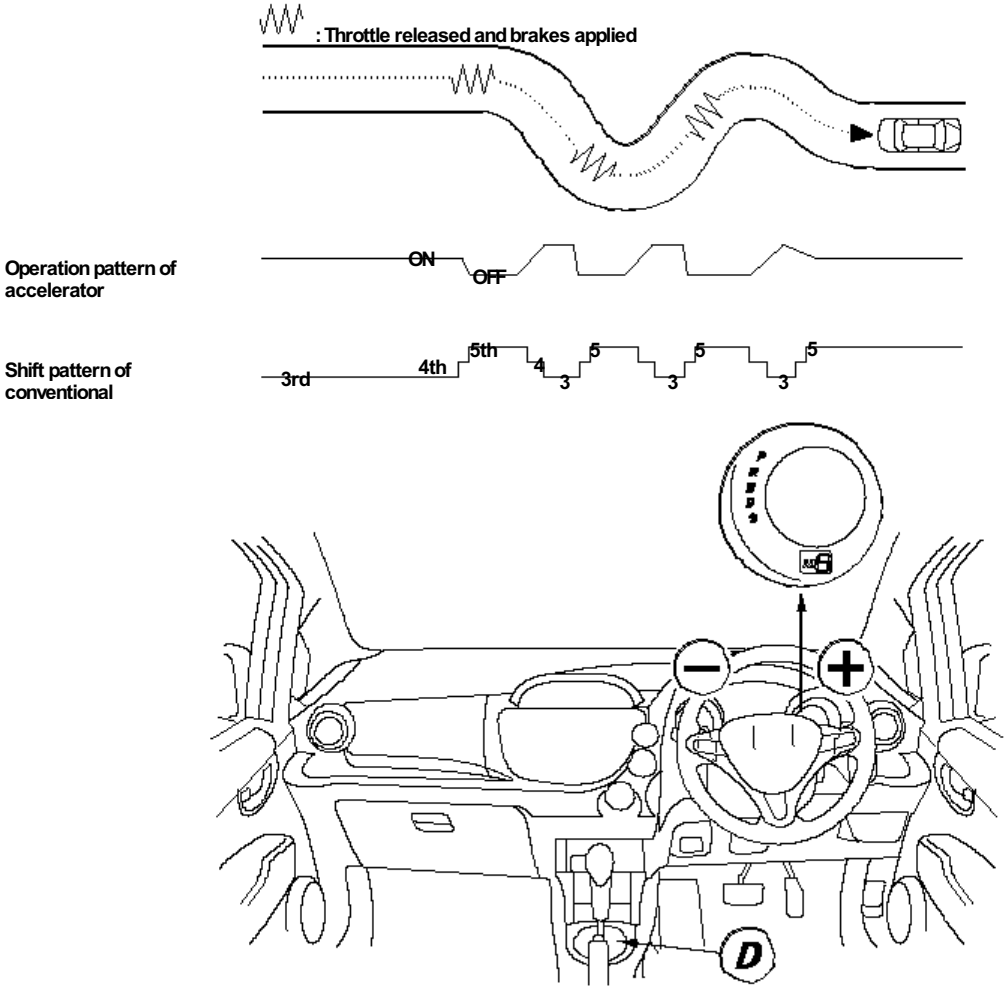
When the PCM determines that the vehicle is climbing a hill in D, D3 (seven-position transmission), and S with automatic shift mode (five-position transmission), the system extends the engagement area of 2nd gear, 3rd gear, and 4th gear to prevent the transmission from frequently shifting between 2nd and 3rd gears, between 3rd and 4th gears, and between 4th and 5th gears, so the vehicle can run smoothly and have more power when needed.
NOTE: Shift commands stored in the PCM between 2nd and 3rd gears, between 3rd and 4th gears, and between 4th and 5th gears, enable the PCM to automatically select the most suitable gear according to the magnitude of a gradient.



Electronic Control System (cont'd)

Shift-Hold Control

When negotiating winding roads, the throttle is suddenly released and the brakes are applied, as is the case when decelerating at the entrance of a corner, Shift-Hold Control keeps the transmission in its current (lower) gear as it negotiates the corner and accelerates out.
When the vehicle is driven aggressively on a winding road, the PCM extends the engagement time of 3rd gear and 4th gear to prevent the transmission from frequently shifting between 3rd, 4th, and 5th gears. This allows the driver to have more control for both acceleration and deceleration.
The PCM monitors the average change in vehicle speed and throttle over time. When these values exceed those for normal driving conditions, the shift-up from 3rd to 4th gear and 4th to 5th gear is delayed. This gives more control over power, and engine braking when the driver is driving aggressively around winding roads. The transmission resumes the normal shift-up pattern after the PCM determines that normal driving has resumed.

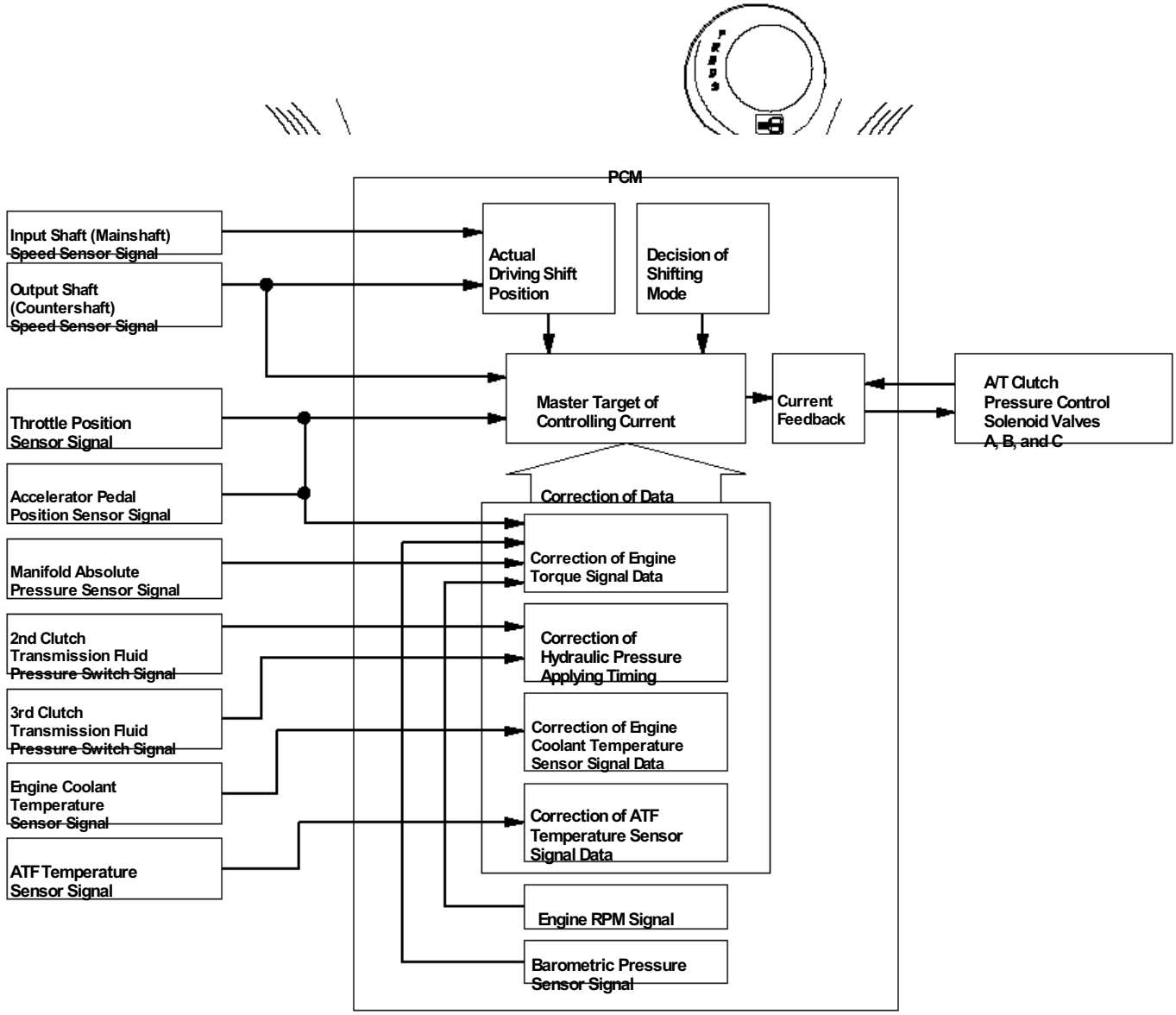


*: This illustration shows RHD model.

Electronic Control System (cont'd)

S Position Automatic Shift Mode and Sequential Shift Mode

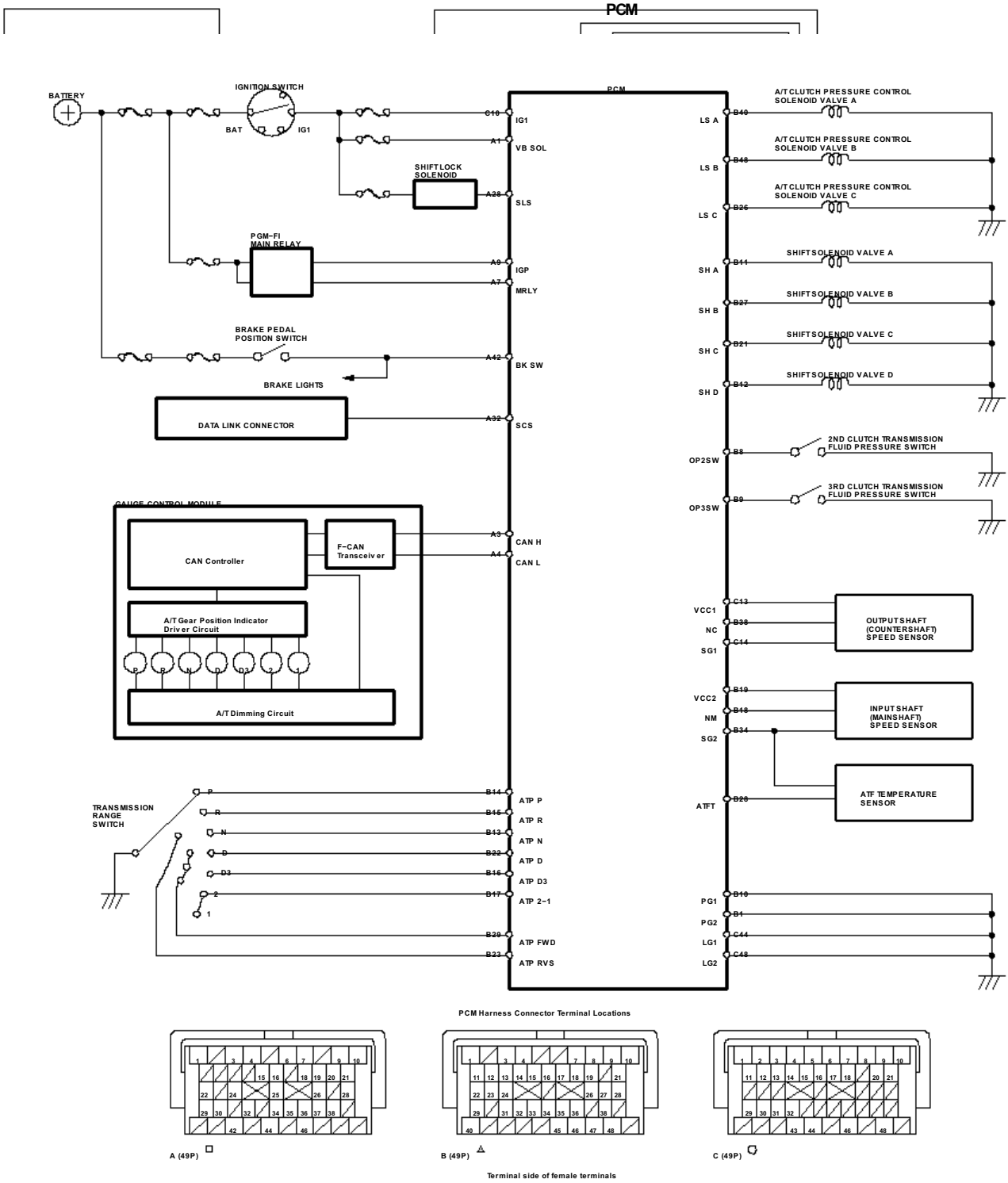
The S position has two shifting modes; the automatic shift mode and the sequential shift mode. In the S position automatic shift mode, the transmission upshifts and downshifts automatically from 1st through 4th gear, and the paddle shifters are ready to be activated to switch to the sequential shift mode. In the automatic shift mode, the shift indicator and the M indicator in the gauge control module do not come on.
When the paddle shifter + (upshift switch) or paddle shifter − (downshift switch) is pulled, the automatic shift mode is canceled and the sequential shift mode comes into operation. The shift indicator displays the number of the selected gear, and the M indicator comes on. In the sequential shift mode, the driver can shift up and down manually from 1st through 5th gear by using the paddle shifters, much like a manual transmission. The paddle shifters are mounted on the back of the steering wheel, and the driver can shift gears by pulling the paddle shifters without taking either hand off the steering wheel.
In the sequential shift mode, the transmission must be shifted up and down by pulling the paddle shifters. However, the transmission cannot downshift and stays in the current gear if the paddle shifter − (downshift switch) is pulled while the vehicle is coasting at a speed that would cause the engine to over-rev by downshifting the transmission, and the shift indicator blinks the number of the selected gear several times, then returns to the number of the current gear. If the vehicle speed reaches an appropriate speed while the shift indicator is blinking the number of the selected gear, the transmission downshifts and the shift indicator displays the selected gear. The transmission also cannot upshift and stays in the current gear if the paddle shifter + (upshift switch) is pulled while driving below an appropriate upshifting speed, the shift indicator blinks the number of the selected gear several times, then returns to the number of the current gear. If the vehicle speed reaches the an appropriate upshift speed while the shift indicator is blinking the number of the selected gear, the transmission upshifts and the shift indicator displays the selected gear.
This mode has automatic downshifting areas so the vehicle can run smoothly with more power to cope with upcoming acceleration. When coasting in 5th gear or 4th gear, the transmission downshifts to the next lower gear if the vehicle slows down to the programmed speed, or by pressing the brake pedal.
When the transmission decelerates to a stop, the transmission shifts to 1st gear automatically. The transmission can be shifted to 2nd gear by pulling the paddle shifter + (upshift switch) while the vehicle is stopped, and the vehicle can start off in 2nd gear.
The sequential shift mode is canceled when moving the shift lever to any position other than S.



Electronic Control System (cont'd)

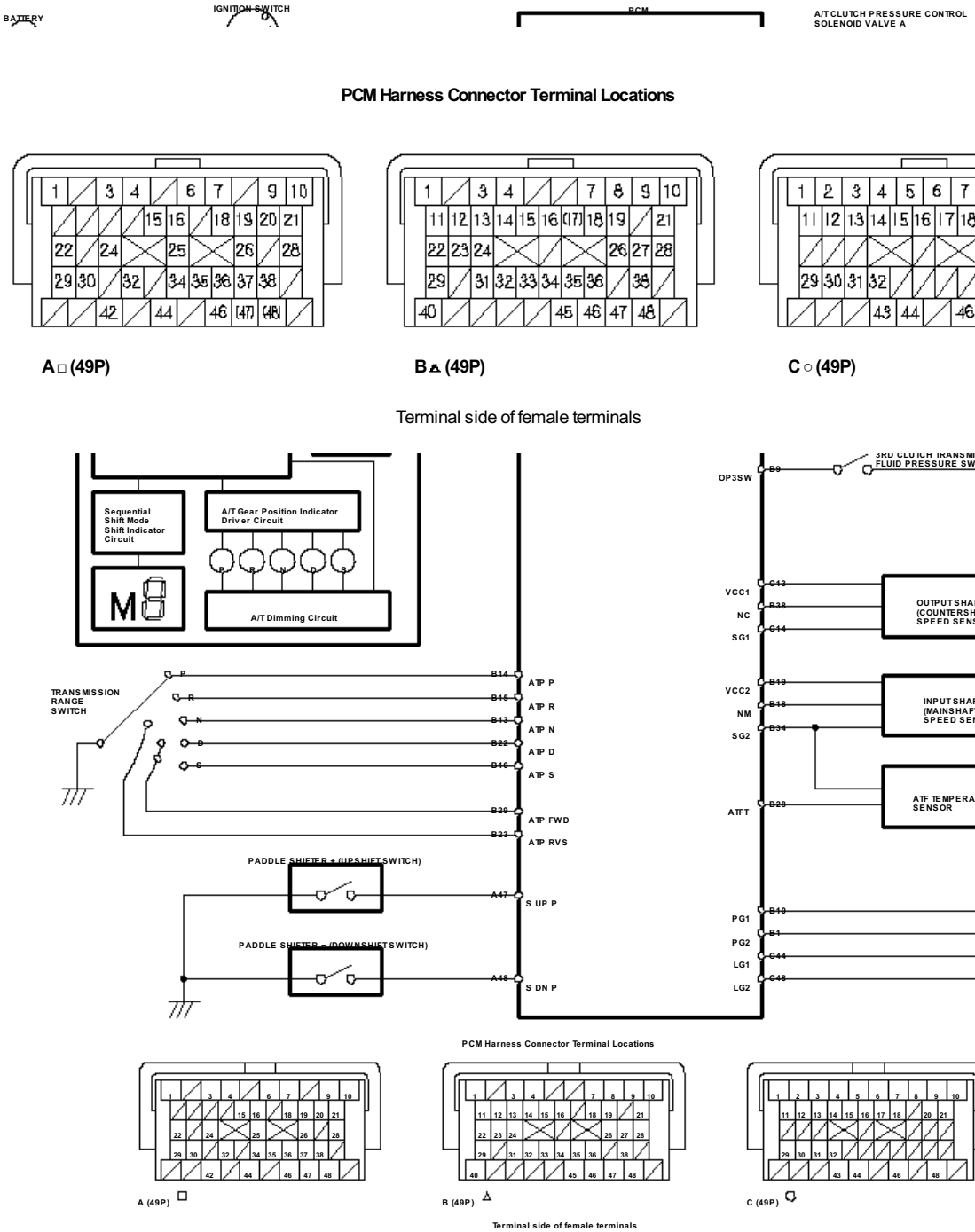
Lock-up Control

Shift solenoid valve D controls the hydraulic pressure to switch the lock-up shift valve ON and OFF. When the PCM actuates shift solenoid valve D and A/T clutch pressure control solenoid valve A ON, lock-up starts. A/T clutch pressure control solenoid valve A regulates and applies hydraulic pressure to the lock-up control valve to control the volume of the lock-up.
The lock-up mechanism operates in all five gears in D, in 3rd gear in D3, and in 3rd and 4th gears in S.



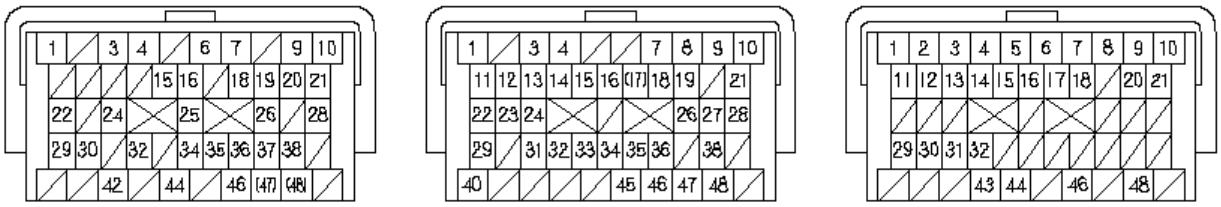
Electronic Control System (cont'd)

PCM A/T Control System Electrical Connections - Five-position Transmission



PCM A/T Control System Inputs and Outputs (cont'd)

PCM Harness Connector Terminal Locations



A □ (49P) **B ⧋ (49P)** **C ○ (49P)**

Terminal side of female terminals

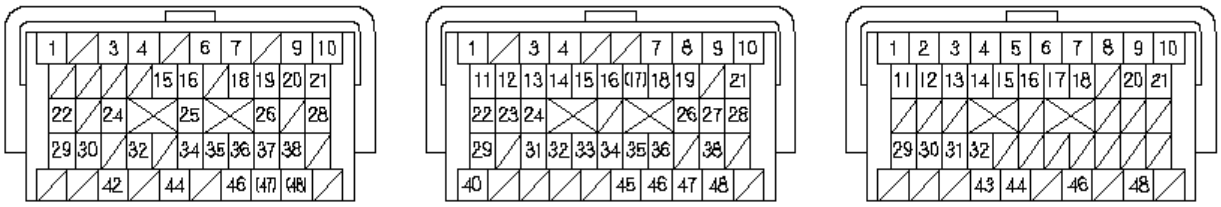
				With engine running in P, R, N, 1, D (in 1st, 3rd, and 5th gears), S (in 1st, 3rd, and 5th gears), D3 (in 1st and 3rd gears): about 0 V
B12	GRN/RED	SH D (SHIFT SOLENOID VALVE D)	Drives shift solenoid valve D	With engine running in P, R: battery voltage With engine running in N: about 0 V
B13	RED/BLK	ATP N (TRANSMISSION RANGE SWITCH N POSITION)	Detects transmission range switch N position input signal	In N: about 0 V In any position other than N: battery voltage
B14	BLU/BLK	ATP P (TRANSMISSION RANGE SWITCH P POSITION)	Detects transmission range switch P position input signal	In P: about 0 V In any position other than P: battery voltage
B15	WHT	ATP R (TRANSMISSION RANGE SWITCH R POSITION)	Detects transmission range switch R position input signal	In R: about 0 V In any position other than R: battery voltage
B16 (Seven-position)	RED	ATP D3 (TRANSMISSION RANGE SWITCH D3 POSITION)	Detects transmission range switch D3 position input signal	In D3: about 0 V In any position other than D3: battery voltage

PCM CONNECTOR B (49P) ⧋

Terminal number	Wire color	Terminal name	Description	Signal
B16 (Five-position)	RED	ATP S (TRANSMISSION RANGE SWITCH S POSITION)	Detects transmission range switch S position input signal	In S: about 0 V In any position other than S: battery voltage
B17 (Seven-position)	BLU	ATP 2-1 (TRANSMISSION RANGE SWITCH 2-1 POSITION)	Detects transmission range switch 2 and 1 position input signal	In 2 and 1: about 0 V In any position other than 2 and 1: battery voltage
B18	WHT/RED	NM (INPUT SHAFT (MAINSHAFT) SPEED SENSOR)	Detects input shaft (mainshaft) speed sensor signal	With ignition switch ON (II): about 0 V or about 5.0 V With engine running in N: about 2.5 V
B19	YEL/BLU	VCC2 (SENSOR VOLTAGE)	Provides sensor voltage	With ignition switch ON (II): about 5.0 V
B21	GRN	SH C (SHIFT SOLENOID VALVE C)	Drives shift solenoid valve C	With engine running in R, D (in 3rd and 4th gears), S (in 3rd and 4th gears), D3 (in 3rd gear): battery voltage With engine running in P, N, 2, 1, D (in 1st, 2nd, and 5th gears), S (in 1st, 2nd, and 5th gears), D3 (in 1st and 2nd gears): about 0 V
B22	PNK	ATP D (TRANSMISSION RANGE SWITCH D POSITION)	Detects transmission range switch D position input signal	In D: about 0 V In any position other than D: battery voltage
B23	YEL	ATP RVS (TRANSMISSION RANGE SWITCH RVS POSITION)	Detects transmission range switch R position input signal	In R: about 0 V In any position other than R: battery voltage
B26	BLU/YEL	LS C (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C)	Drives A/T clutch pressure control solenoid valve C	With ignition switch ON (II): duty controlled
B27	GRN/WHT	SH B (SHIFT SOLENOID VALVE B)	Drives shift solenoid valve B	With engine running in R, 1, D (in 1st, 4th, and 5th gears), S (in 1st, 4th, and 5th gears), D3 (in 1st gear): battery voltage With engine running in P, N, 2, D (in 2nd and 3rd gears), D3 (in 2nd and 3rd gears), S (in 2nd and 3rd gears): about 0 V
B28	RED/YEL	ATFT (ATF TEMPERATURE SENSOR)	Detects ATF temperature sensor signal	With ignition switch ON (II): about 0.2−4.0 V (depending on ATF temperature)
B29	BLU/YEL	ATP FWD (TRANSMISSION RANGE SWITCH FWD POSITION)	Detects transmission range switch D, D3, 2, and S position input signal	In D, D3, 2, and S: about 0 V In P, R, N, and 1: battery voltage
B34	GRN/YEL	SG2 (SENSOR GROUND)	Sensor ground	Less than 0.5 V at all times
B38	BLK/WHT	NC (OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR)	Detects output shaft (countershaft) speed sensor signal	With ignition switch ON (II): about 0 V or about 5.0 V With driving: pulses
B40	RED/BLK	LS A (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A)	Drives A/T clutch pressure control solenoid valve A	With ignition switch ON (II): duty controlled
B48	BRN/WHT	LS B (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B)	Drives A/T clutch pressure control solenoid valve B	With ignition switch ON (II): duty controlled

PCM A/T Control System Inputs and Outputs (cont'd)

PCM Harness Connector Terminal Locations

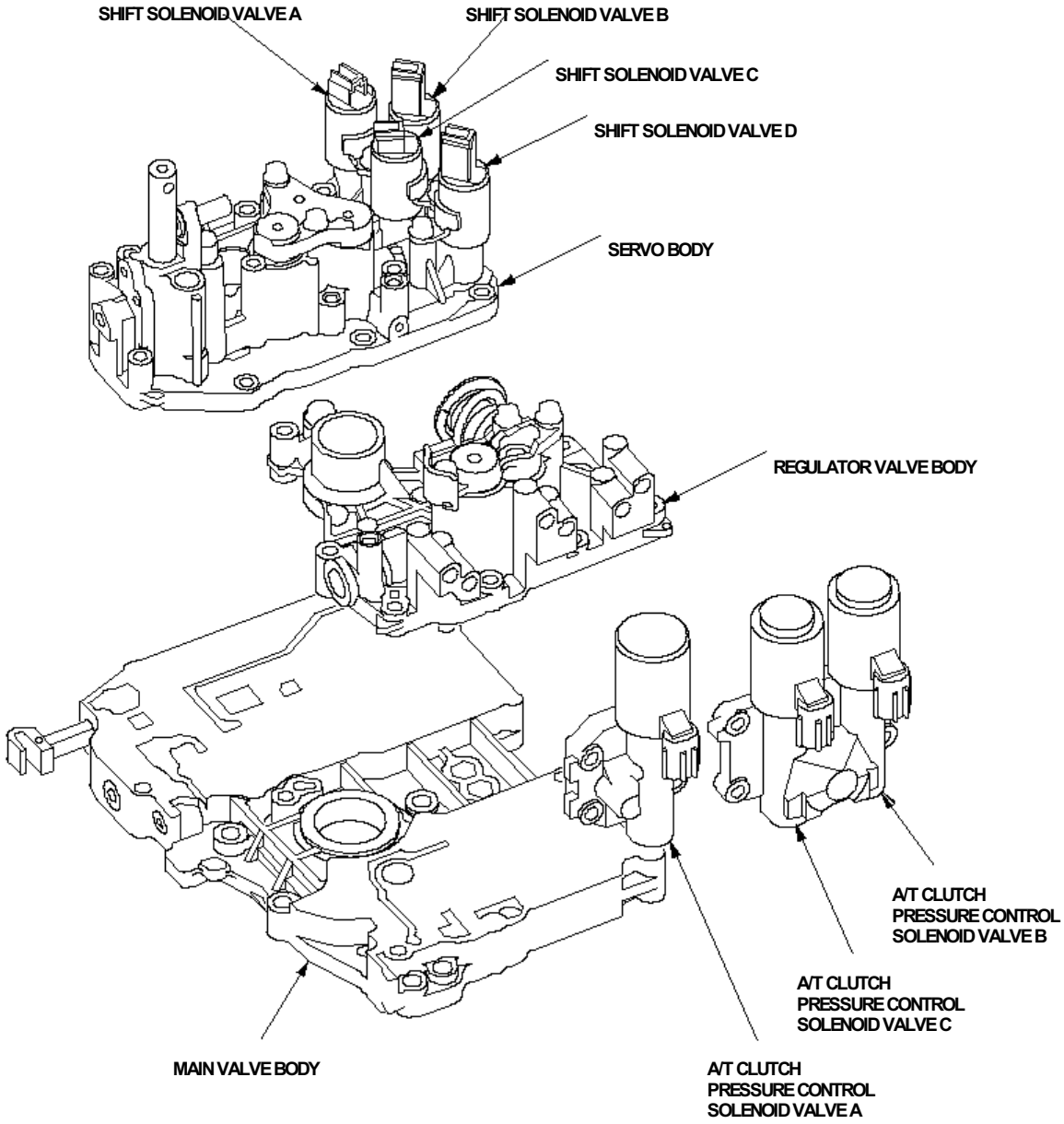


A □ (49P) **B ⏢ (49P)** **C ○ (49P)**

Terminal side of female terminals

Hydraulic Controls

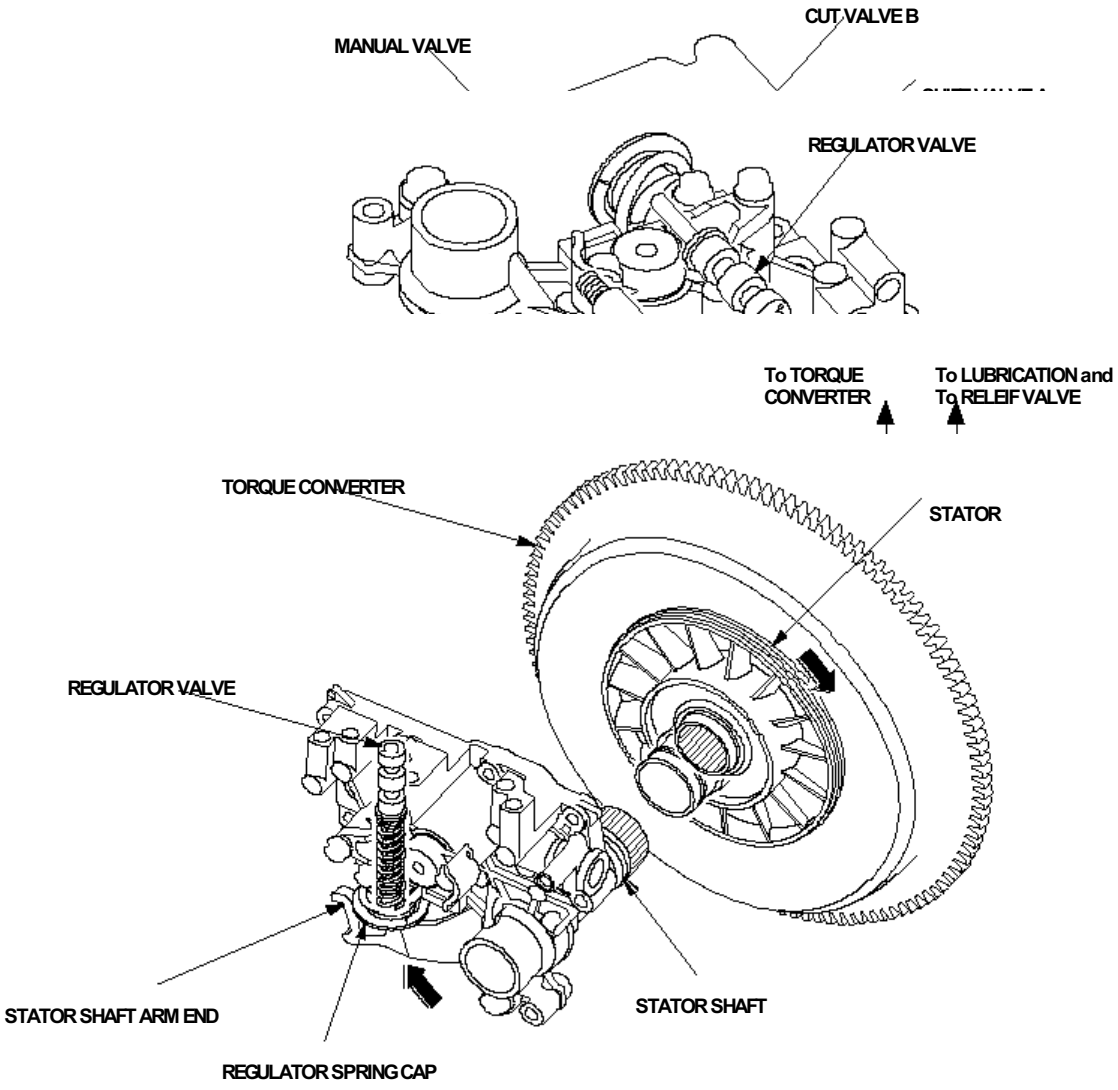
The valve body includes the main valve body, the regulator valve body, and the servo body. The ATF pump is driven by splines on the end of the torque converter which is attached to the engine. Fluid flows through the regulator valve to maintain specified pressure through the main valve body to the manual valve, directing pressure to each of the clutches. Shift solenoid valves A, B, C, and D are mounted on the servo body. A/T clutch pressure control solenoid valves A, B, and C are mounted on the transmission housing.



Hydraulic Controls (cont'd)

Main Valve Body

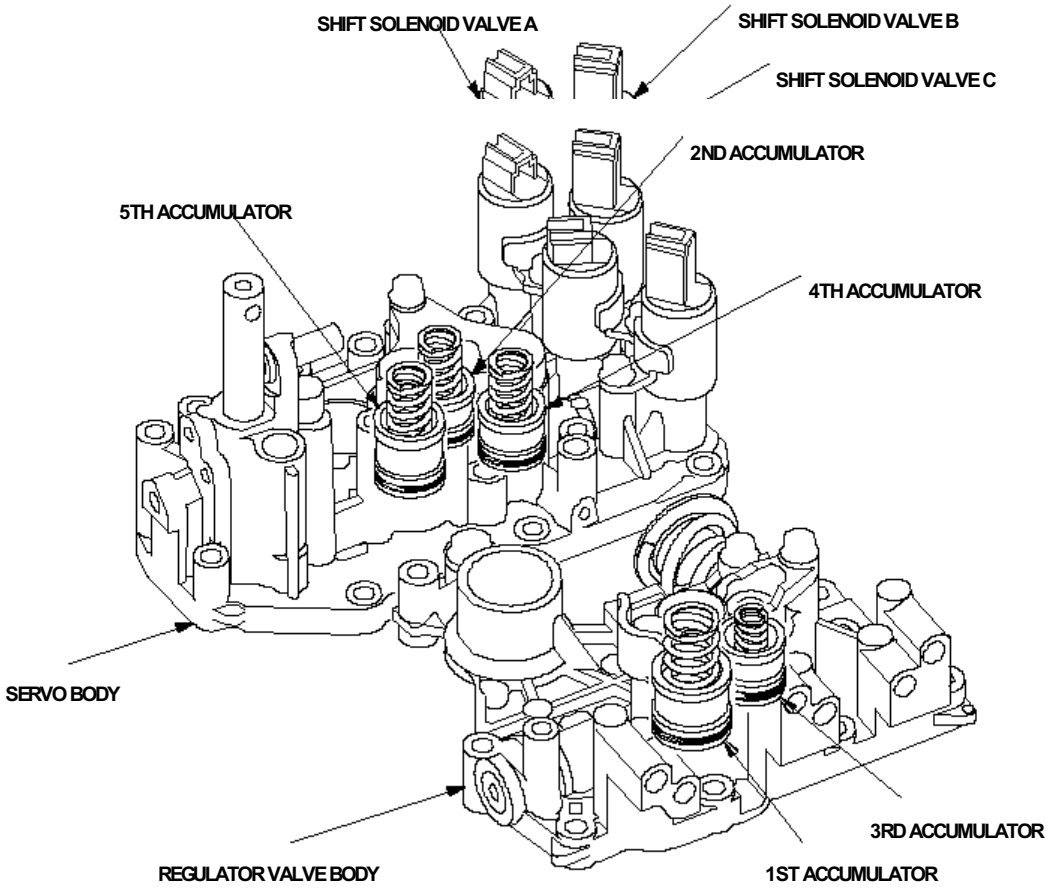
The main valve body contains the manual valve, cut valve B, shift valves A, C, and D, the relief valve, the lock-up control valve, the cooler check valve, the servo control valve, and the ATF pump gears. The primary function of the main valve body is to switch fluid pressure on and off to control hydraulic pressure going to the hydraulic control system.



Hydraulic Controls (cont'd)

Servo Body

The servo body is on the main valve body. The servo body contains the servo valve, shift valve B, cut valve A, accumulators for 2nd, 4th, and 5th, and shift solenoid valves A, B, C, and D.



Hydraulic Flow

Distribution of Hydraulic Pressure

As the engine turns, the ATF pump starts to operate. Automatic transmission fluid (ATF) is drawn through the ATF strainer (filter) and discharged into the hydraulic circuit. Then, ATF flowing from the ATF pump becomes line pressure that is regulated by the regulator valve. Torque converter pressure from the regulator valve enters the torque converter through the lock-up shift valve, and it is discharged from the torque converter. The torque converter check valve prevents torque converter pressure from rising.
The PCM controls the shift solenoid valves ON and OFF. The shift solenoid valve blocks line pressure from the ATF pump via the manual valve when the shift solenoid valve is OFF. When the shift solenoid valve is turned ON by the PCM, line pressure changes to shift solenoid valve pressure at the shift solenoid valve, then the shift solenoid valve pressure flows to the shift valve. Applying shift solenoid pressure to the shift valve moves the position of the shift valve, and switches the port of the hydraulic circuit. The PCM also controls A/T clutch pressure control solenoid valves A, B, and C. The A/T clutch pressure control solenoid valves regulate hydraulic pressure, and apply pressure to the clutches to engage smoothly. The clutches receive optimum clutch pressure which is regulated by the A/T clutch pressure control solenoid valves for comfortable driving and shifting under all conditions.

Hydraulic Pressure at the Port for use in the hydraulic circuit

Port No.	Hydraulic Pressure	Port No.	Hydraulic Pressure
1	Line	5T	A/T clutch pressure control solenoid valve C
3	Line	SA	Shift solenoid valve A
3'	Line	SB	Shift solenoid valve B
4	Line	SC	Shift solenoid valve C
4'	Line	SD	Shift solenoid valve D
4"	Line	10	1st clutch
7	Line	20	2nd clutch
1A	Line	30	3rd clutch
1B	Line	40	4th clutch
1C	Line or A/T clutch pressure control solenoid valve A	50	5th clutch
3A	Line or A/T clutch pressure control solenoid valve A	55	A/T clutch pressure control solenoid valve A
3B	Line or A/T clutch pressure control solenoid valve A	55'	A/T clutch pressure control solenoid valve A
3C	Line or A/T clutch pressure control solenoid valve A	56	A/T clutch pressure control solenoid valve B
5A	Line or A/T clutch pressure control solenoid valve A	57	A/T clutch pressure control solenoid valve C
5B	Line, A/T clutch pressure control solenoid valve A, or C	90	Torque converter
5C	A/T clutch pressure control solenoid valve C	91	Torque converter
5D	Line or A/T clutch pressure control solenoid valve A	92	Torque converter
5E	Line or A/T clutch pressure control solenoid valve B	93	ATF cooler
5F	A/T clutch pressure control solenoid valve B	94	Torque converter
5G	Line, A/T clutch pressure control solenoid valve A, or B	95	Lubrication
5H	A/T clutch pressure control solenoid valve B	96	Torque converter
5J	A/T clutch pressure control solenoid valve C	97	Torque converter
5K	A/T clutch pressure control solenoid valve C	99	Suction
5L	A/T clutch pressure control solenoid valve C	X	Drain
5M	A/T clutch pressure control solenoid valve B	HX	High position drain
5R	A/T clutch pressure control solenoid valve C	AX	Air drain

Hydraulic Flow (cont'd)

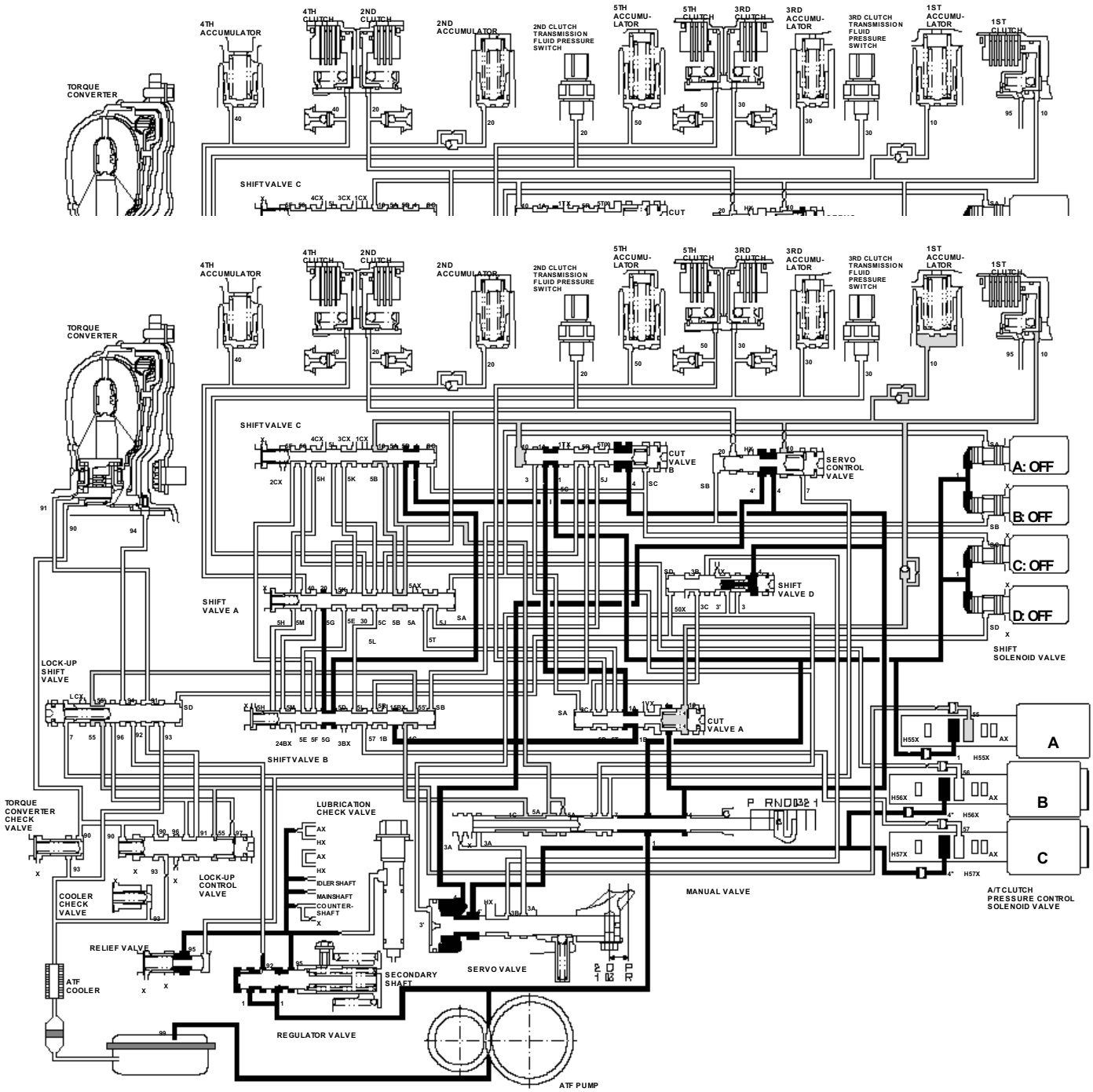
N Position

The PCM controls the shift solenoid valves. The conditions of the shift solenoid valves and the positions of the shift valves are as follows:

- Shift solenoid valve A is turned OFF, shift valve A stays on the right side, and cut valve A stays on the left side.
- Shift solenoid valve B is turned OFF, and shift valve B stays on the right side.
- Shift solenoid valve C is turned OFF, and shift valve C stays on the right side.

Line pressure (1) passes through the manual valve and stops at cut valve B. Line pressure (1) also flows to the shift solenoid valves and A/T clutch pressure control solenoid valve A. Under this condition, hydraulic pressure is not applied to the clutches.
NOTE:

- When used, ‘‘left" or ‘‘right" indicates direction on the hydraulic circuit.
- The illustration shows the seven-position transmission; the five-position transmission: manual-valve-position differs from the seven-position transmission.

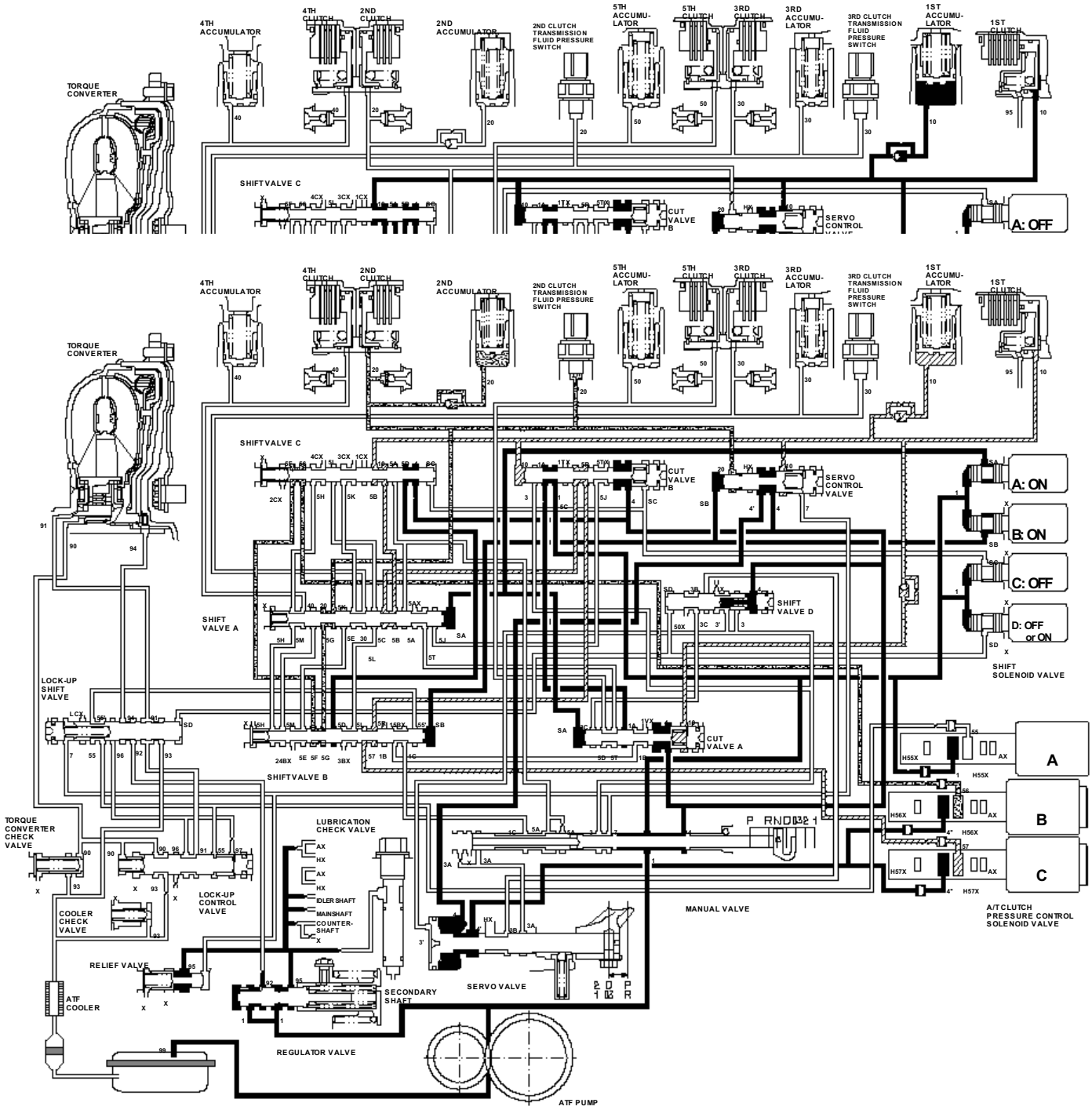


Hydraulic Flow (cont'd)

D Position: Driving in 1st gear

The PCM turns shift solenoid valve B ON, and shift solenoid valves A and C remain OFF. Shift solenoid valve B pressure (SB) is applied to the right end of shift valve B. Shift valve B is moved to the left side to uncover the line pressure port leading to the 1st clutch, and to cover the A/T clutch pressure control solenoid valve A pressure port. Line pressure (1B) passed through shift valve B flows to the manual valve, shift valve A, and shift valve C, and becomes 1st clutch pressure (10). 1st clutch pressure is applied to the 1st clutch, and the 1st clutch is engaged by the line pressure mode.
NOTE:

- When used, ‘‘left" or ‘‘right" indicates direction on the hydraulic circuit.
- The illustration shows the seven-position transmission; the five-position transmission: manual-valve-position differs from the seven-position transmission.

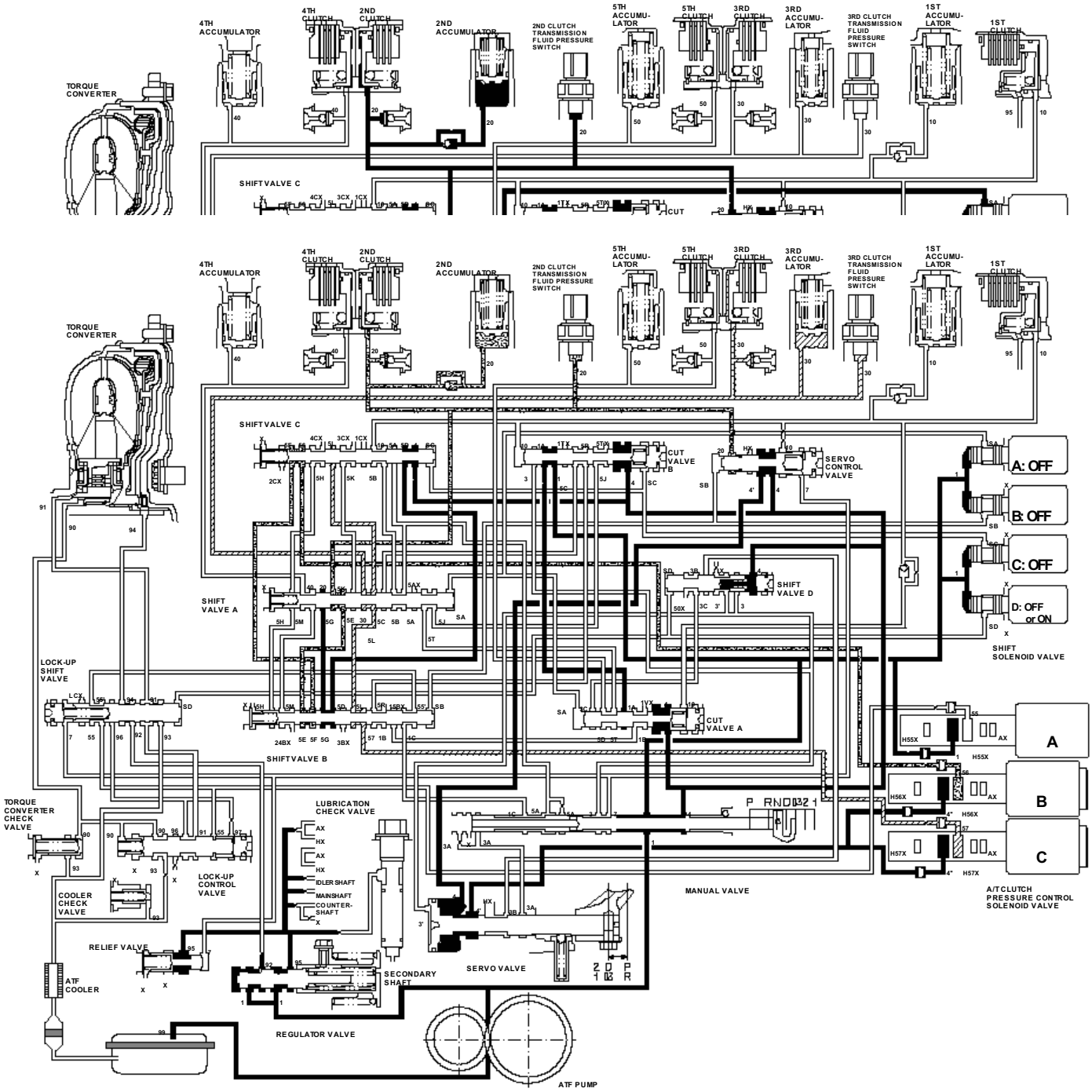


Hydraulic Flow (cont'd)

D Position: Driving in 2nd gear

The PCM turns shift solenoid valve B OFF, shift solenoid valve A remains ON, and shift solenoid valve C remains OFF. Shift solenoid valve B pressure (SB) in the right end of shift valve B and in the left end of the servo control valve is released. Cut valve B and the servo control valve are kept in the right side by line pressure (4) even though hydraulic pressure in the left end is released. Shift valve B is moved to the right side to switch the A/T clutch pressure control solenoid valve B pressure (5F) port to the line pressure (5D) port leading to the 2nd clutch. The 2nd clutch pressure (20) is applied to the 2nd clutch, and the 2nd clutch is engaged by the line pressure mode.
NOTE:

- When used, ‘‘left" or ‘‘right" indicates direction on the hydraulic circuit.
- The illustration shows the seven-position transmission; the five-position transmission: manual-valve-position differs from the seven-position transmission.

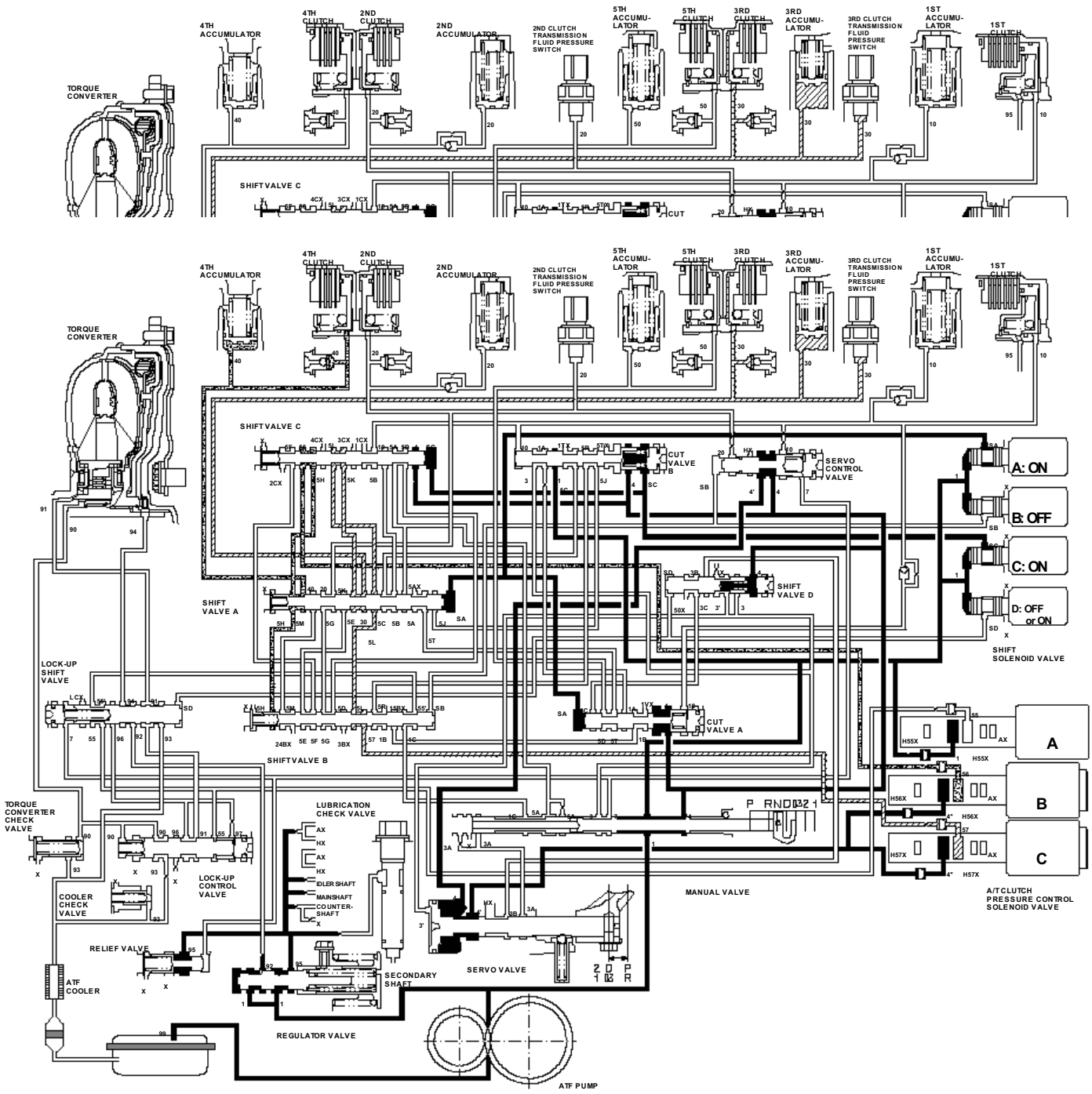


Hydraulic Flow (cont'd)

D Position: Driving in 3rd gear

The PCM turns shift solenoid valve C ON, and shift solenoid valves A and B remain OFF. Shift solenoid valve C pressure (SC) is applied to the right end of shift valve C and cut valve B. Shift valve C is moved to the left side to release 2nd clutch pressure. The 3rd clutch keeps engaging with the A/T clutch pressure control solenoid valve C pressure mode.
NOTE:

- When used, ‘‘left" or ‘‘right" indicates direction on the hydraulic circuit.
- The illustration shows the seven-position transmission; the five-position transmission: manual-valve-position differs from the seven-position transmission.

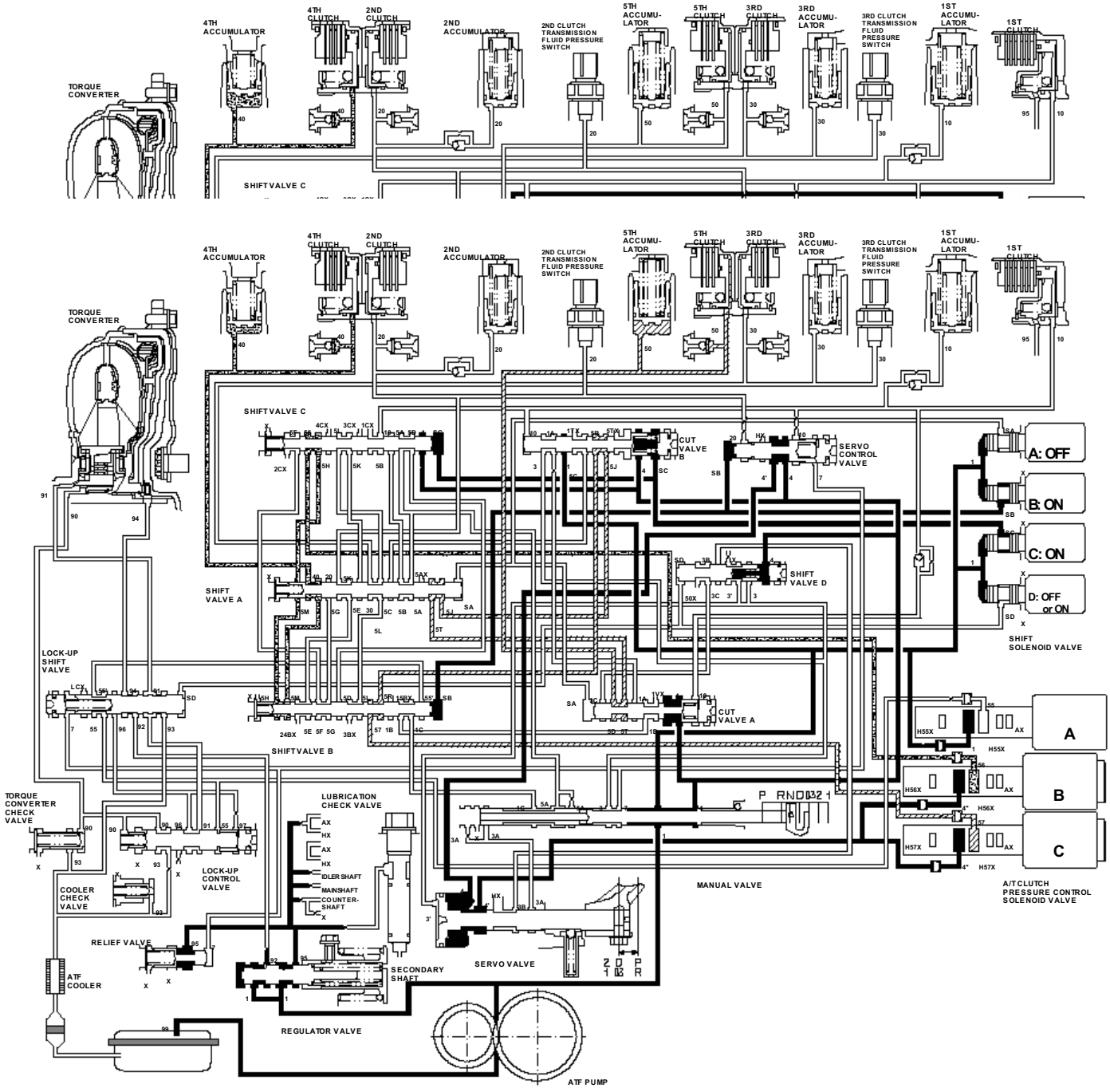


Hydraulic Flow (cont'd)

D Position: Driving in 4th gear

The PCM turns shift solenoid valve B ON, and shift solenoid valves A and B remain ON. Shift solenoid valve B pressure (SB) is applied to the right end of shift valve B and the left end of the servo control valve. Shift valve B is moved to the left side to release 3rd clutch pressure. The 4th clutch keeps engaging with the A/T clutch pressure control solenoid valve B pressure mode.
NOTE:

- When used, ‘‘left" or ‘‘right" indicates direction on the hydraulic circuit.
- The illustration shows the seven-position transmission; the five-position transmission: manual-valve-position differs from the seven-position transmission.

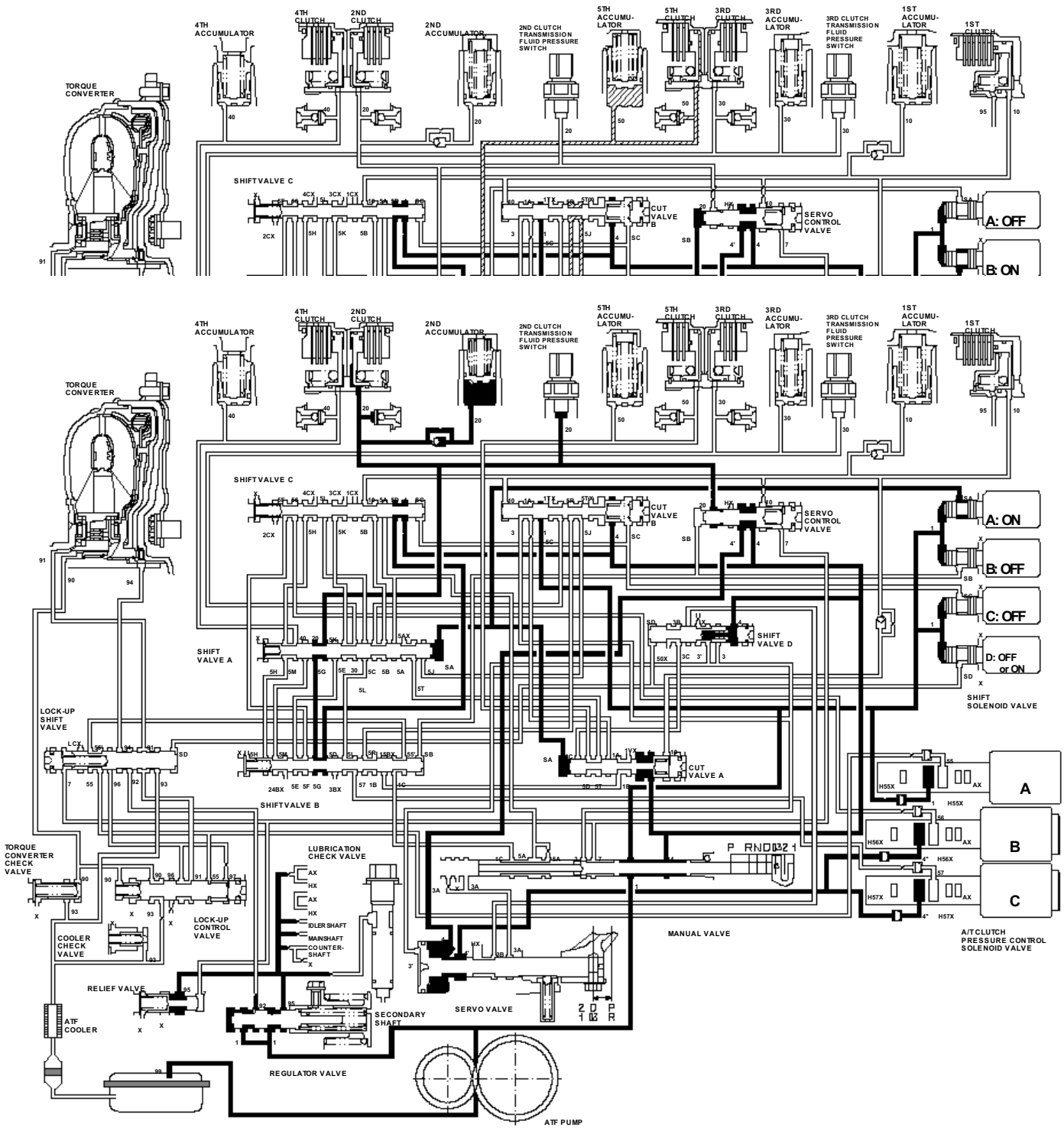


Hydraulic Flow (cont'd)

D Position: Driving in 5th gear

The PCM turns shift solenoid valve C OFF, shift solenoid valve A remains OFF, and shift solenoid valve B remains ON. Shift solenoid valve C is turned OFF, and shift solenoid valve C pressure (SC) in the right end of shift valve C is released. Shift valve C is moved to the right side to release 4th clutch pressure. The 5th clutch keeps engaging with the A/T clutch pressure control solenoid valve C pressure mode.
NOTE:

- When used, ‘‘left" or ‘‘right" indicates direction on the hydraulic circuit.
- The illustration shows the seven-position transmission; the five-position transmission: manual-valve-position differs from the seven-position transmission.



Hydraulic Flow (cont'd)

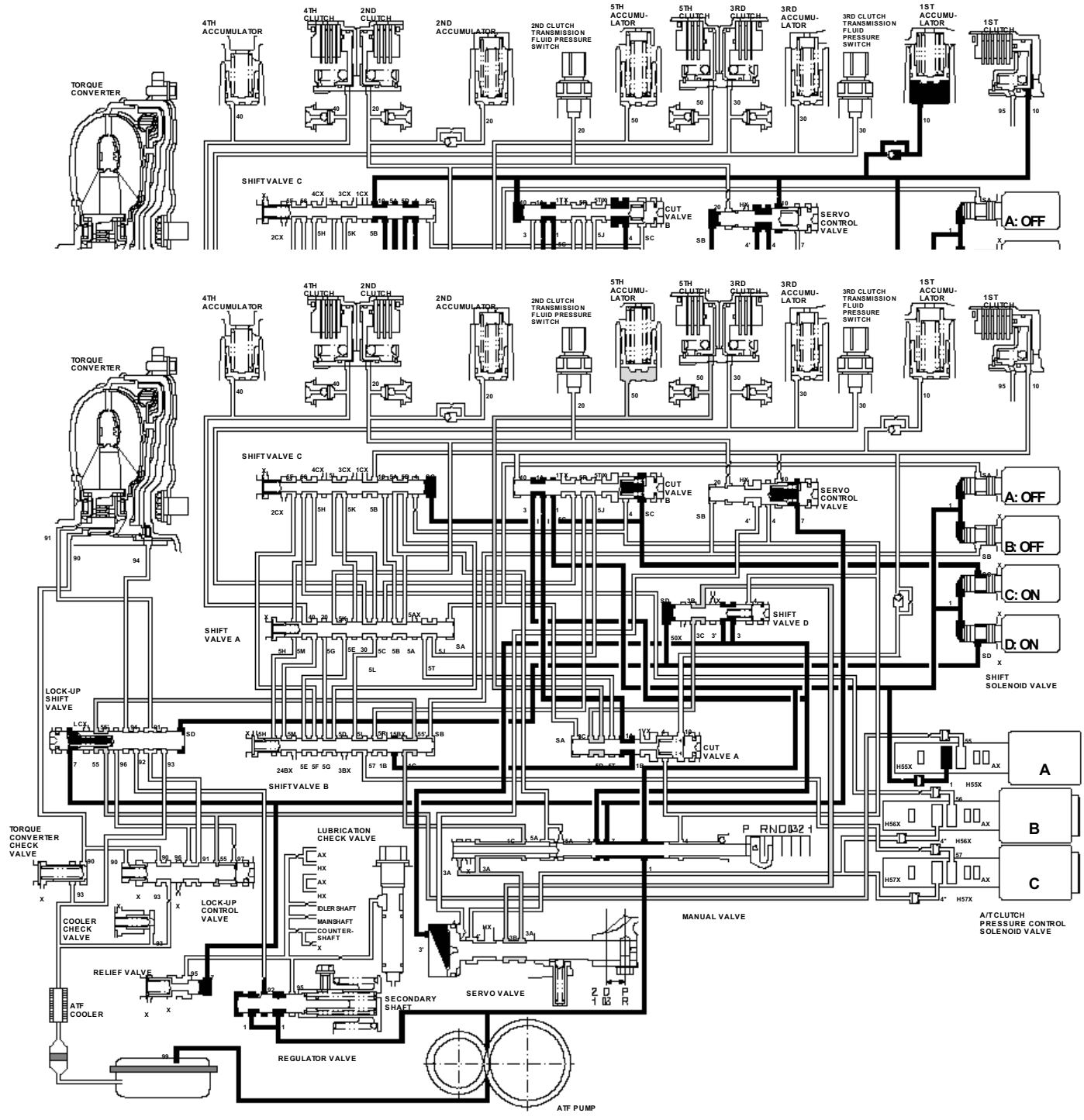
1 Position (Seven-position Transmission)

The PCM controls the shift solenoid valves and the A/T clutch pressure control solenoid valves. The conditions of the shift solenoid valves and the position of the shift valves are as follows:

- Shift solenoid valve A is turned OFF, and shift valve A is in the right side.
- Shift solenoid valve B is turned ON, and shift valve B is moved to the left side.
- Shift solenoid valve C is turned OFF, and shift valve C is in the right side.

Line pressure (1) from the manual valve flows to cut valve B, cut valve A, shift valve B, and becomes line pressure (5A) at the manual valve. Line pressure (5A) passes through shift valve A, flows to shift valve C, and becomes 1st clutch pressure (10). 1st clutch pressure (10) is applied to the 1st clutch, and the 1st clutch is engaged.
NOTE:

- When used, ‘‘left" or ‘‘right" indicates direction on the hydraulic circuit.
- The illustration shows the seven-position transmission; the five-position transmission does have 1.



Hydraulic Flow (cont'd)

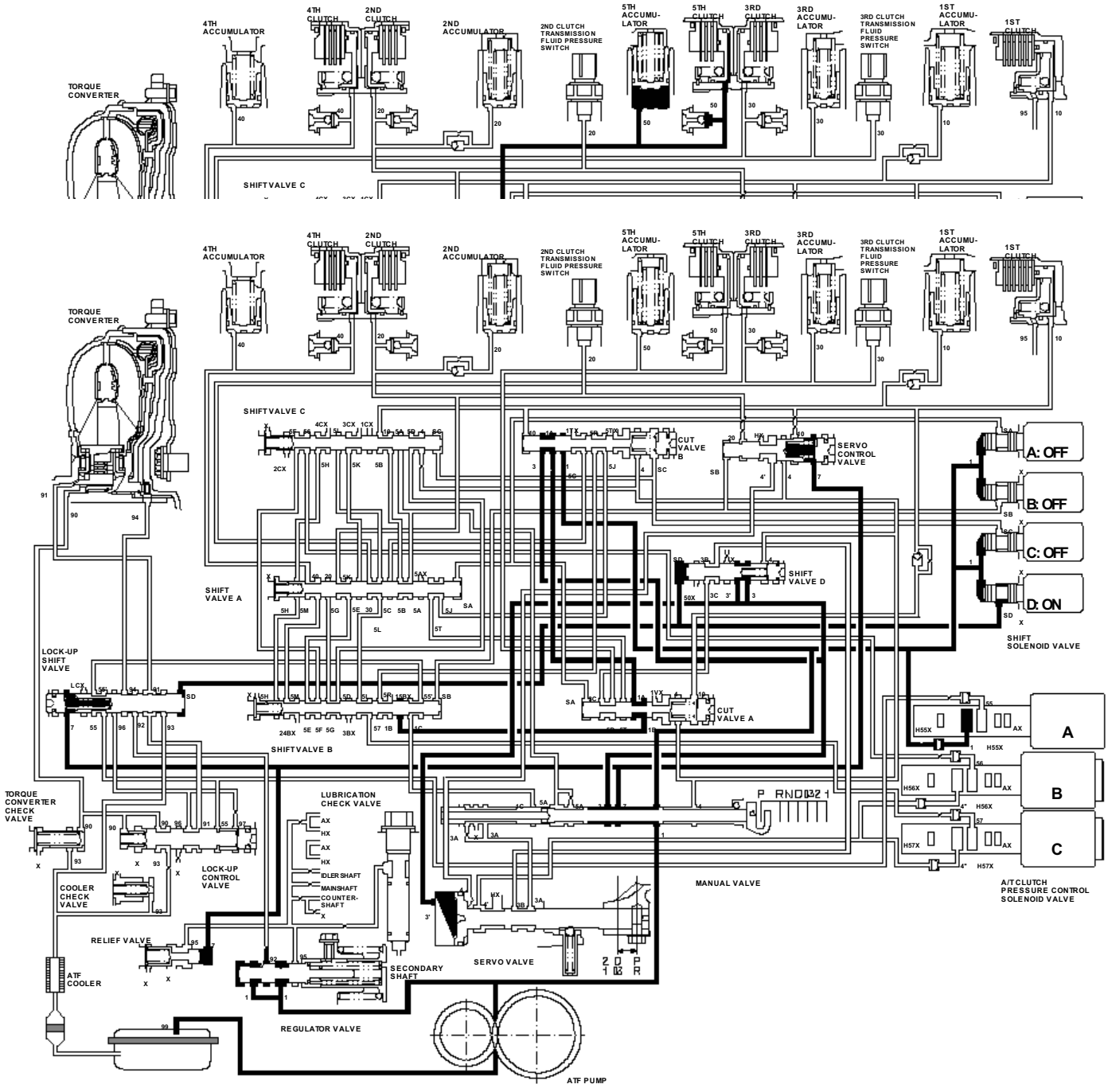
R Position: Driving in reverse gear

As the speed of the vehicle reaches the programmed value, the PCM turns shift solenoid valves B and C ON. Shift solenoid valve A remains OFF, and shift solenoid valve D remains ON. Shift solenoid valve B is turned ON, and shift solenoid valve B pressure (SB) is applied to the right end of shift valve B. Shift valve B is moved to the right side to switch the A/T clutch pressure control solenoid valve A pressure (55') port to the line pressure (1B) port leading to the 5th clutch. The 5th clutch is engaged with the line pressure mode.

Reverse Inhibitor Control

When R is selected while the vehicle is moving forward at a speed over 6 mph (10 km/h), the PCM turns shift solenoid valves A and C ON, and shift solenoid valves B and D OFF. Shift solenoid valve D is kept OFF, and shift valve D is kept in the left side to cover the line pressure (3) port leading to the servo valve. The servo valve is kept in the forward position. Shift solenoid valve A is turned ON, shift valve A is moved to the right side and covers the port to stop line pressure (1A) leading to the 5th clutch. The servo valve is not applied line pressure, the 5th clutch is not applied 5th clutch pressure, as a result, power is not transmitted to the reverse direction.
NOTE:

- When used, ‘‘left" or ‘‘right" indicates direction on the hydraulic circuit.
- The illustration shows the seven-position transmission; the five-position transmission: manual-valve-position differs from the seven-position transmission.



Power Flow

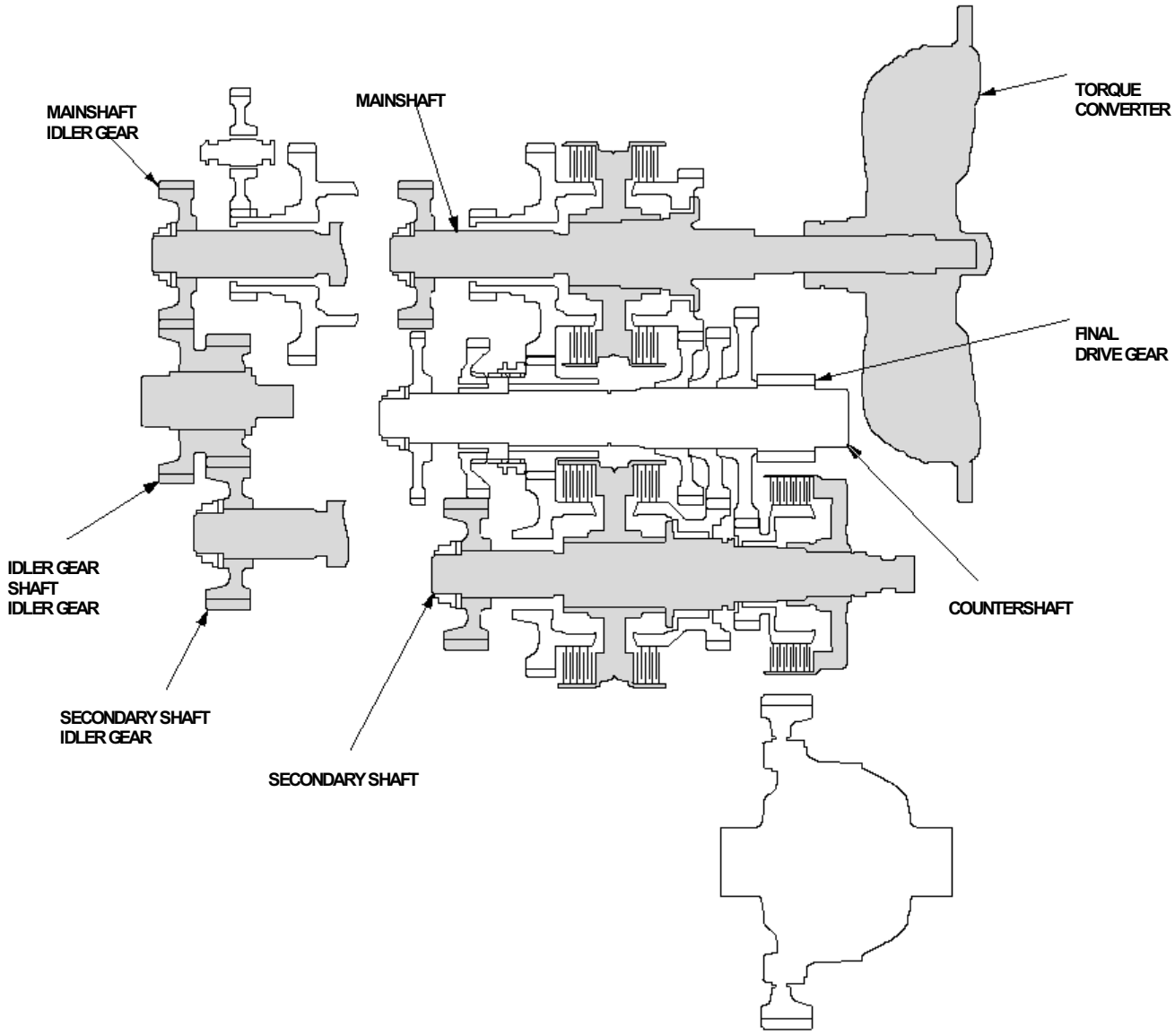
P Position

Hydraulic pressure is not applied to the clutches. Power is not transmitted to the countershaft. The countershaft is locked by the park pawl, interlocking the park gear.

N Position

Engine power transmitted from the torque converter drives the mainshaft idler gear, the idler gear shaft idler gear, and the secondary shaft idler gear, but hydraulic pressure is not applied to the clutches. Power is not transmitted to the countershaft. In this position, the position of the reverse selector differs according to whether the shift lever shifted from D or R:

- When shifted from D, the reverse selector engages with the countershaft 4th-5th gear and the reverse selector hub, and 4th-5th gear engages with the countershaft.
- When shifted from R, the reverse selector engages with the countershaft reverse gear and the reverse selector hub, and the reverse gear engages with the countershaft.



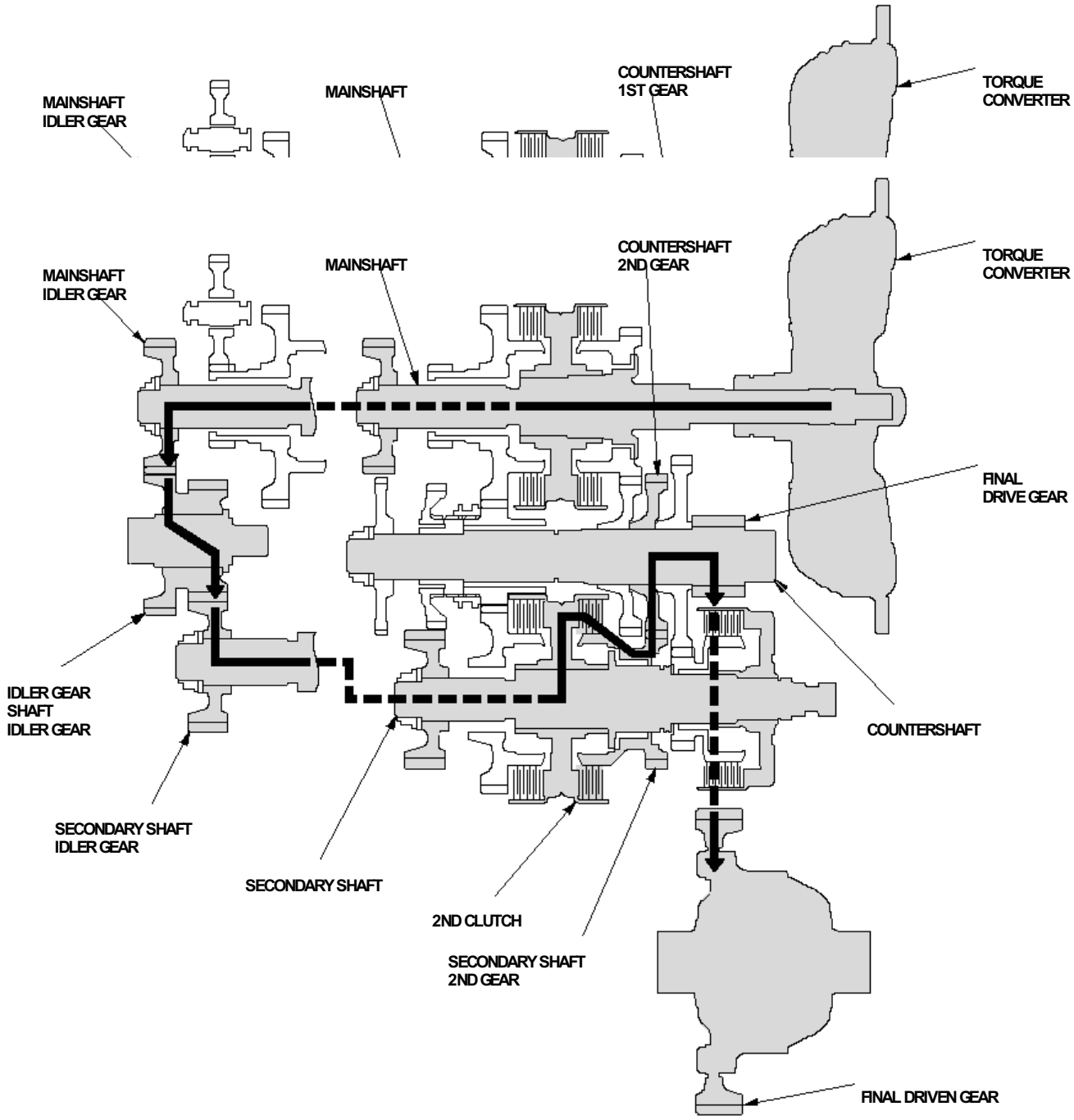
Power Flow (cont'd)

D, D3, and S Position

In D, D3, and S, the optimum gear is automatically selected from 1st, 2nd, 3rd, 4th, and 5th gears in D; 1st, 2nd, and 3rd gears in D3; 1st, 2nd, 3rd, and 4th gears in S in automatic shift mode according to conditions such as the balance between the throttle opening (engine loading) and vehicle speed.

In 1st Gear and 1 Position

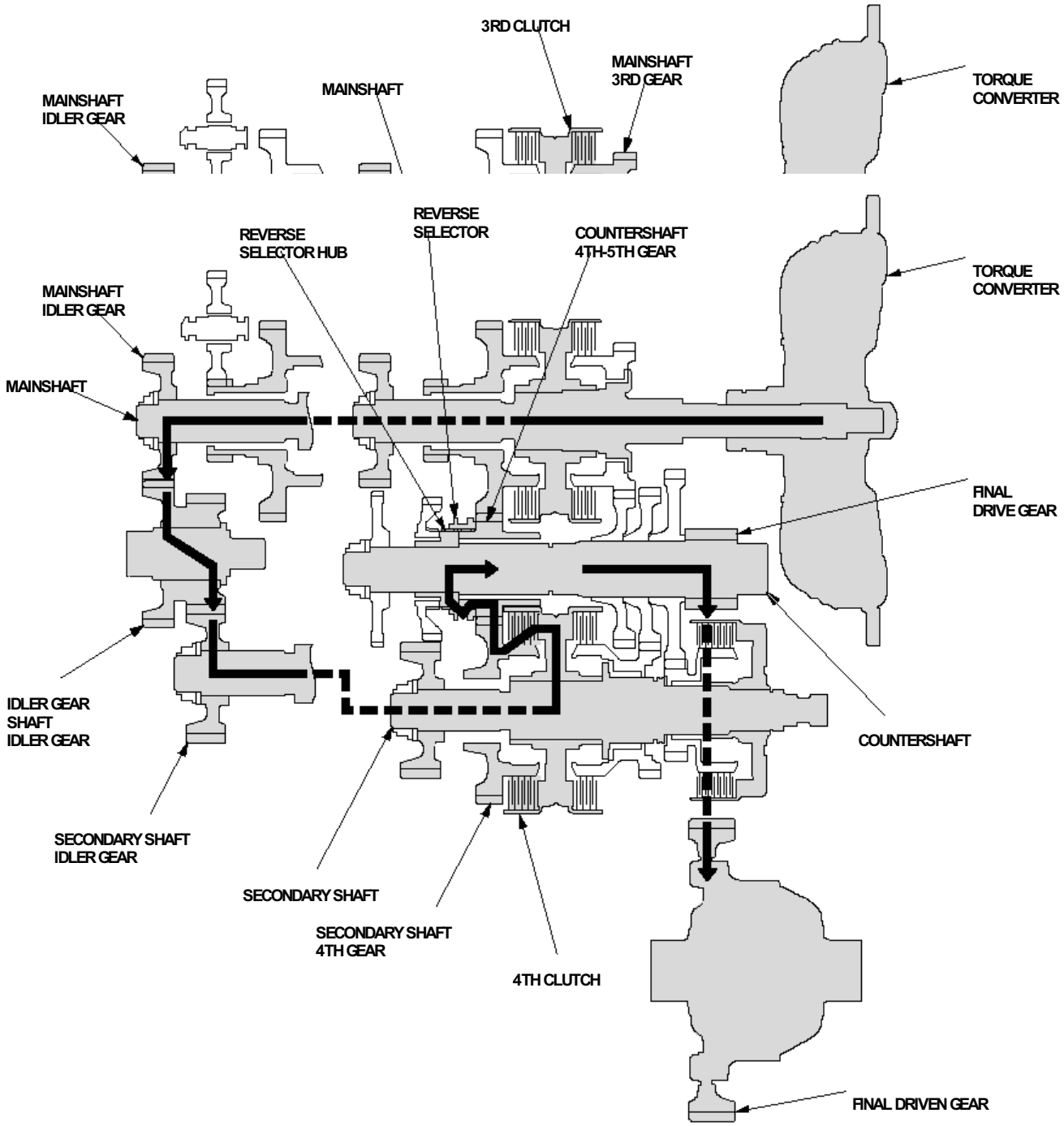
- Hydraulic pressure is applied to the 1st clutch, then the 1st clutch engages the secondary shaft 1st gear with the secondary shaft.
- The mainshaft idler gear drives the secondary shaft via the idler gear shaft idler gear and the secondary shaft idler gear.
- The secondary shaft 1st gear drives the countershaft 1st gear and the countershaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.



Power Flow (cont'd)

In 3rd Gear

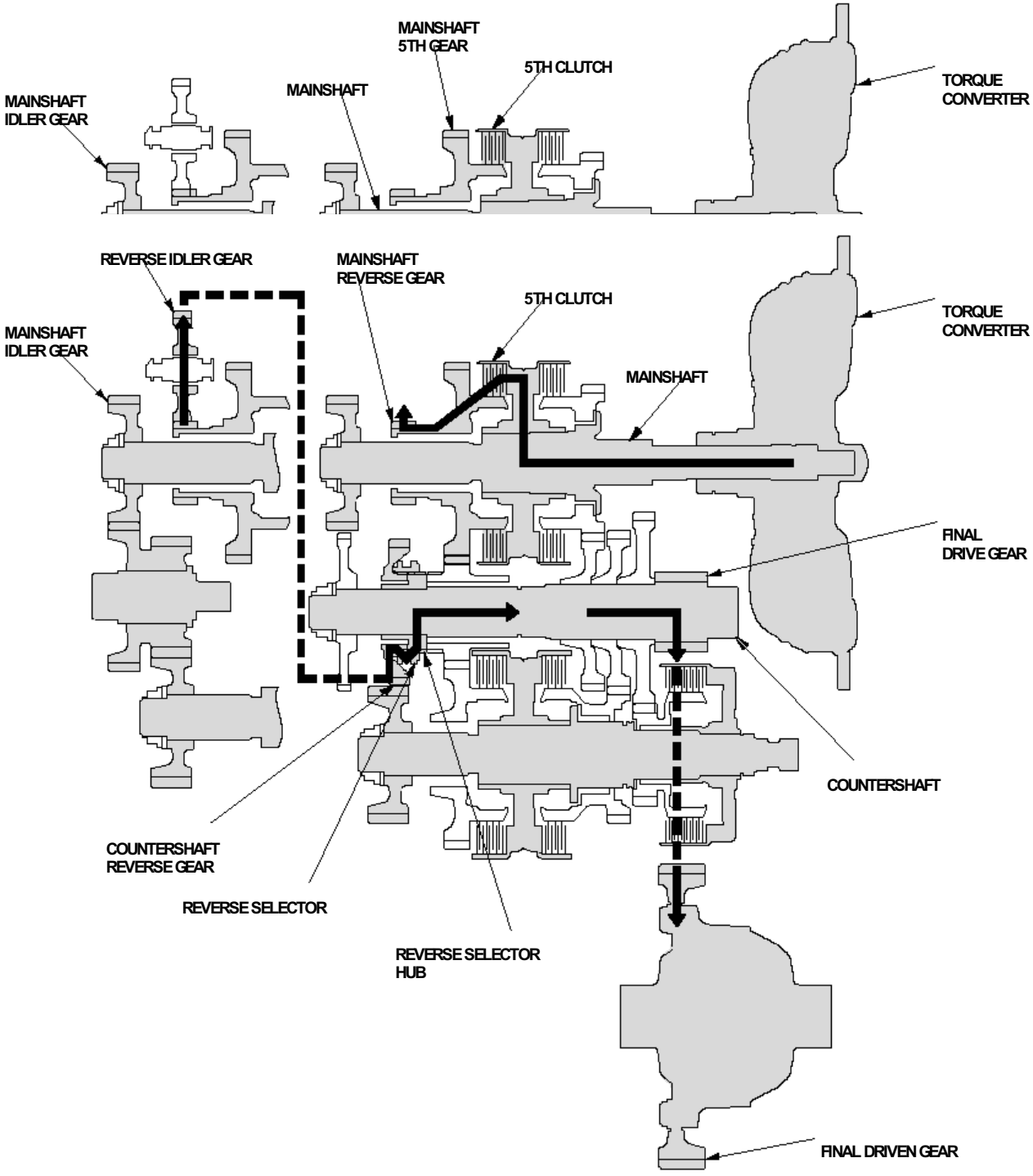
- Hydraulic pressure is applied to the 3rd clutch, then the 3rd clutch engages the mainshaft 3rd gear with the mainshaft.
- The mainshaft 3rd gear drives the countershaft 3rd gear and the countershaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.



Power Flow (cont'd)

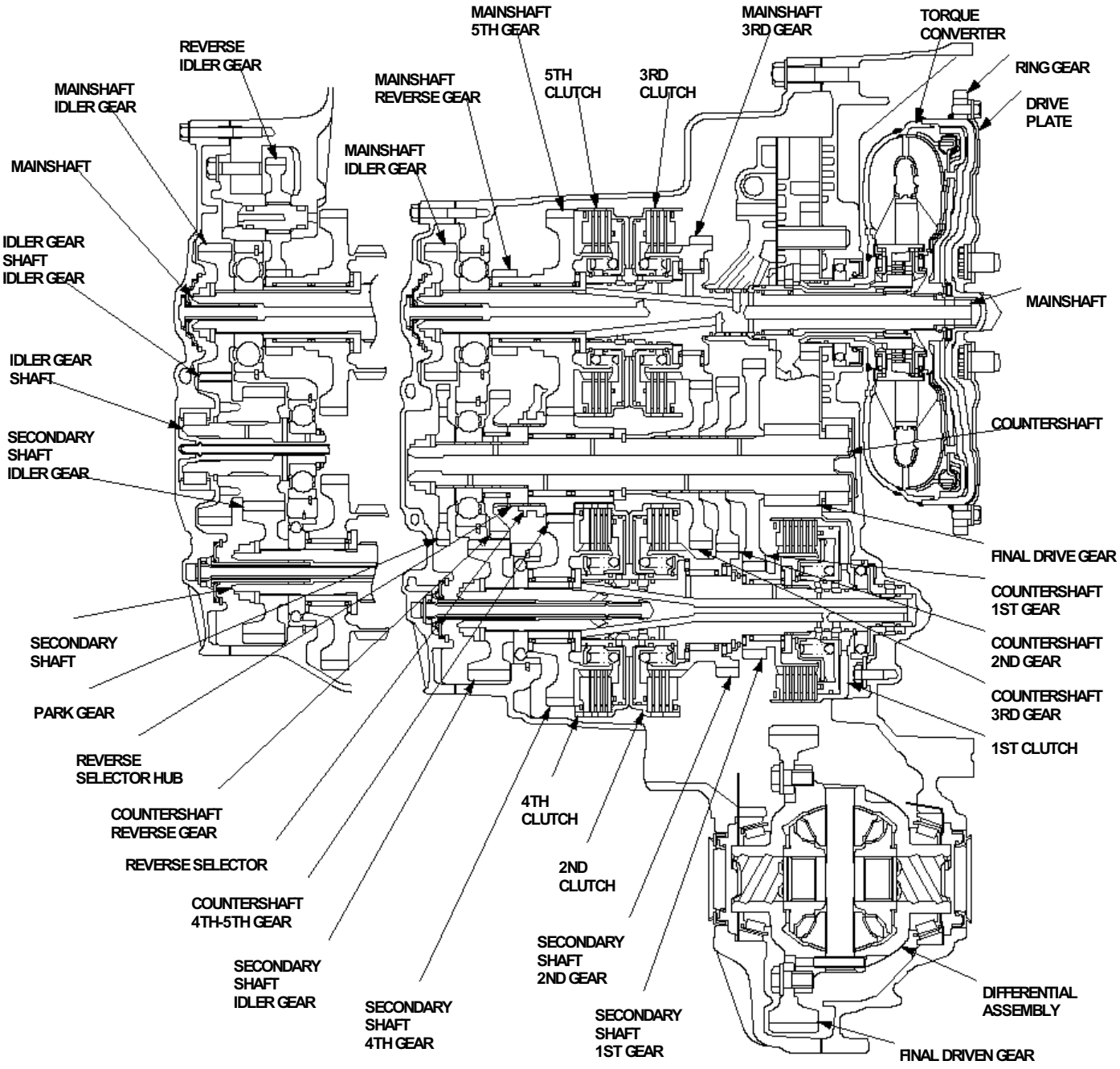
In 5th Gear

- Hydraulic pressure is applied to the servo valve to engage the reverse selector with the countershaft 4th-5th gear and reverse selector hub while the shift lever is in forward range; D, D3, S, 2, and 1.
- Hydraulic pressure is also applied to the 5th clutch, then the 5th clutch engages the mainshaft 5th gear with the mainshaft.
- The mainshaft 5th gear drives the countershaft 4th-5th gear.
- The countershaft 4th-5th gear drives the countershaft via the reverse selector, which drives the reverse selector hub.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.



Clutches and Gears

The five-speed automatic transmission uses hydraulically-actuated clutches to engage or disengage the transmission gears. When hydraulic pressure is introduced into the clutch drum, the clutch piston moves. This presses the friction discs and steel plates together, locking them so they don't slip. Power is then transmitted through the engaged clutch pack to its hub-mounted gear. Likewise, when the hydraulic pressure is bled from the clutch pack, the piston releases the friction discs and the steel plates, and they are free to slide past each other. This allows the gear to spin independently on its shaft, transmitting no power.



Clutches and Gears (cont'd)

1st Clutch

The 1st clutch engages/disengages 1st gear, and is located at the left end of the secondary shaft, opposite the end cover. The 1st clutch is supplied hydraulic pressure through the mainshaft by a circuit connected to the internal hydraulic circuit.

2nd Clutch

The 2nd clutch engages/disengages 2nd gear, and is located at the middle of the secondary shaft. The 2nd clutch is joined back-to-back to the 4th clutch. The 2nd clutch is supplied hydraulic pressure by its ATF feed pipe within the secondary shaft.

3rd Clutch

The 3rd clutch engages/disengages 3rd gear, and is located at the middle of the mainshaft. The 3rd clutch is joined back-to-back to the 5th clutch. The 3rd clutch is supplied hydraulic pressure through the mainshaft by its ATF feed pipe within the mainshaft.

4th Clutch

The 4th clutch engages/disengages 4th gear, and is located at the middle of the secondary shaft. The 4th clutch is joined back-to-back to the 2nd clutch, and is supplied hydraulic pressure by its ATF feed pipe within the secondary shaft.

5th Clutch

The 5th clutch engages/disengages 5th gear, as well as reverse gear, and is located at the middle of the mainshaft. The 5th clutch is joined back-to-back to the 3rd clutch. The 5th clutch is supplied hydraulic pressure through the mainshaft by a circuit connected to the internal hydraulic circuit.

Gear Operation

Gears on the mainshaft:

- 3rd gear is engaged/disengaged with the mainshaft by the 3rd clutch.
- 5th gear is engaged/disengages with the mainshaft by the 5th clutch.
- Reverse gear is engaged/disengaged with the mainshaft by the 5th clutch.
- Idler gear is splined with the mainshaft, and rotates with the mainshaft.

Gears on the countershaft:

- Final drive gear is integral with the countershaft.
- 1st gear, 2nd gear, and park gear are splined with the countershaft, and rotate with the countershaft.
- 4th-5th gear and reverse gear rotate freely from the countershaft. The reverse selector engages 4th-5th gear and reverse gear with the reverse selector hub. The reverse selector hub is splined to the countershaft so 4th-5th gear and reverse gear engage with the countershaft.

Gears on the secondary shaft:

- 1st gear is engaged/disengaged with the secondary shaft by the 1st clutch.
- 2nd gear is engaged/disengaged with the secondary shaft by the 2nd clutch.
- 4th gear is engaged/disengaged with the secondary shaft by the 4th clutch.
- Idler gear is splined with the secondary shaft, and rotates with the secondary shaft.

The idler gear on the idler gear shaft transmits power between the mainshaft and the secondary shaft.
The reverse idler gear transmits power from the mainshaft reverse gear to the countershaft reverse gear, and changes rotational direction of the countershaft reverse.

Lock-up System

The lock-up mechanism of the torque converter clutch operates in all five gears in D, in 3rd gear in D3, and 3rd and 4th gears in S with the automatic shift mode. The pressurized fluid is drained from the back of the torque converter through a fluid passage, causing the torque converter clutch piston to be held against the torque converter cover. As this takes place, the mainshaft rotates at the same speed as the engine crankshaft. Together with the hydraulic control, the PCM optimizes the timing and amount of the lock-up mechanism. When shift solenoid valve D is turned ON by the PCM, shift solenoid valve D pressure switches the lock-up shift valve lock-up ON and OFF. A/T clutch pressure control solenoid valve A and the lock-up control valve control the amount of lock-up.

Torque Converter Clutch Lock-up ON (Engaging Torque Converter Clutch)

Fluid in the chamber between the torque converter cover and the torque converter clutch piston is drained off, and fluid entering from the chamber between the pump and stator exerts pressure through the torque converter clutch piston against the torque converter cover. The torque converter clutch piston engages with the torque converter cover; the torque converter clutch lock-up is ON, and the mainshaft rotates at the same speed as the engine.

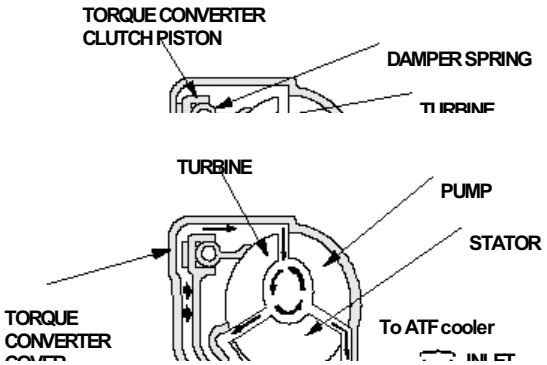
Power flow

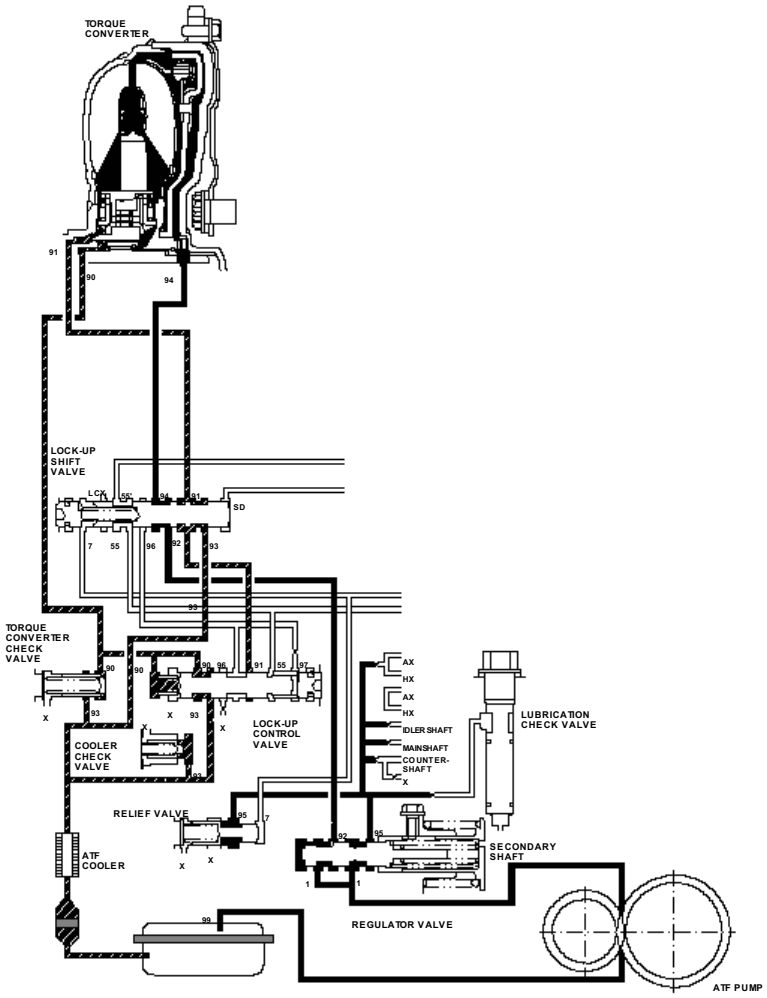
The power flows by way of:

Power flow

The power flows by way of:

Engine
↓
Drive plate
↓

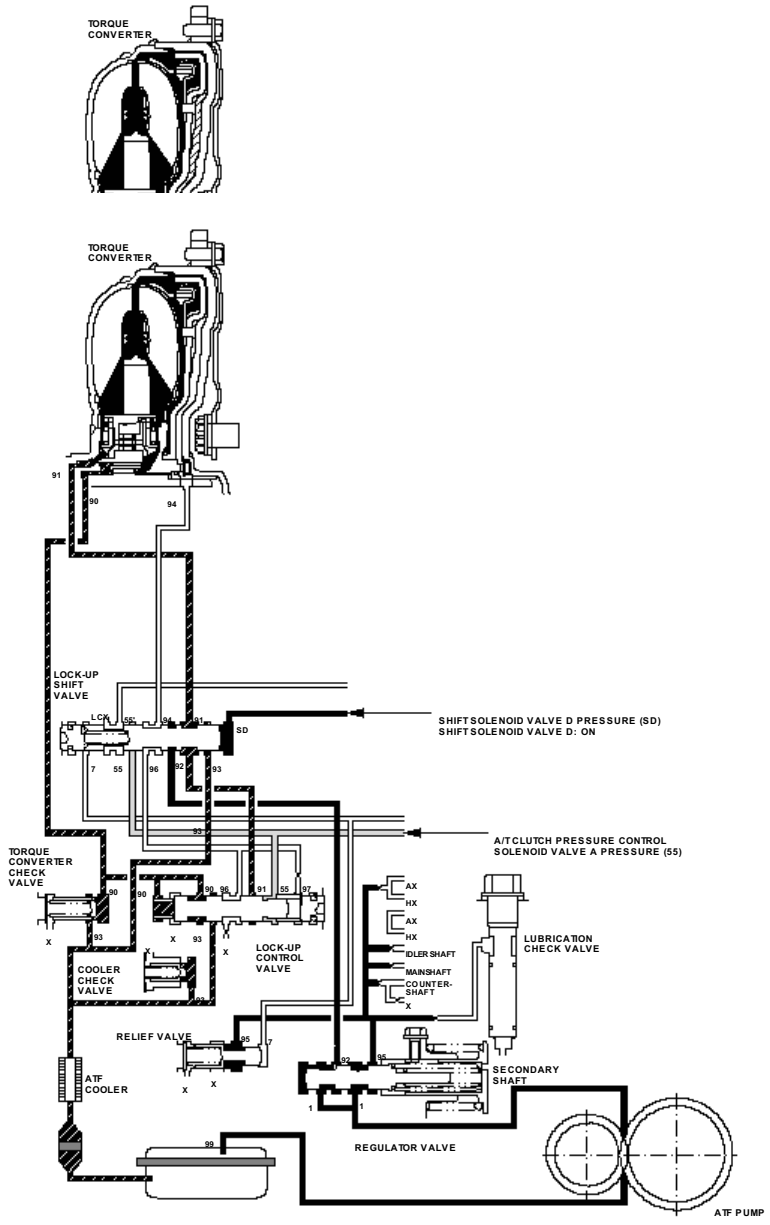




Lock-up System (cont'd)

Partial Lock-up

As the speed of the vehicle reaches the programmed value, the PCM turns shift solenoid valve D ON. Shift solenoid valve D pressure (SD) is applied to the right end of the lock-up shift valve to switch the torque converter pressure port leading to the front of the torque converter. Torque converter pressure (91) enters into the front of the torque converter to engage the torque converter clutch piston. The PCM also controls A/T clutch pressure control solenoid valve A to regulate A/T clutch pressure control solenoid valve A pressure (55), and A/T clutch pressure control solenoid valve A pressure (55) is applied to the lock-up control valve. Torque converter pressure (94) drained from the back of the torque converter is applied to the right side of the lock-up control valve, and torque converter pressure (90) is applied to the left side of the lock-up control valve. The lock-up control valve controls the amount of the lock-up by receiving these pressures. The torque converter clutch is engaged partially when torque converter pressure (90) in the left side of the lock-up control valve is higher, and the torque converter clutch is engaged securely according to the amount of pressure in the right side of the lock-up control valve. Under this condition, the torque converter clutch is engaged by pressure entering into the front side of the torque converter; this condition is partial lock-up.
NOTE: When used, ‘‘left" or ‘‘right" indicates direction on the hydraulic circuit.



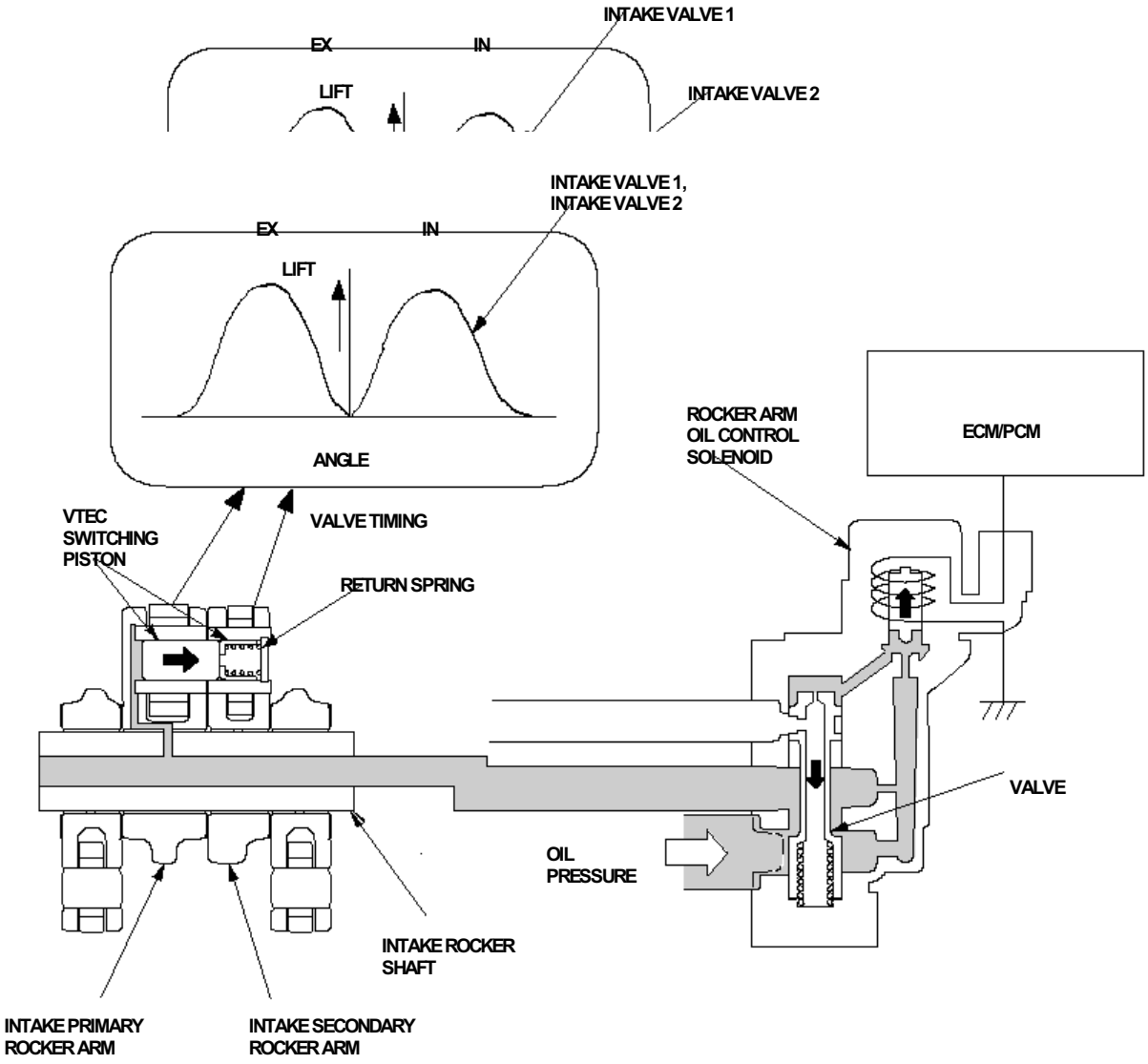
VTEC System (L13Z3 engine)

- This mechanism improves fuel efficiency and reduces exhaust emissions at all levels of engine speed, vehicle speed, and engine load.
- The VTEC system changes the cam profile to correspond to engine speed. It maximizes torque at low engine speed and output at high engine speed.
- The valve pause cam (low lift cam) is used at low engine speeds, and the high lift cam is used at high engine speeds.
- The rocker arm oil control solenoid switches the intake valve side of the VTEC system on and off; the solenoid is controlled by the ECM/PCM.

Operation (L13Z3 engine)

At low engine speed

At low engine speed, the rocker arm oil control solenoid is turned off by the ECM/PCM. Oil pressure from the rocker arm oil control valve does not enter the intake rocker shaft. Each intake rocker arm is separated by a return spring and lifted by each valve pause cam (low lift cam) lobe.



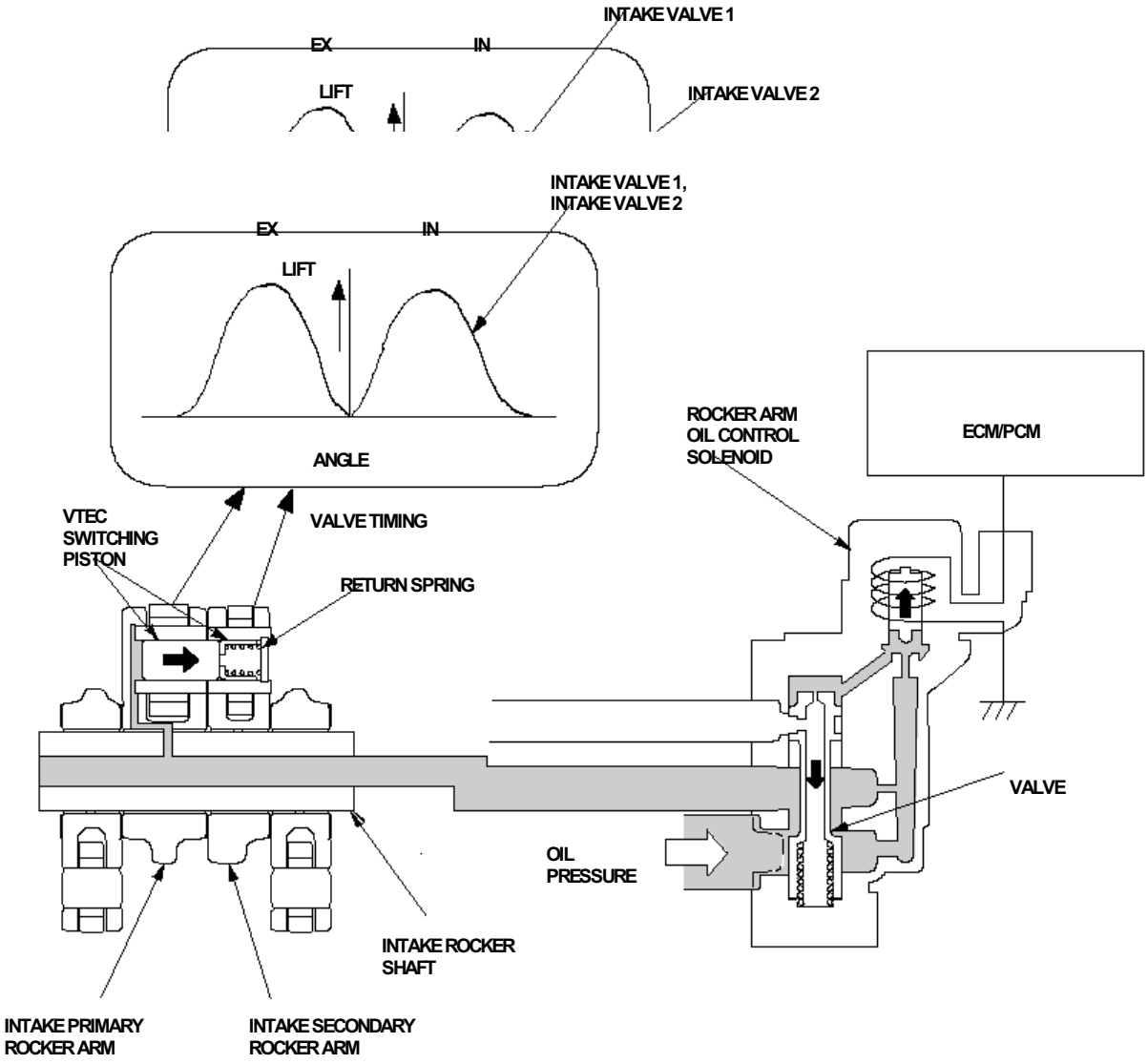
VTEC System (L15A8 engine)

- This mechanism improves fuel efficiency and reduces exhaust emissions at all levels of engine speed, vehicle speed, and engine load.
- The VTEC system changes the cam profile to correspond to engine speed. It maximizes torque at low engine speed and output at high engine speed.
- The valve pause cam (low lift cam) is used at low engine speeds, and the high lift cam is used at high engine speeds.
- The rocker arm oil control solenoid switches the intake valve side of the VTEC system on and off; the solenoid is controlled by the ECM/PCM.

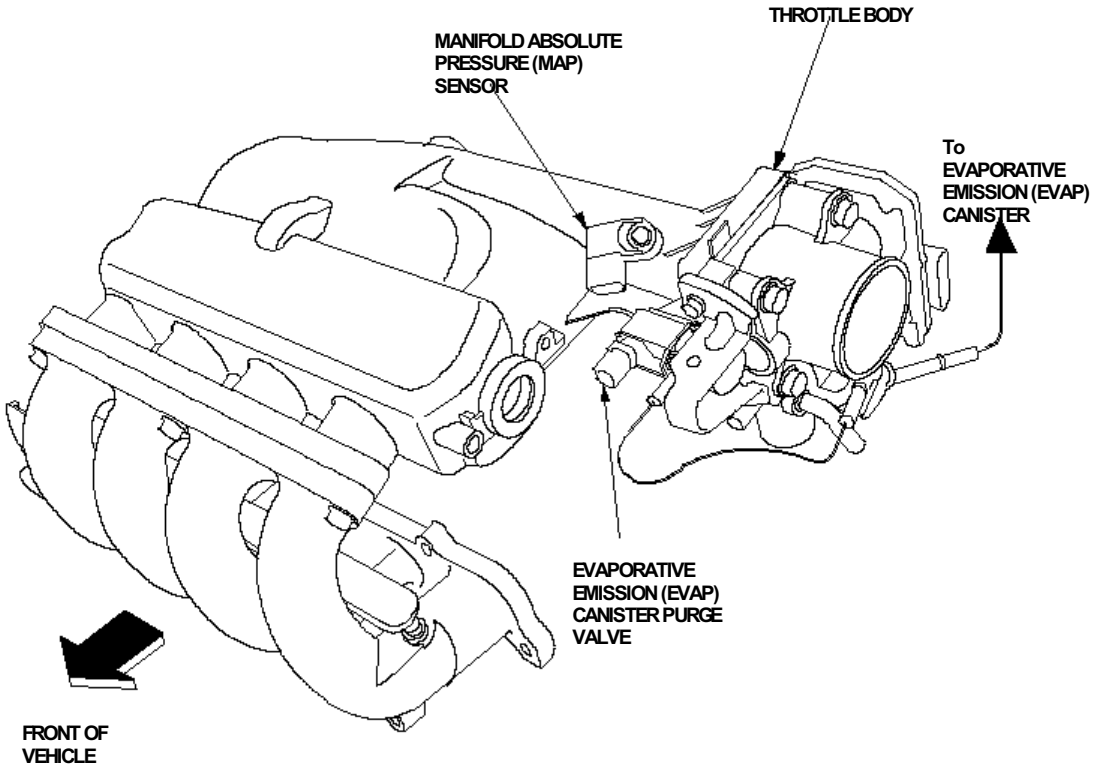
Operation (L15A8 engine)

At low engine speed

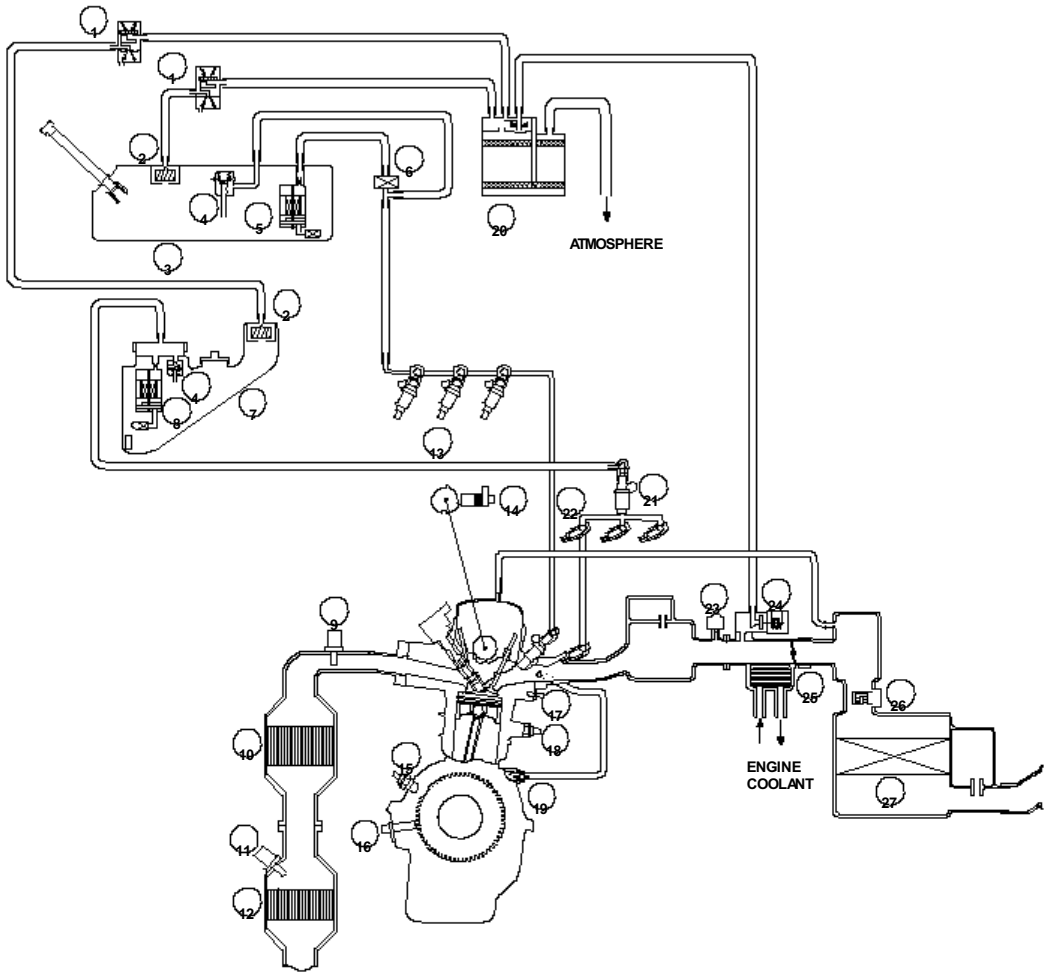
At low engine speed, the rocker arm oil control solenoid is turned off by the ECM/PCM. Oil pressure from the rocker arm oil control valve does not enter the intake rocker shaft. Each intake rocker arm is separated by a return spring and lifted by each valve pause cam (low lift cam) lobe.



Vacuum Hose Routing



Vacuum Distribution

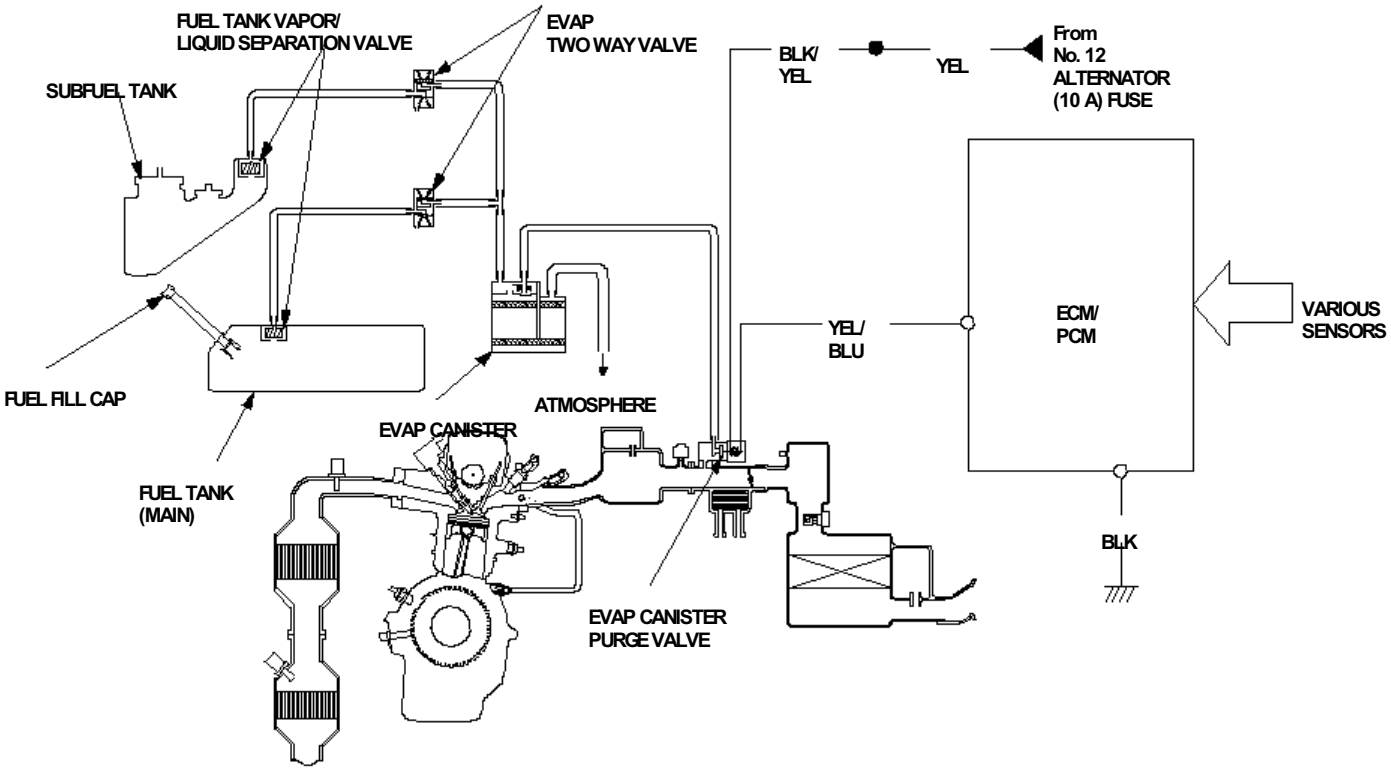


(1) EVAPORATIVE EMISSION (EVAP) TWO WAY VALVE
(2) FUEL TANK VAPOR/LIQUID SEPARATION VALVE
(3) FUEL TANK
(4) FUEL PRESSURE REGULATOR
(5) FUEL PUMP
(6) FUEL FILTER
(7) SUBFUEL TANK
(8) SUBFUEL PUMP
(9) AIR FUEL RATIO (A/F) SENSOR (SENSOR 1)
(10) WARM UP THREE WAY CATALYTIC CONVERTER (WU-TWC)
(11) SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S) (SENSOR 2)
(12) UNDER-FLOOR THREE WAY CATALYTIC CONVERTER (TWC)
(13) INJECTOR
(14) CAMSHAFT POSITION (CMP) SENSOR
(15) OIL PRESSURE SWITCH
(16) CRANKSHAFT POSITION (CKP) SENSOR
(17) ENGINE COOLANT TEMPERATURE (ECT) SENSOR 1
(18) KNOCK SENSOR
(19) POSITIVE CRANKCASE VENTILATION (PCV) VALVE
(20) EVAPORATIVE EMISSION (EVAP) CANISTER
(21) SUBFUEL SOLENOID
(22) FUEL NOZZLE
(23) MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR
(24) EVAPORATIVE EMISSION (EVAP) CANISTER PURGE VALVE
(25) THROTTLE BODY
(26) MASS AIR FLOW (MAF) SENSOR/INTAKE AIR TEMPERATURE (IAT) SENSOR
(27) AIR CLEANER

Evaporative Emission (EVAP) Control Diagram

The EVAP controls minimize the amount of fuel vapor escaping to the atmosphere. Vapor from the fuel tank is temporarily stored in the EVAP canister until it can be purged from the EVAP canister into the engine and burned.

- The EVAP canister is purged by drawing fresh air through it and into a port on the intake manifold.
  The purging vacuum is controlled by the EVAP canister purge valve, which is open whenever engine coolant temperature is above 60 °C (140 °F).
- When vapor pressure in the fuel tank and subfuel tank are higher than the set value of the EVAP two way valves, the valve opens and regulates the flow of fuel vapor to the EVAP canister.



Fuel Supply System

Fuel Cutoff Control

During deceleration with the throttle valve closed, current to the injectors is cut off to improve fuel economy at engine speeds over numbers of revolution below, in some conditions.

L13Z3 engine:

	No load	High electrical load	A/C on
M/T	910 rpm (min $^{-1}$)	960 rpm (min $^{-1}$)	1,500 rpm (min $^{-1}$)
A/T(with ABS)	850 rpm (min $^{-1}$)	960 rpm (min $^{-1}$)	1,200 rpm (min $^{-1}$)
A/T(without ABS)	1,500 rpm (min $^{-1}$)	1,500 rpm (min $^{-1}$)	1,500 rpm (min $^{-1}$)

L15A8 engine:

	No load	High electrical load	A/C on
M/T	910 rpm (min $^{-1}$)	960 rpm (min $^{-1}$)	1,200 rpm (min $^{-1}$)
A/T	850 rpm (min $^{-1}$)		1,500 rpm (min $^{-1}$)

Fuel cutoff also occurs at engine speed over numbers of revolution below, regardless of the position of the throttle valve, to protect the engine. On a cold engine, fuel cut occurs at a lower engine speed.

	Vehicle speed over 20 km/h (12 mph)	Vehicle speed under 20 km/h (12 mph)
M/T	6,600 rpm (min $^{-1}$)	4,800 rpm (min $^{-1}$)
A/T		5,000 rpm (min $^{-1}$)

Fuel Pump Control

When the ignition is turned on, the ECM/PCM grounds PGM-FI main relay 2 which feeds current to the fuel pump for 2 seconds to pressurize the fuel system. With the engine running, the ECM/PCM grounds PGM-FI main relay 2 and feeds current to the fuel pump. When the engine is not running and the ignition is on, the ECM/PCM cuts ground to PGM-FI main relay 2 which cuts current to the fuel pump.

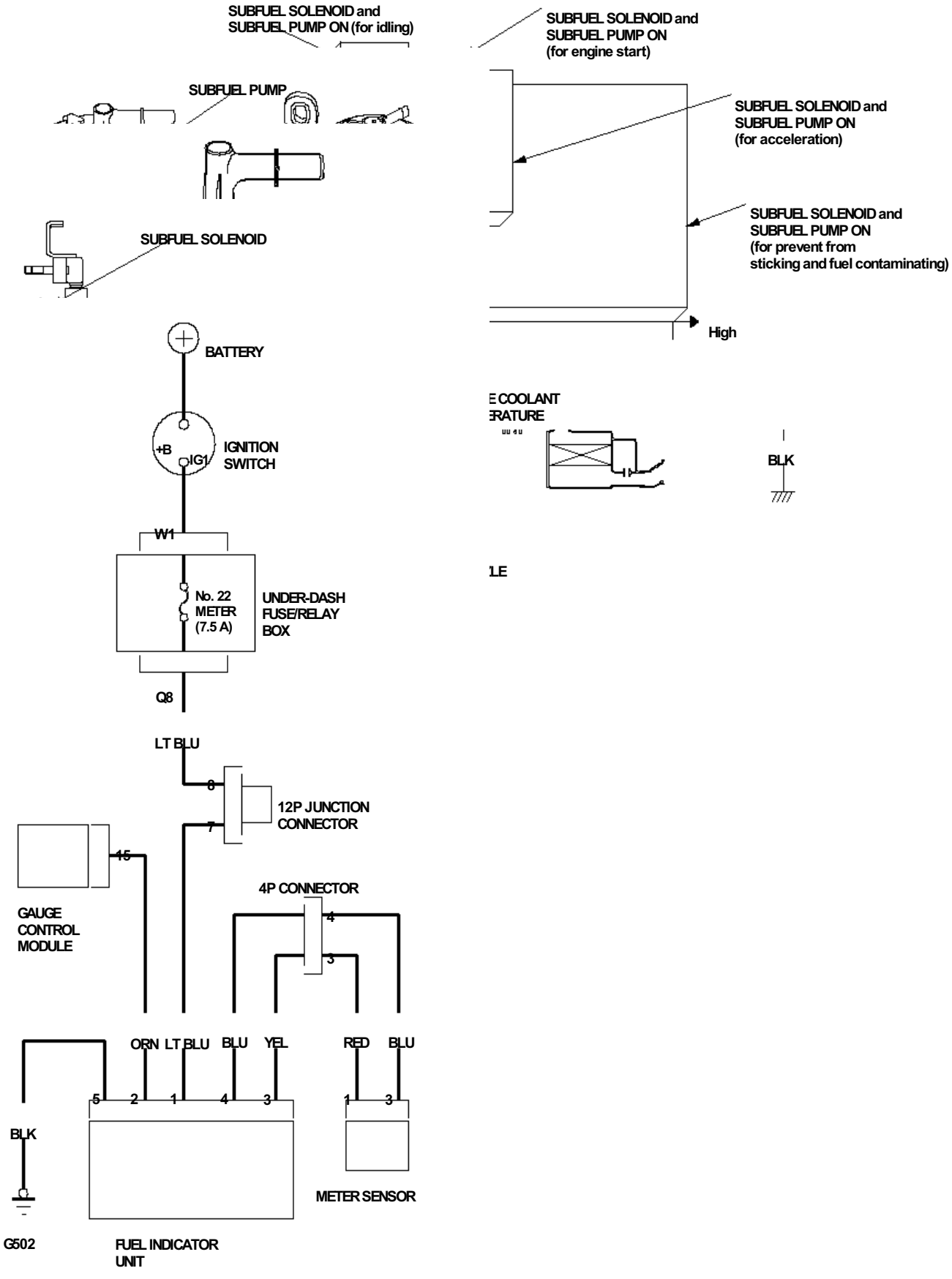
PGM-FI Main Relay 1 and 2

PGM-FI main relay 1 is energized whenever the ignition switch is ON (II) to supply battery voltage to the ECM/PCM, power to the injectors, and power for PGM-FI main relay 2. PGM-FI main relay 2 is energized to supply power to the fuel pump for 2 seconds when the ignition switch is turned to ON (II), and when the engine is cranking or running.

Subfuel Supply System

The subfuel supply system consists of the subfuel pump, the subfuel tank, the subfuel pipe, the subfuel solenoid, the subfuel pipe, the fuel nozzle, the EVAP two way valve, the EVAP canister, and the ECM/PCM.

When engine start in cold temperature, the subfuel solenoid supplies fuel to the intake manifold. When the ignition switch is ON (II), the subfuel pump is ON, to prevent from fuel sticking and contaminating.



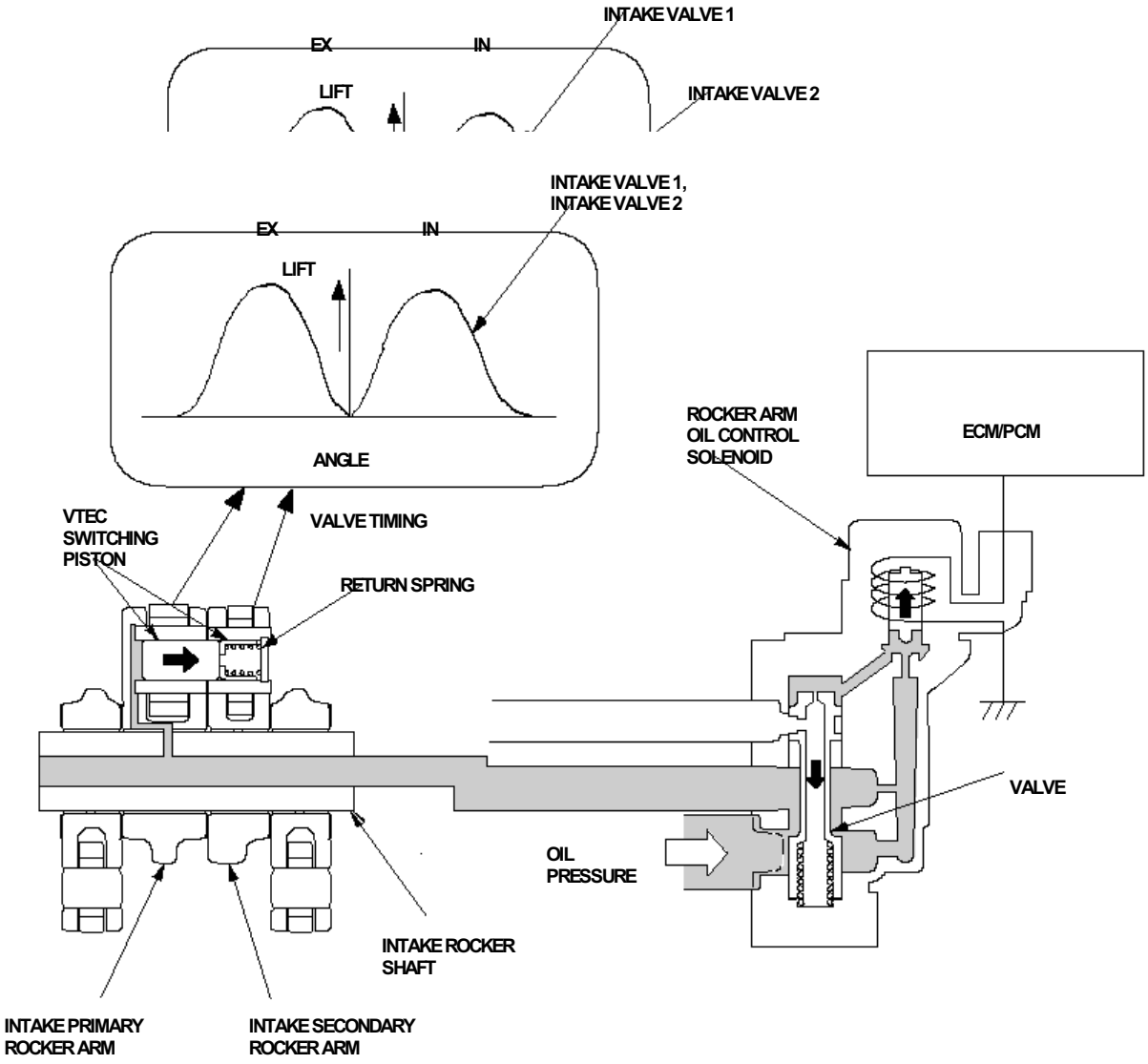
VTEC System (L13Z1 engine)

- This mechanism improves fuel efficiency and reduces exhaust emissions at all levels of engine speed, vehicle speed, and engine load.
- The VTEC system changes the cam profile to correspond to engine speed. It maximizes torque at low engine speed and output at high engine speed.
- The valve pause cam (low lift cam) is used at low engine speeds, and the high lift cam is used at high engine speeds.
- The rocker arm oil control solenoid switches the intake valve side of the VTEC system on and off; the solenoid is controlled by the ECM/PCM.

Operation (L13Z1 engine)

At low engine speed

At low engine speed, the rocker arm oil control solenoid is turned off by the ECM/PCM. Oil pressure from the rocker arm oil control valve does not enter the intake rocker shaft. Each intake rocker arm is separated by a return spring and lifted by each valve pause cam (low lift cam) lobe.



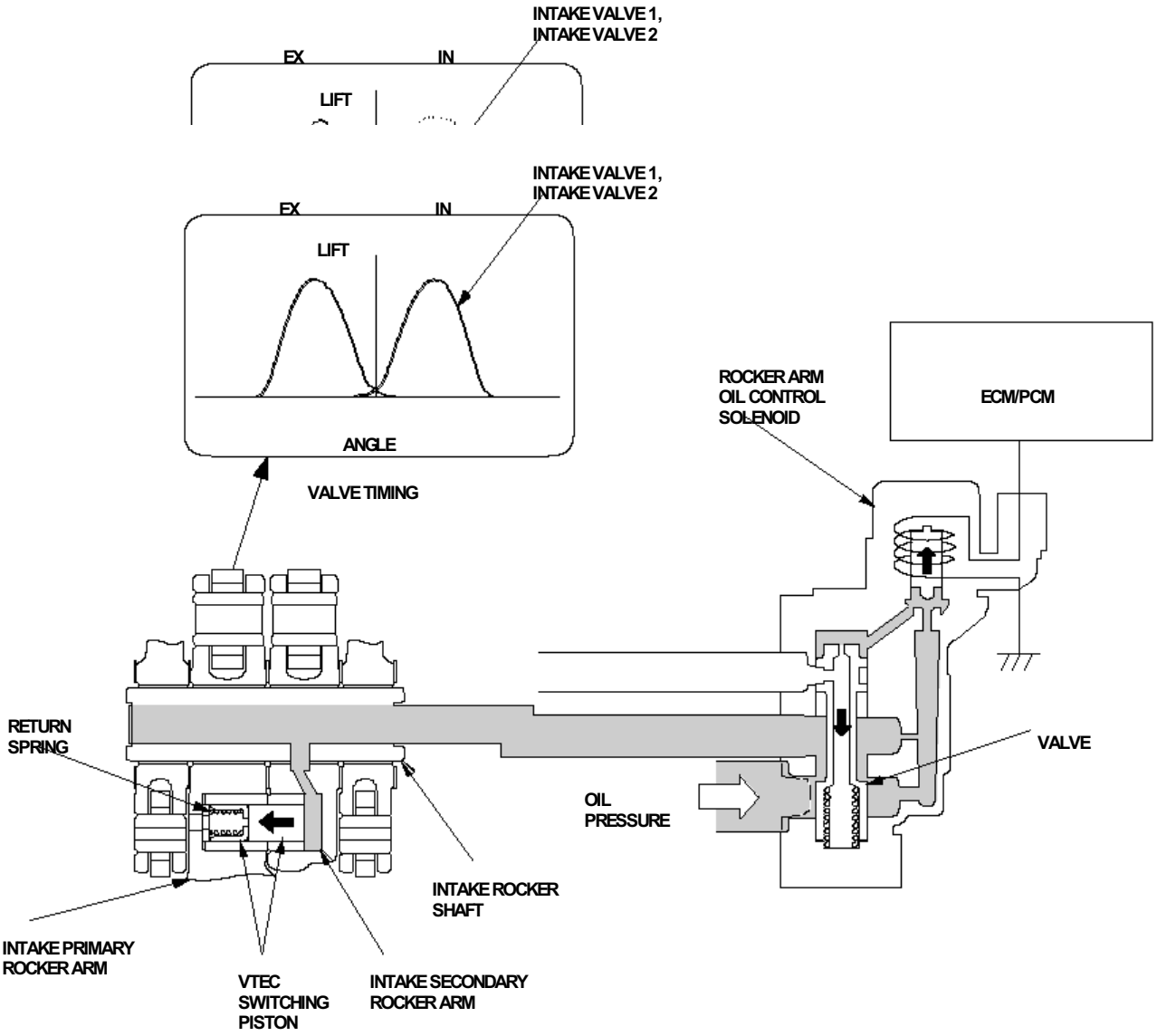
VTEC System (L15A7 engine)

- This mechanism improves fuel efficiency and reduces exhaust emissions at all levels of engine speed, vehicle speed, and engine load.
- The VTEC system changes the cam profile to correspond to engine speed. It maximizes torque at low engine speed and output at high engine speed.
- The low lift cam is used at low engine speeds, and the high lift cam is used at high engine speeds.
- The rocker arm oil control solenoid switch the both intake valves side of the VTEC system on and off; the solenoid is controlled by the ECM/PCM.

Operation (L15A7 engine)

At low engine speed

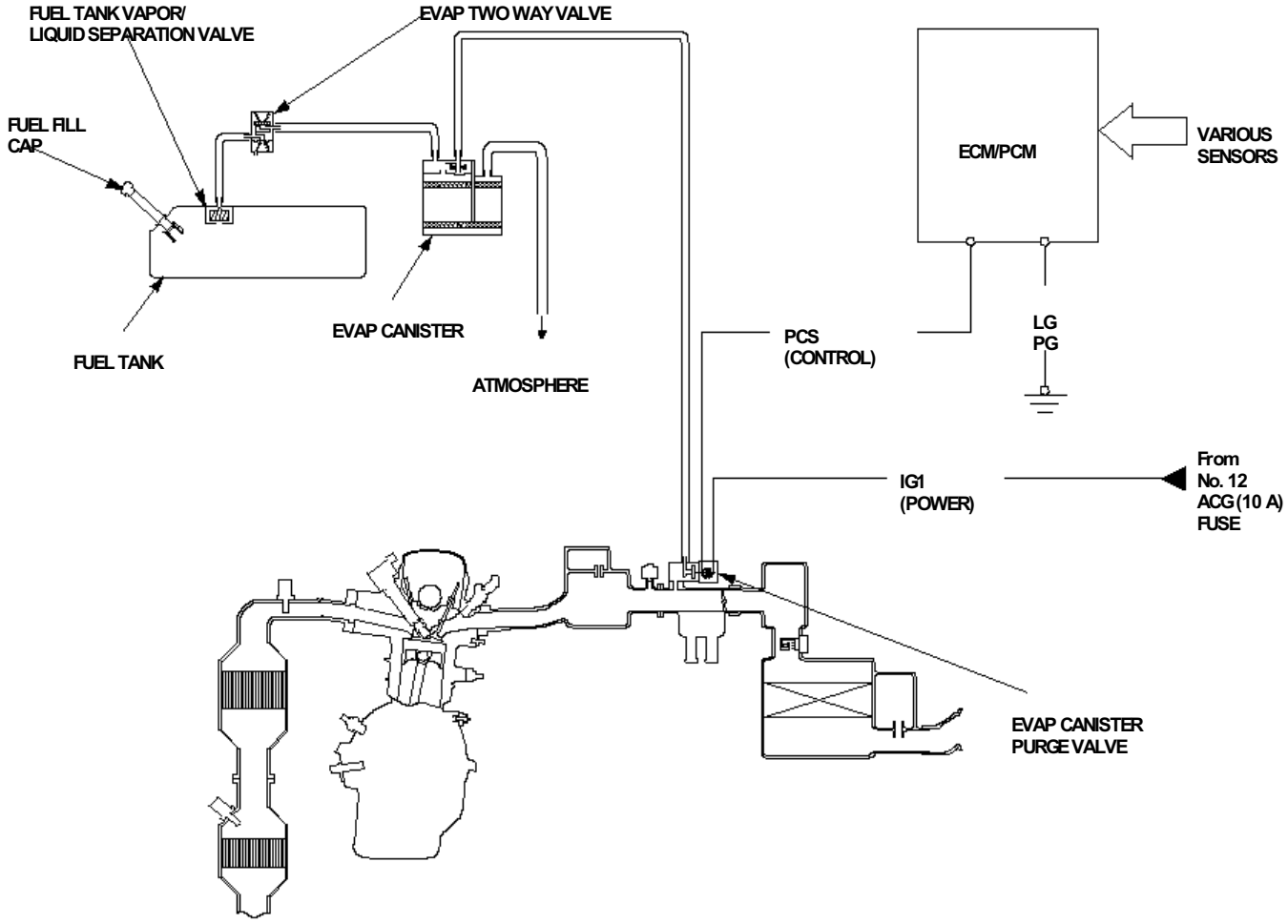
At low engine speed, the rocker arm oil control solenoid is turned off by the ECM/PCM. Oil pressure from the rocker arm oil control valve does not enter the intake rocker shaft. Both intake rocker arms are lifted by low lift cam lobe.



Evaporative Emission (EVAP) Control Diagram

The EVAP controls minimize the amount of fuel vapor escaping to the atmosphere. Vapor from the fuel tank is temporarily stored in the EVAP canister until it can be purged from the EVAP canister into the engine and burned.

- The EVAP canister is purged by drawing fresh air through it and into a port on the intake manifold.
  The purging vacuum is controlled by the EVAP canister purge valve, which is open whenever the engine coolant temperature is above 60 °C (140 °F).
- When vapor pressure in the fuel tank is higher than the set value of the EVAP two way valve, the valve opens and regulates the flow of fuel vapor to the EVAP canister.



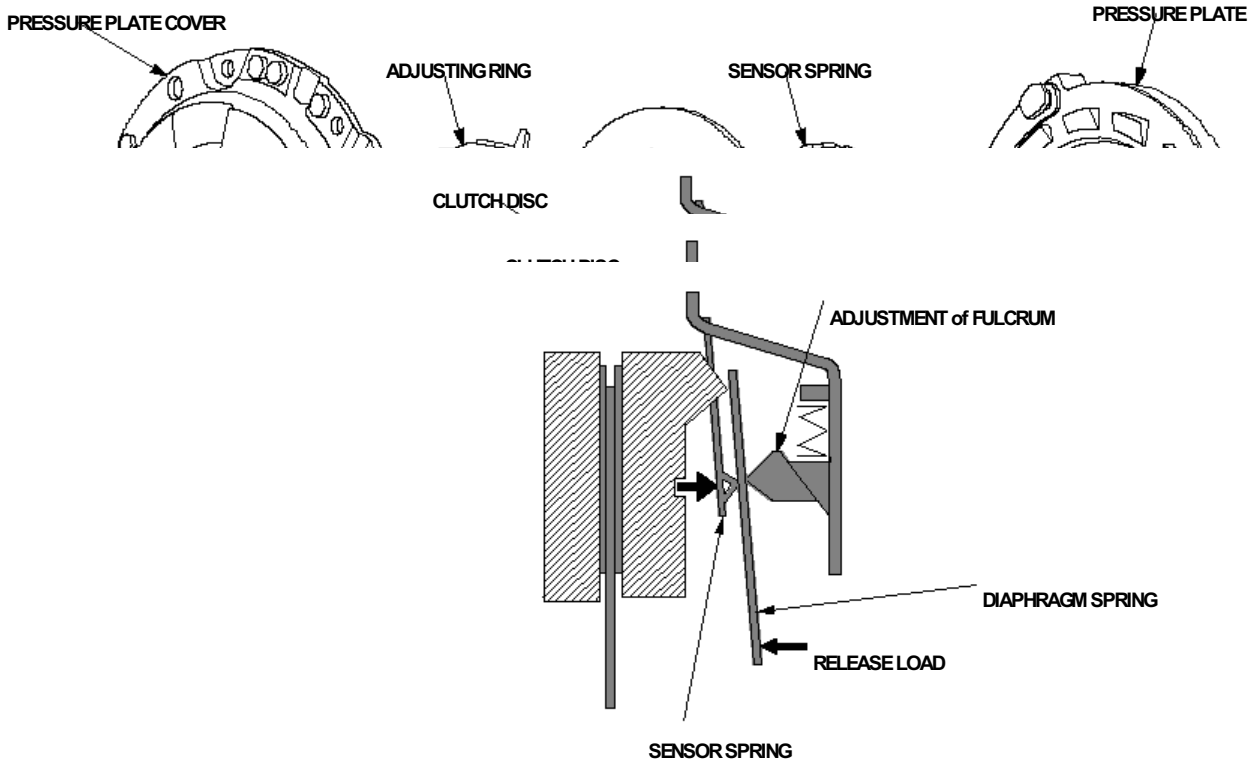
Self-Adjusting Clutch (SAC)

Function

On ordinary clutches, the clutch load increases as the clutch disc wears. The self-adjusting clutch is designed so that the clutch load will not increase even when the clutch disc wears. This is done by automatically adjusting the fulcrum of the diaphragm spring in accordance with the wear of the clutch disc. The clutch load stays consistent even when the clutch disc is worn.

Construction

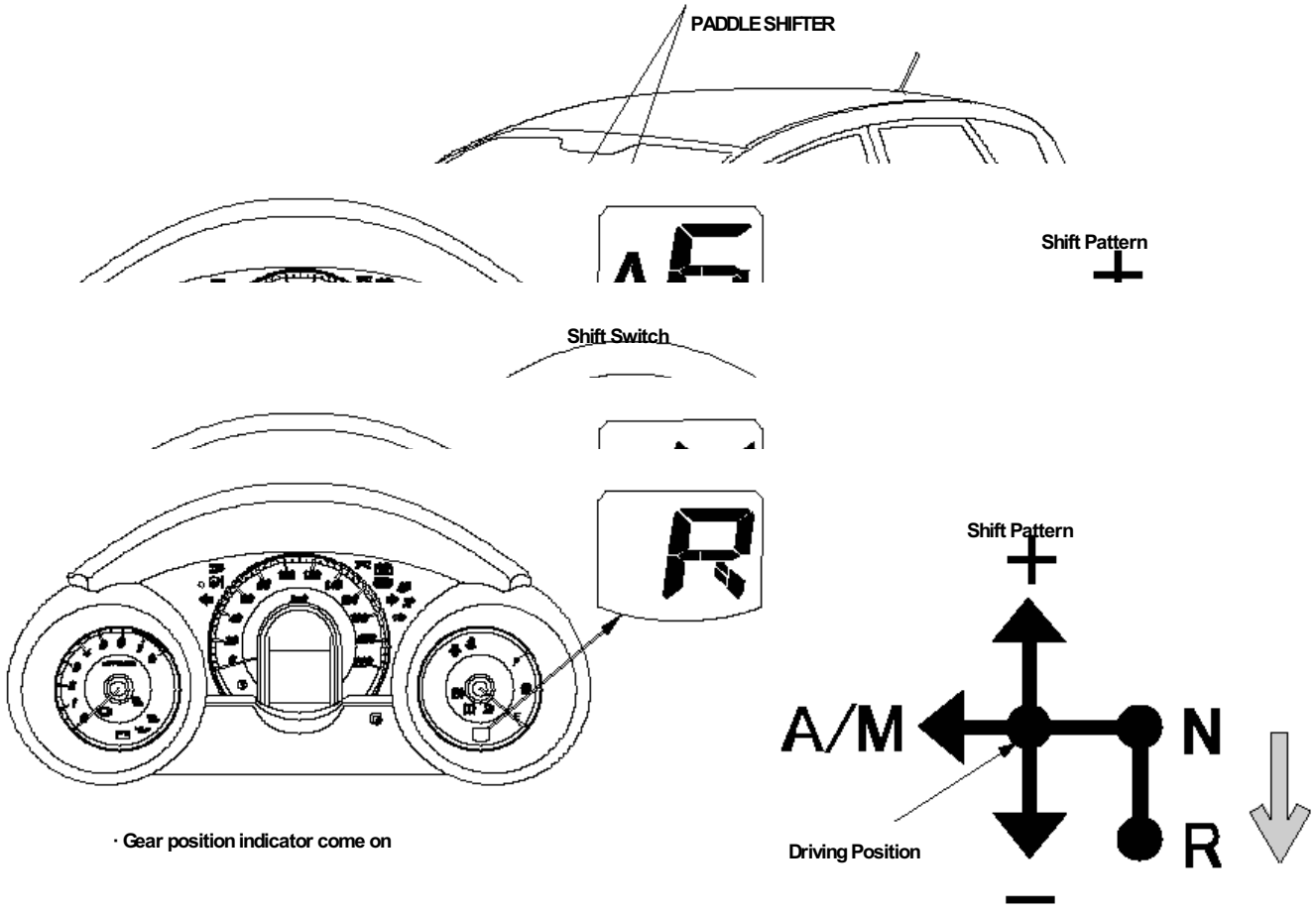
The self-adjusting clutch consists of a pressure plate, a sensor spring, a diaphragm spring, an adjusting ring, three coil springs, a pressure plate cover. They are riveted together and must not be disassembled. If there is problem with any part of the pressure plate or clutch disc, they must be replaced as a set.



i-SHIFT

Function

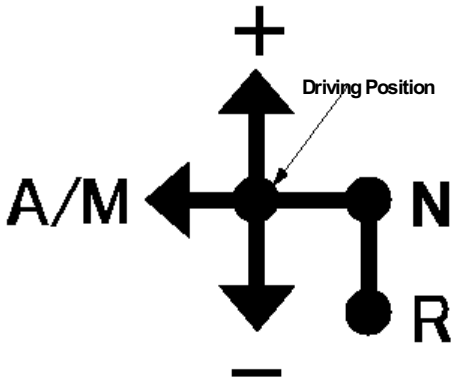
The i-SHIFT system is a system where the Transmission Control Module (TCM) determines the optimal condition based on the vehicle's change of wheel speed due to the operation of the accelerator and brakes, and then the actuator changes the vehicle speed.
i-SHIFT system enables switchover between Auto mode and Manual mode.
In the Auto mode, it automatically shifts gear appropriate for the driving condition, based on the shift transmission characteristics in the Transmission Control Module (TCM).
In the Manual mode, changing gears is done manually by using the shift lever or the paddle shifter.
While driving, the gear range is shown in the speedometer, and if abnormalities or malfunctions occur, a warning is displayed in the i-SHIFT indicator of the gauge control module and the multi-information display.



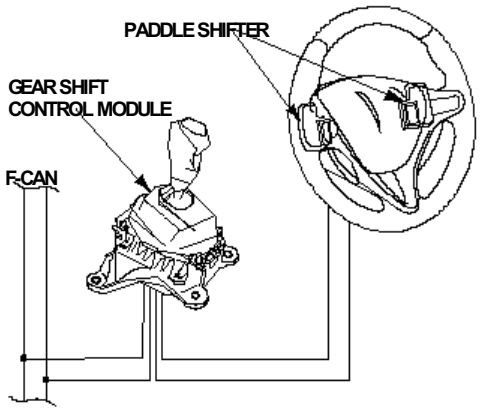
Gear Shift Control Module and Paddle Shifter

Function

The gear shift control module, TCM, and combination meter are communicated through the F-CAN.
The gear shift control module is equipped with magnet and shift lever position sensor that determines the driver's operation of the shift lever, and the gear shift control module sends the shift position signal to the TCM. The TCM sends the gear shifting information to the combination meter.
The paddle shifter at the steering wheel has the same ‘‘+" and ‘‘−" functions as the gear shift control module, and the operation signals passes through the gear shift control module and are sent to the TCM.
The gear shift control module has Detent mechanism that secures a smooth feel when the shift lever is operated.
Shift lever position is kept at ‘‘N", ‘‘R", or Driving Position, and when ‘‘+", ‘‘−", or ‘‘A/M" is selected, it goes to Driving Position.

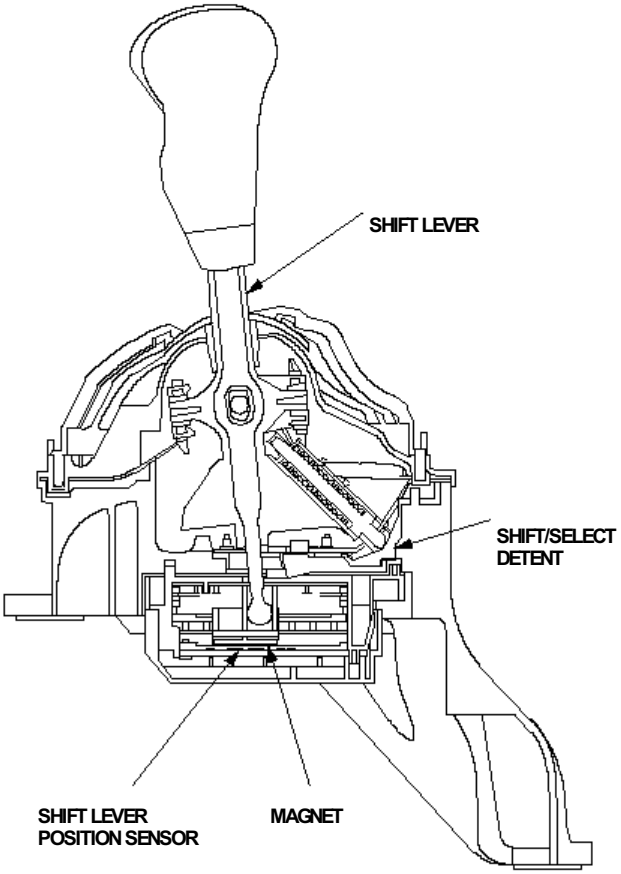


Shift Pattern



Operation

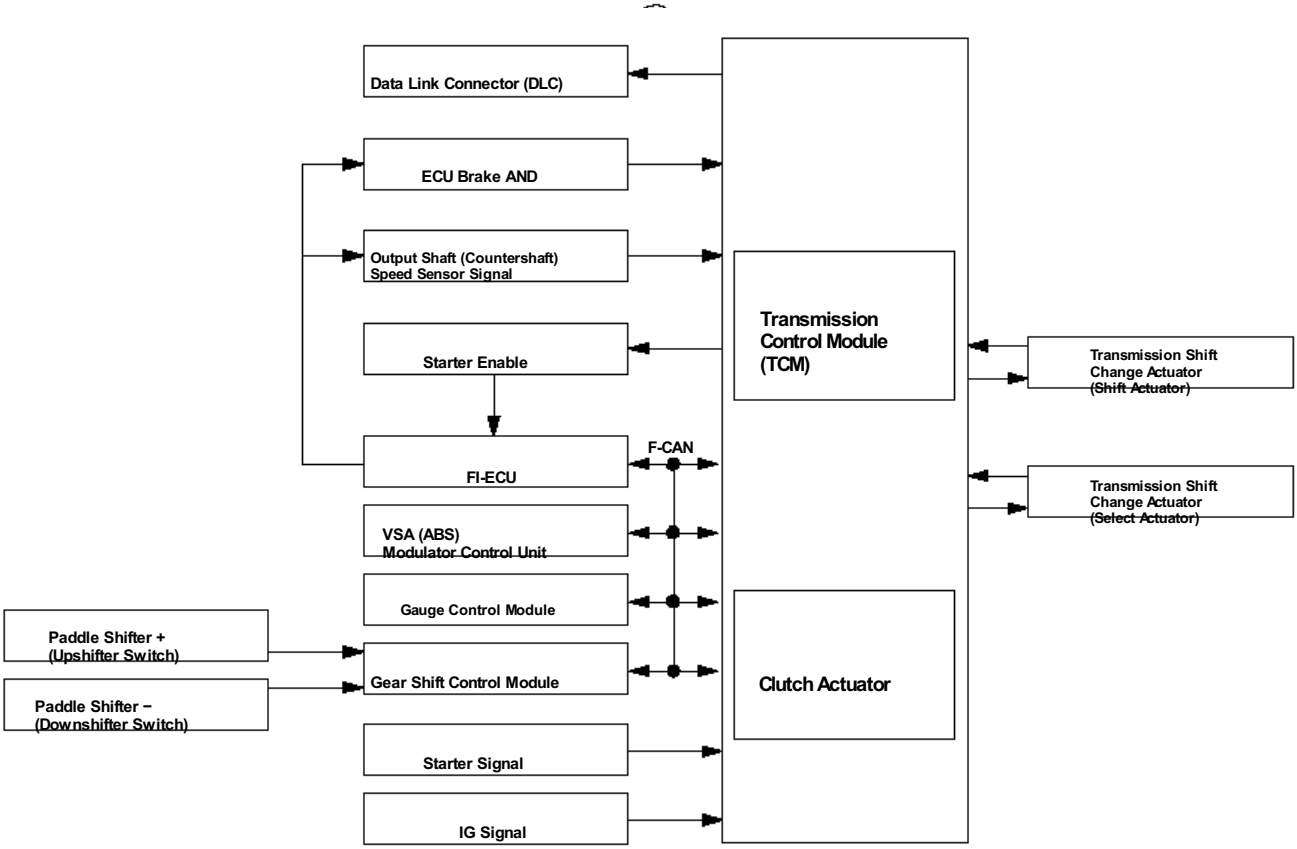
Driver operates the shift lever
↓
The magnet under the shift lever moves
↓
Detect position the magnet by the shift lever position sensor
↓
Judge a position by the CPU inside of the gear shift control module
↓
Output it as a CAN signal



Transmission Control Module (TCM)

Function

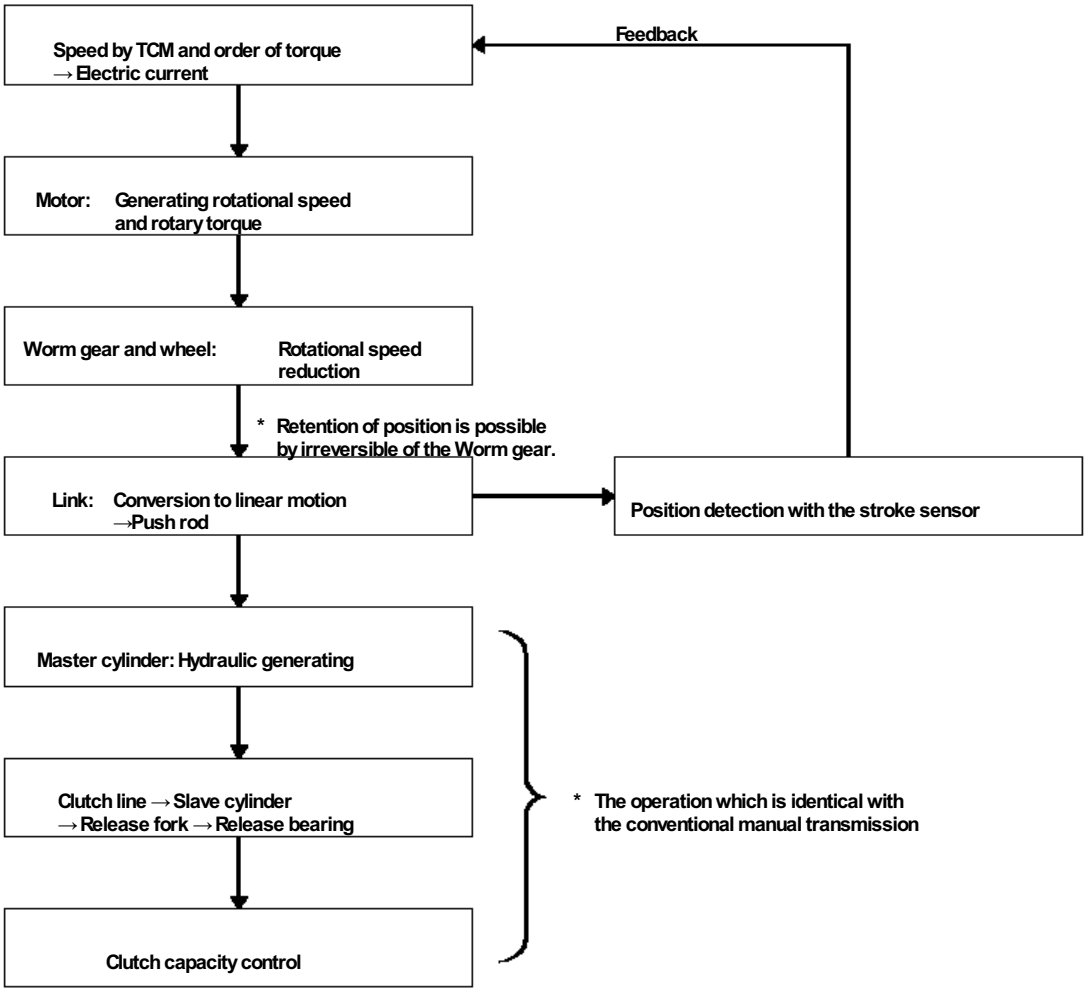
The TCM and Clutch Actuator are integrated in one unit.
The TCM determines the optimal gear-shifting condition based on the inputs from the sensors, switch signals, and F-CAN.



Clutch Actuator

Function

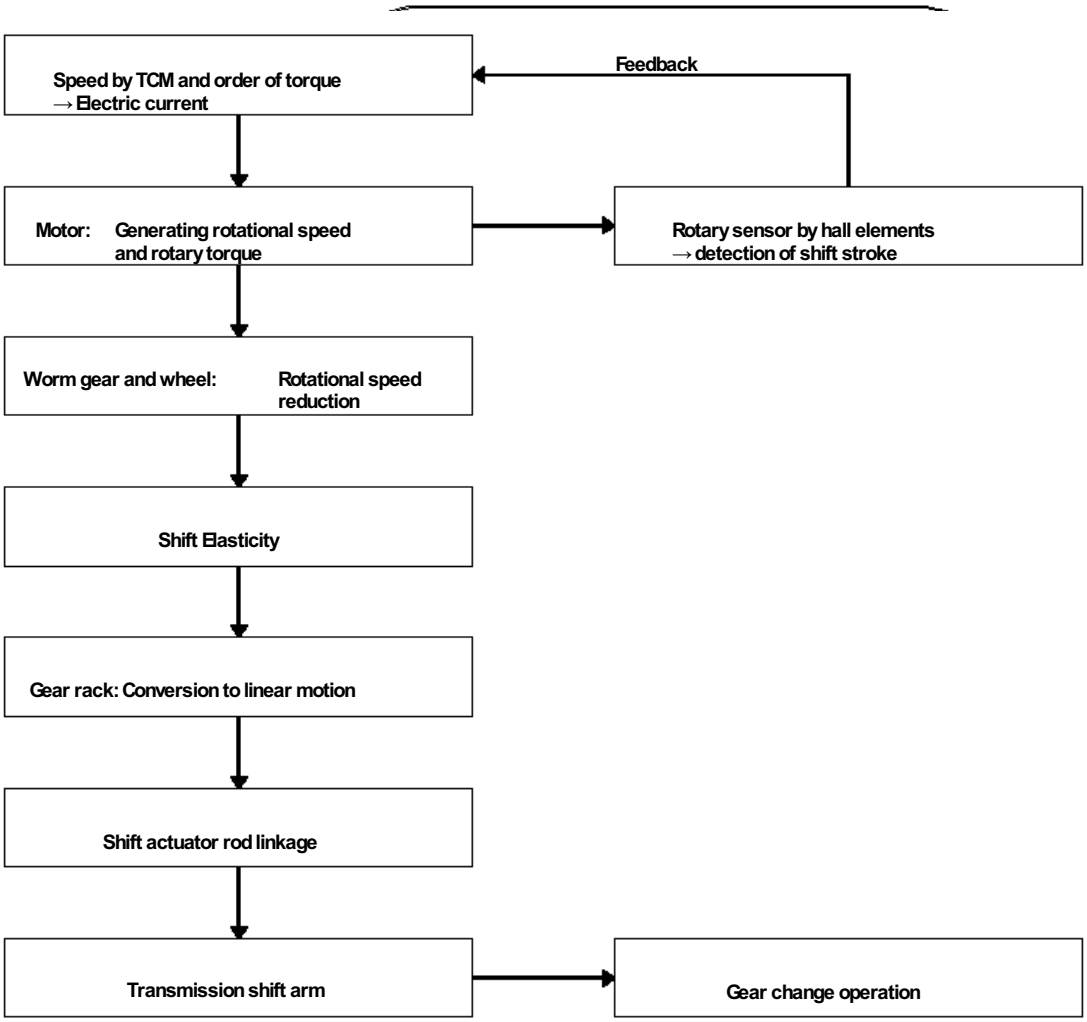
The Clutch Actuator is controlled by the TCM and is integrated in one unit with the TCM.
The Clutch Actuator consists of the clutch actuator motor section, gear/link mechanical section, and the master cylinder section.
Through the control signals from the TCM, the clutch actuator motor operates, then the rotational movement is converted to linear movement through the link mechanism, and the master cylinder is operated. Like the conventional manual transmission, the hydraulic pressure from the master cylinder operates the sleeve cylinder.
In the gear/link mechanical part, by using worm gear and wheel gear, retaining the push rod position is possible, and by detecting the position by the stroke sensor, realizing accurate clutch operation.

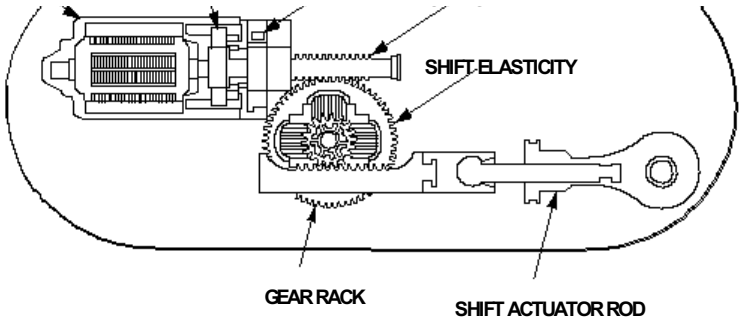


Transmission Shift Change Actuator (Shift Actuator Motor)

Function

The transmission shift change actuator is integrated with the shift actuator in one unit.
The shift actuator is connected to the shift lever of the manual transmission; and is composed of the motor section, gear section, and the shift actuator rod. This replaces the cable operation of the shift lever in conventional manual transmission.
By the control signals from the TCM, the motor operates; and by pushing the shift actuator rod through the gear mechanism, the transmission shift lever is operated. At this point, the position sensor detects the position of the transmission shift lever.
The shift elasticity protects the actuator and transmission by neutralizing the impact load, and shortens operation time.

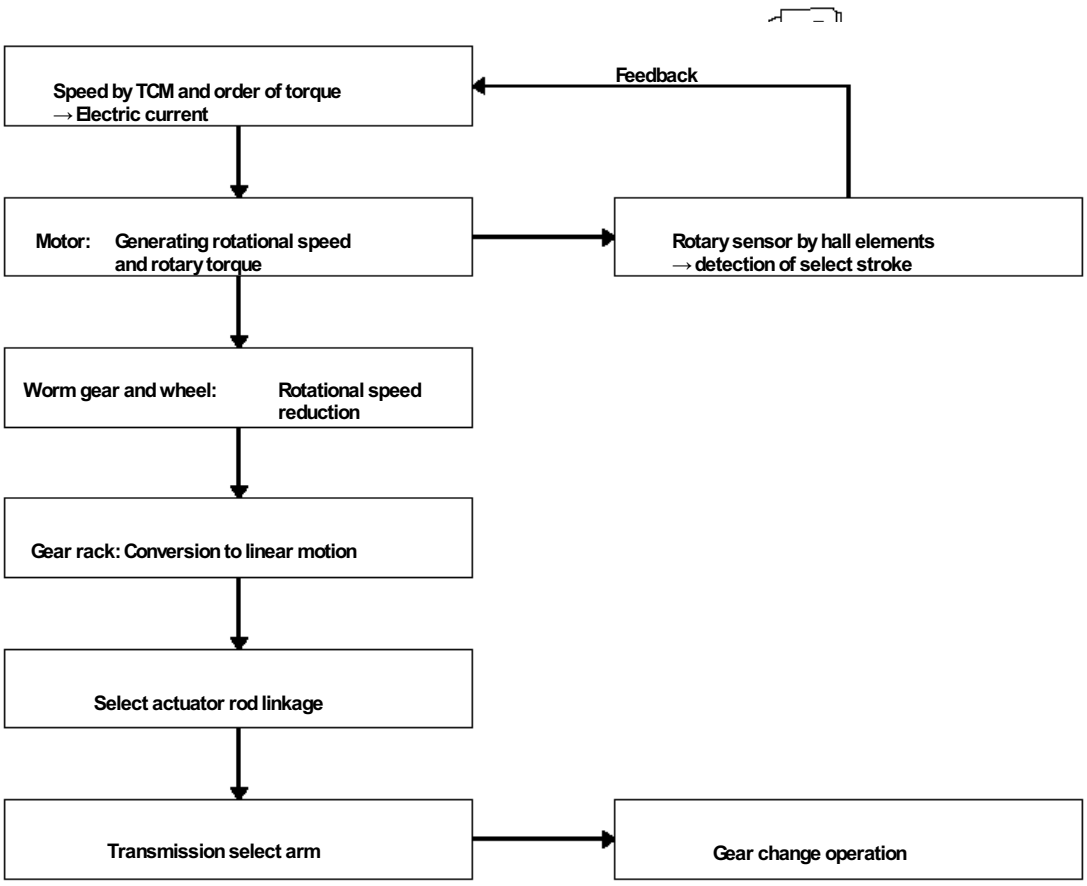




Transmission Shift Change Actuator (Select Actuator Motor)

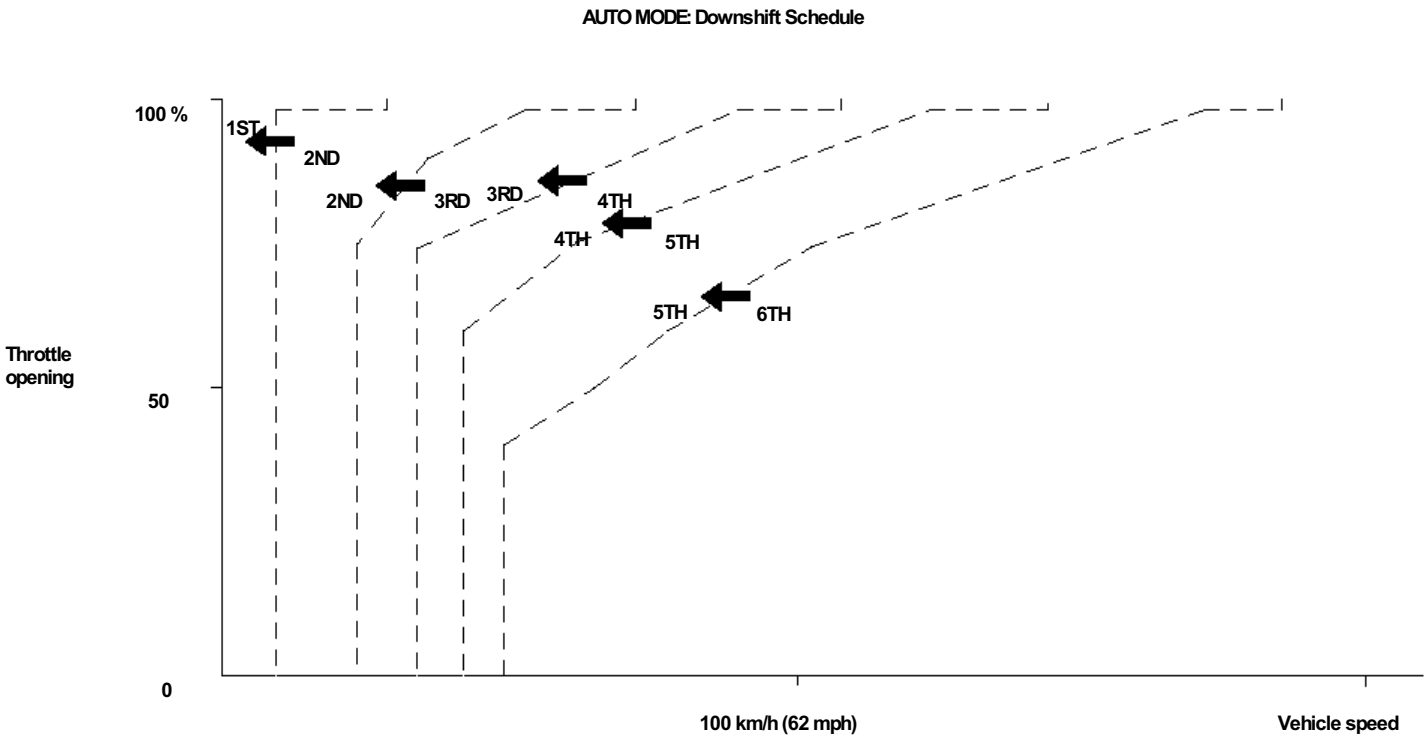
Function

The select actuator is connected to the select lever of the manual transmission; and is composed of the motor section, gear section, and the shift rod. This replaces the cable operation of the select lever in conventional manual transmission.
By the control signals from the TCM, the motor operates; and by pushing the shift rod through the gear mechanism, the Transmission select lever is operated. At this point, the position sensor detects the position of the transmission select lever.



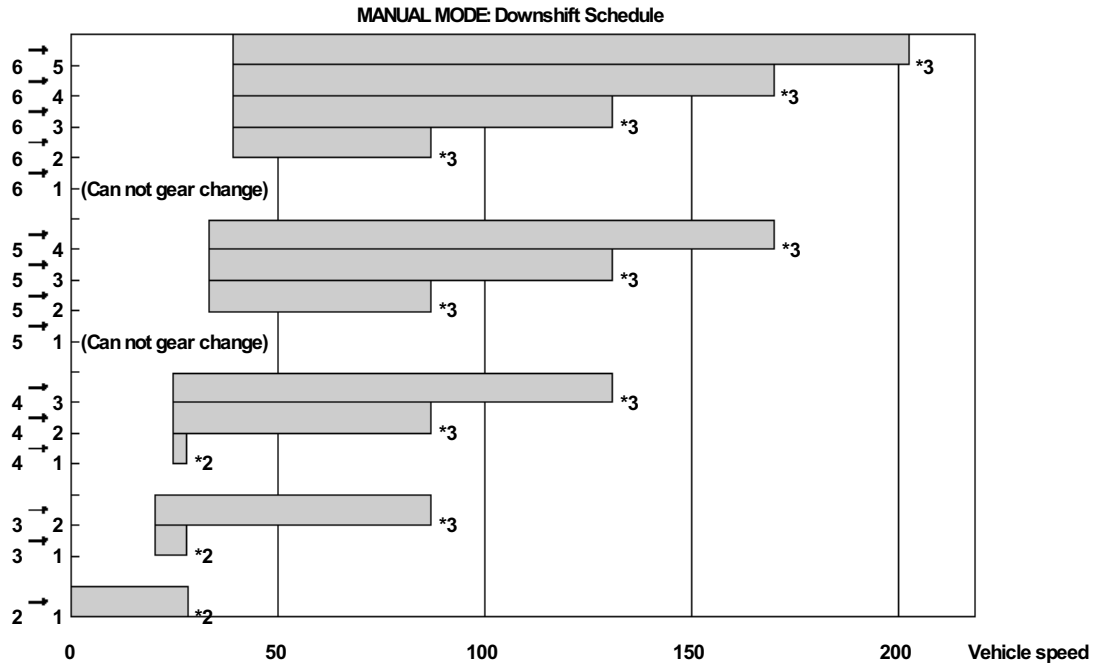
Auto Mode Gear-shifting Map

At Auto Mode, the gear is shifted according to the throttle opening and vehicle speed. The vehicle speed for a throttle opening while driving is shown in the gear-shifting characteristics graph.



Manual Mode Gear-shifting Map

In the Manual Mode, while the driver selects the gear-shifting gear, gear-shift position is regulated so as to protect the system and prevent accident.
The gear shift position for the vehicle speed while driving is shown in the gear-shifting map.
The TCM regulates the shifting of gears according to the driving condition. If operating time is 110 ms (60 ms for ON, 50 ms for OFF) or below, it is taken as a signal noise and shifting gear is not done. Also, in shifting to another gear, skipping a gear is not possible.

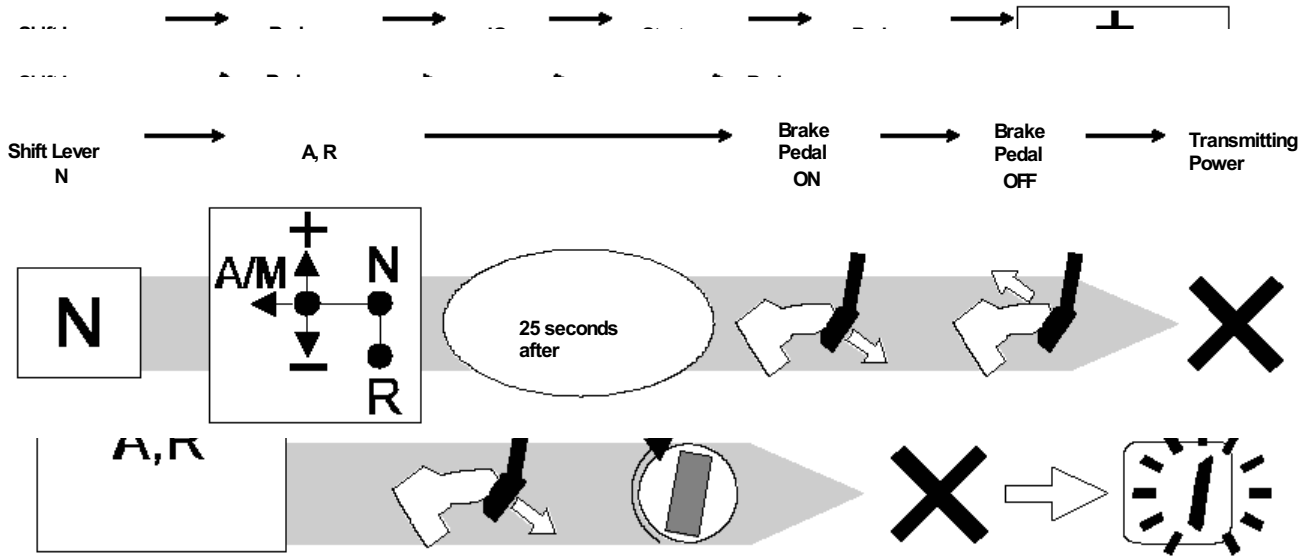


***2. Downshift to 1st gear is possible when the vehicle speed is equal or above the speed when the rotational speed in 1st gear is Rev. limit x 0.6.**

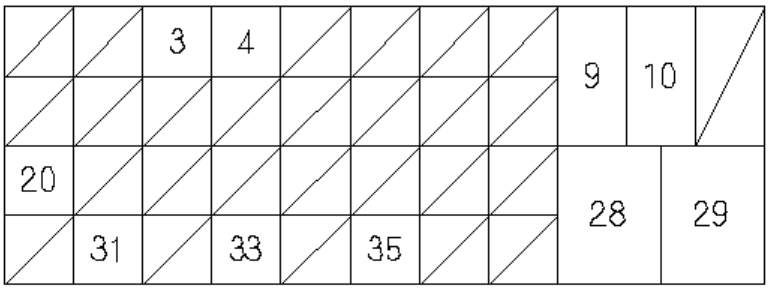
***3. To prevent over-Rev, set the rotational speed after downshift to Rev. limit-500 rpm.**

Prevents Mis-shifting System

Engine startup is impossible if the shift indicator shows an ‘‘I" or ‘‘R" condition, even if shift lever is in driving position. Also, the Position Indicator warns by blinking. When starting the engine, turn the shift position to ‘‘N".

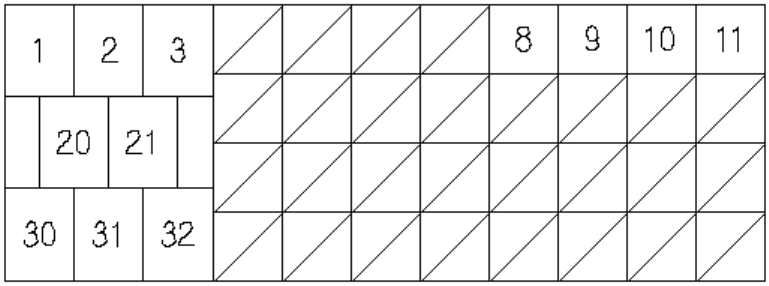


TCM Inputs and Outputs at Connector A (37P)



Terminal side of female terminals

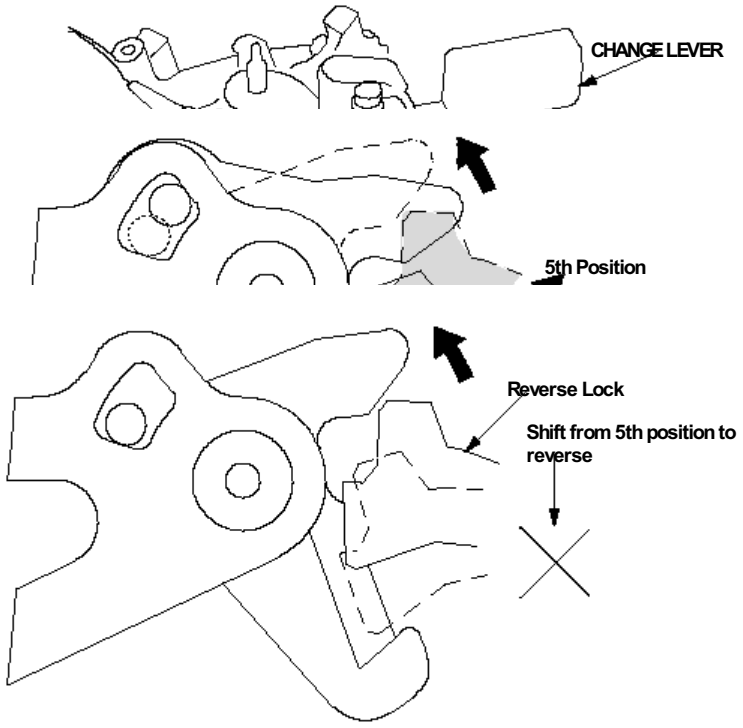
TCM Inputs and Outputs at Connector B (42P)

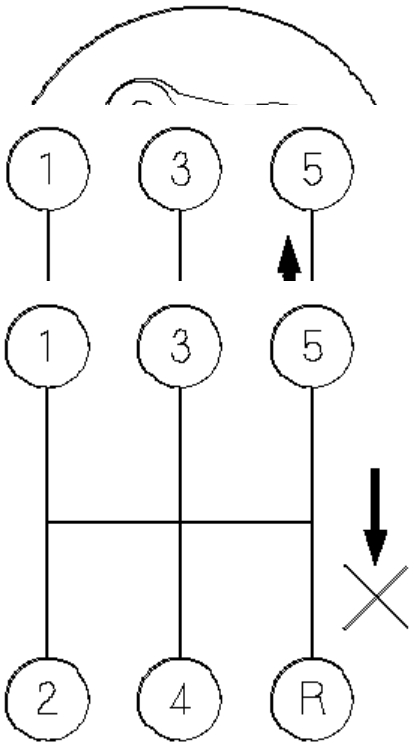


Terminal side of female terminals

Reverse Lockout System

The reverse lockout system prevents an inadvertent shift from 5th gear to reverse.





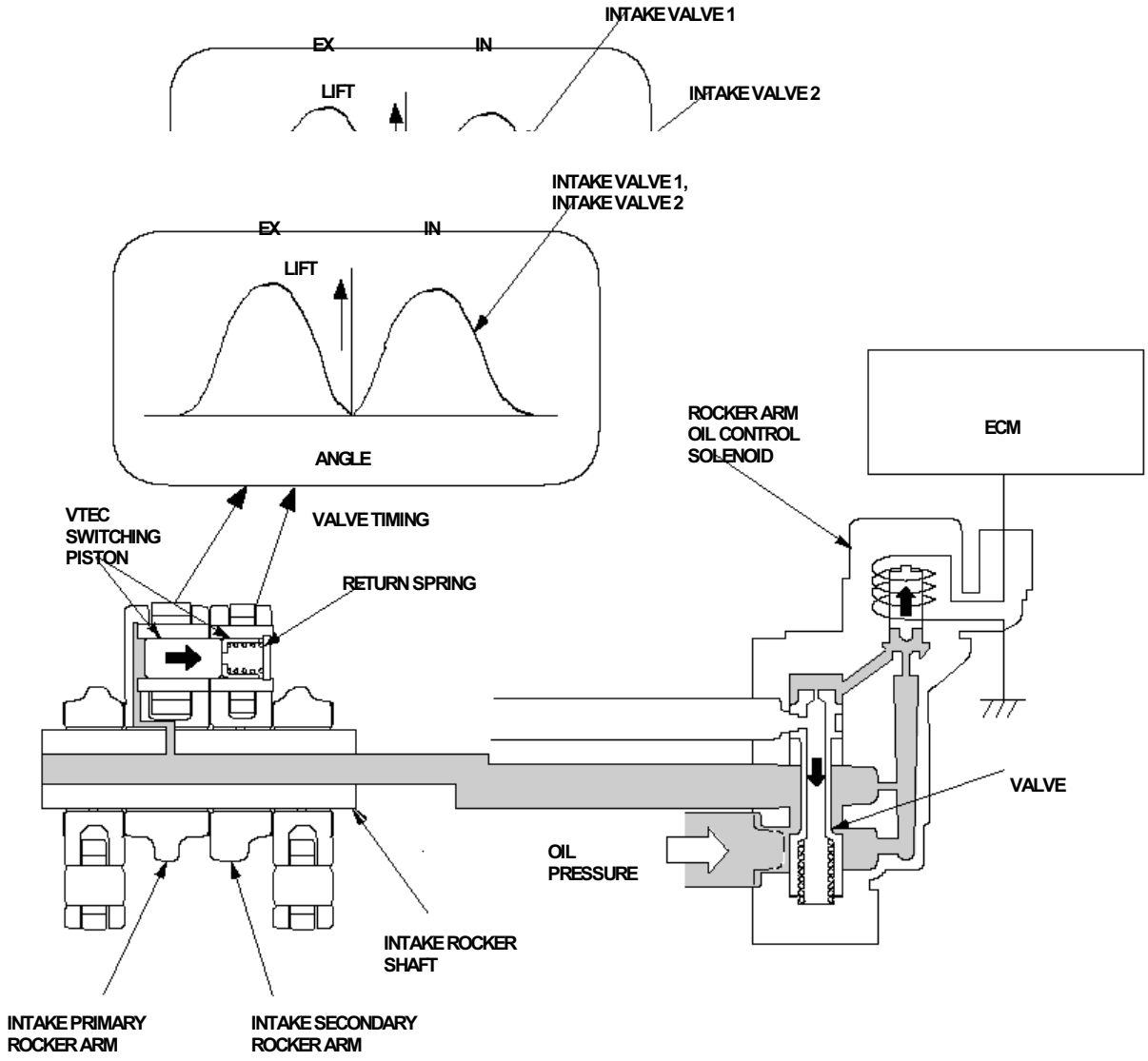
VTEC System (L12B1 engine)

- This mechanism improves fuel efficiency and reduces exhaust emissions at all levels of engine speed, vehicle speed, and engine load.
- The VTEC system changes the cam profile to correspond to engine speed. It maximizes torque at low engine speed and output at high engine speed.
- The valve pause cam (low lift cam) is used at low engine speeds, and the high lift cam is used at high engine speeds.
- The rocker arm oil control solenoid switches the intake valve side of the VTEC system on and off; the solenoid is controlled by the ECM.

Operation (L12B1 engine)

At low engine speed

At low engine speed, the rocker arm oil control solenoid is turned off by the ECM. Oil pressure from the rocker arm oil control valve does not enter the intake rocker shaft. Each intake rocker arm is separated by a return spring and lifted by each valve pause cam (low lift cam) lobe.



Maintenance Schedule for Normal and Severe Conditions - Australia

20,000km(1year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Australia

40,000km(2year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Inspect and adjust drive belt
  Look for cracks and damage, then check the deflection and tension.
- Check parking brake adjustment
  Check the parking brake operation.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Australia

60,000km(3year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Replace Manual Transmission Fluid
  Use genuine Honda MTF.
- Replace Automatic Transmission Fluid
  Use genuine Honda ATF-Z1.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Australia

80,000km(4year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace fuel filter**
- **Inspect and adjust drive belt**
  Look for cracks and damage, then check the deflection and tension.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Australia

100,000km(5year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace Automatic Transmission Fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Australia

120,000km(6year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Inspect and adjust drive belt**
  Look for cracks and damage, then check the deflection and tension.
- **Inspect idle speed**
- **Replace Manual Transmission Fluid**
  Use genuine Honda MTF.
- **Replace Manual Transmission Fluid**
  Use genuine Honda MTF.
- **Replace Automatic Transmission Fluid**
  Use genuine Honda ATF-Z1.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**

- Check the boot and boot band for cracks.
- Check rack grease.

Every 30,000 km (18,750 miles)

Replace air cleaner element

Every 40,000 km (25,000 miles)

Inspect valve clearance

Every 100,000 km (62,500 miles)

Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

Replace engine coolant

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

Check front and rear brakes

- Check the brake pad and disc thickness. Check for damage.
- Check the calipers for damage, leaks, and tightness.

Every 3 years

Replace brake fluid

- Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
- Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

Rotate tyres

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Australia

140,000km(7year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for “severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace Automatic Transmission Fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Australia

160,000km(8year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace fuel filter**
- **Inspect and adjust drive belt**
  Look for cracks and damage, then check the deflection and tension.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Australia

180,000km(9year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Replace Manual Transmission Fluid
  Use genuine Honda MTF.
- Replace Automatic Transmission Fluid
  Use genuine Honda ATF-Z1.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Australia

200,000km(10year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for “severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Inspect and adjust drive belt
  Look for cracks and damage, then check the deflection and tension.
- Replace Automatic Transmission Fluid
  Use genuine Honda ATF-Z1.
- Check parking brake adjustment
  Check the parking brake operation.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Australia

12,000miles(1year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Australia

25,000miles(2year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for “severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Inspect and adjust drive belt
  Look for cracks and damage, then check the deflection and tension.
- Check parking brake adjustment
  Check the parking brake operation.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Australia

37,000miles(3year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Replace Manual Transmission Fluid
  Use genuine Honda MTF.
- Replace Automatic Transmission Fluid
  Use genuine Honda ATF-Z1.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Australia

50,000miles(4year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace fuel filter**
- **Inspect and adjust drive belt**
  Look for cracks and damage, then check the deflection and tension.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Australia

62,000miles(5year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace Automatic Transmission Fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Australia

75,000miles(6year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Inspect and adjust drive belt**
  Look for cracks and damage, then check the deflection and tension.
- **Inspect idle speed**
- **Replace Manual Transmission Fluid**
  Use genuine Honda MTF.
- **Replace Manual Transmission Fluid**
  Use genuine Honda MTF.
- **Replace Automatic Transmission Fluid**
  Use genuine Honda ATF-Z1.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**

- Check the boot and boot band for cracks.
- Check rack grease.

Every 30,000 km (18,750 miles)

Replace air cleaner element

Every 40,000 km (25,000 miles)

Inspect valve clearance

Every 100,000 km (62,500 miles)

Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

Replace engine coolant

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

Check front and rear brakes

- Check the brake pad and disc thickness. Check for damage.
- Check the calipers for damage, leaks, and tightness.

Every 3 years

Replace brake fluid

- Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
- Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

Rotate tyres

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Australia

87,000miles(7year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace Automatic Transmission Fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Australia

100,000miles(8year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace fuel filter**
- **Inspect and adjust drive belt**
  Look for cracks and damage, then check the deflection and tension.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Australia

112,000miles(9year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Replace Manual Transmission Fluid

  Use genuine Honda MTF.
- Replace Automatic Transmission Fluid

  Use genuine Honda ATF-Z1.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Australia

125,000miles(10year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for “severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Inspect and adjust drive belt
  Look for cracks and damage, then check the deflection and tension.
- Replace Automatic Transmission Fluid
  Use genuine Honda ATF-Z1.
- Check parking brake adjustment
  Check the parking brake operation.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except Australia

20,000km(1year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except Australia

40,000km(2year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Inspect and adjust drive belt
  Look for cracks and damage, then check the deflection and tension.
- Check parking brake adjustment
  Check the parking brake operation.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except Australia

60,000km(3year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Replace Manual Transmission Fluid
  Use genuine Honda MTF.
- Replace Automatic Transmission Fluid
  Use genuine Honda ATF-Z1.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except Australia

80,000km(4year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace fuel filter**
- **Inspect and adjust drive belt**
  Look for cracks and damage, then check the deflection and tension.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except Australia

100,000km(5year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for “severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Replace Automatic Transmission Fluid
  Use genuine Honda ATF-Z1.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- Replace engine coolant

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except Australia

120,000km(6year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Inspect and adjust drive belt**
  Look for cracks and damage, then check the deflection and tension.
- **Inspect idle speed**
- **Replace Manual Transmission Fluid**
  Use genuine Honda MTF.
- **Replace Manual Transmission Fluid**
  Use genuine Honda MTF.
- **Replace Automatic Transmission Fluid**
  Use genuine Honda ATF-Z1.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**

- Check the boot and boot band for cracks.
- Check rack grease.

Every 30,000 km (18,750 miles)

Replace air cleaner element

Every 40,000 km (25,000 miles)

Inspect valve clearance

Every 100,000 km (62,500 miles)

Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

Replace engine coolant

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

Check front and rear brakes

- Check the brake pad and disc thickness. Check for damage.
- Check the calipers for damage, leaks, and tightness.

Every 3 years

Replace brake fluid

- Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
- Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

Rotate tyres

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except Australia

140,000km(7year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for “severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace Automatic Transmission Fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except Australia

160,000km(8year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace fuel filter**
- **Inspect and adjust drive belt**
  Look for cracks and damage, then check the deflection and tension.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except Australia

180,000km(9year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Replace Manual Transmission Fluid
  Use genuine Honda MTF.
- Replace Automatic Transmission Fluid
  Use genuine Honda ATF-Z1.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except Australia

200,000km(10year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Inspect and adjust drive belt**
  Look for cracks and damage, then check the deflection and tension.
- **Replace Automatic Transmission Fluid**
  Use genuine Honda ATF-Z1.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except Australia

12,000miles(1year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except Australia

25,000miles(2year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Inspect and adjust drive belt
  Look for cracks and damage, then check the deflection and tension.
- Check parking brake adjustment
  Check the parking brake operation.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except Australia

37,000miles(3year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Replace Manual Transmission Fluid
  Use genuine Honda MTF.
- Replace Automatic Transmission Fluid
  Use genuine Honda ATF-Z1.
- Replace dust and pollen filter
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *
- ***Visually inspect the following items:***
- Tie-rod ends, steering gearbox, and boots
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except Australia

50,000miles(4year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace fuel filter**
- **Inspect and adjust drive belt**
  Look for cracks and damage, then check the deflection and tension.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except Australia

62,000miles(5year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for “severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Replace Automatic Transmission Fluid
  Use genuine Honda ATF-Z1.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- Replace engine coolant

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except Australia

75,000miles(6year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Inspect and adjust drive belt**
  Look for cracks and damage, then check the deflection and tension.
- **Inspect idle speed**
- **Replace Manual Transmission Fluid**
  Use genuine Honda MTF.
- **Replace Manual Transmission Fluid**
  Use genuine Honda MTF.
- **Replace Automatic Transmission Fluid**
  Use genuine Honda ATF-Z1.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**

- Check the boot and boot band for cracks.
- Check rack grease.

Every 30,000 km (18,750 miles)

Replace air cleaner element

Every 40,000 km (25,000 miles)

Inspect valve clearance

Every 100,000 km (62,500 miles)

Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

Replace engine coolant

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

Check front and rear brakes

- Check the brake pad and disc thickness. Check for damage.
- Check the calipers for damage, leaks, and tightness.

Every 3 years

Replace brake fluid

- Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
- Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

Rotate tyres

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except Australia

87,000miles(7year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace Automatic Transmission Fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except Australia

100,000miles(8year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace fuel filter**
- **Inspect and adjust drive belt**
  Look for cracks and damage, then check the deflection and tension.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except Australia

112,000miles(9year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Replace Manual Transmission Fluid
  Use genuine Honda MTF.
- Replace Automatic Transmission Fluid
  Use genuine Honda ATF-Z1.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except Australia

125,000miles(10year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Inspect and adjust drive belt
  Look for cracks and damage, then check the deflection and tension.
- Replace Automatic Transmission Fluid
  Use genuine Honda ATF-Z1.
- Check parking brake adjustment
  Check the parking brake operation.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check rack grease and steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check rack grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

MICU Control Function Index

System	Function
Multiplex Control	Sends the switch signal information to the MICU and output the information. The MICU controls the ECUs electric load and communication based upon the information received from the B-CAN.
On-board Diagnosis	The MICU has a gateway function which sends the results of the MICU internal diagnosis and the B-CAN connected ECUs diagnosis to the HDS.
Self-diagnosis	Test mode 1 diagnoses the communication line between the MICU and B-CAN connected unit. Test mode 2 checks the switch inputs connected to the MICU.
Interior Light(s)	The MICU controls the interior lights ON, OFF and dimming based upon the information of the related switches and/or the B-CAN related information.
Sleep Function	The MICU has a sleep function, which it enters during power down mode.

The MICU also controls the function of these circuits:

- Entry lights control (ceiling light, cargo area light)
- Exterior lights control
- Horn
- Interlock system
- Keyless entry
- Power door locks
- Security alarm
- Turn signal/hazard flasher
- Wiper/washer

Hardware Fail-safe Control

Fail-safe Function

When a CPU problem or a abnormal power supply voltage is detected, the MICU moves to the hardware fail-safe mode, and each system output load is set to the pre-programmed fail-safe value.

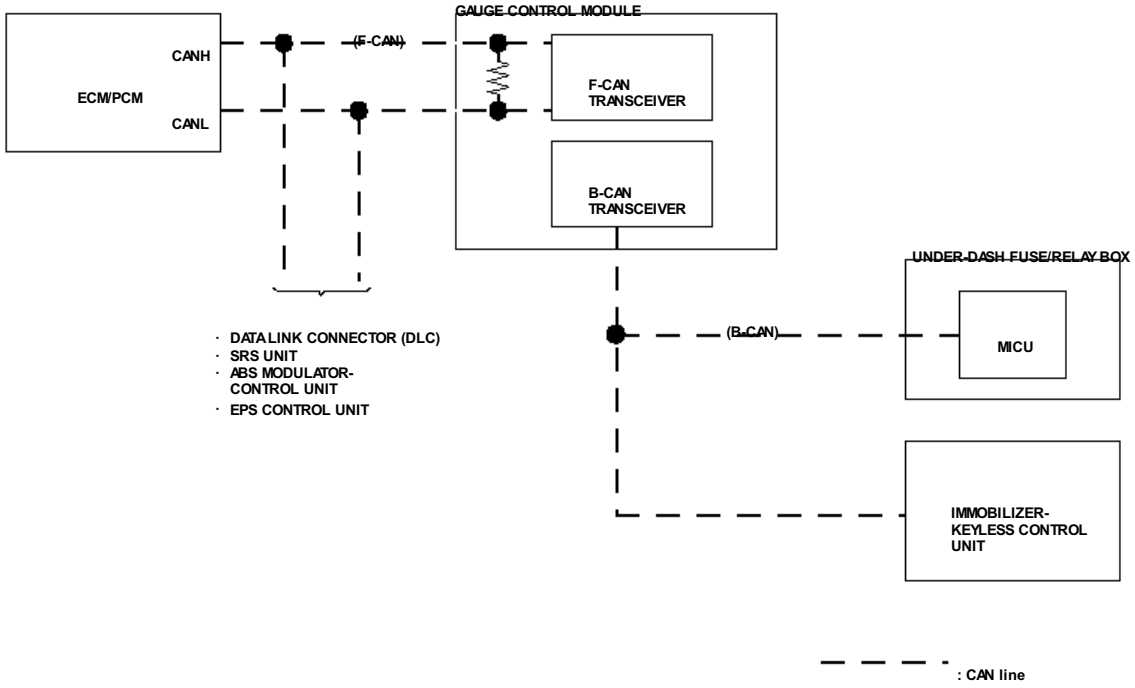
Software Fail-safe Control

When any of the data from the B-CAN circuit cannot be received within a specified time, or an unusual combination of the data is recognized, the MICU moves to the software fail-safe mode. The data that cannot be received is forced to pre-programmed value.

B-CAN

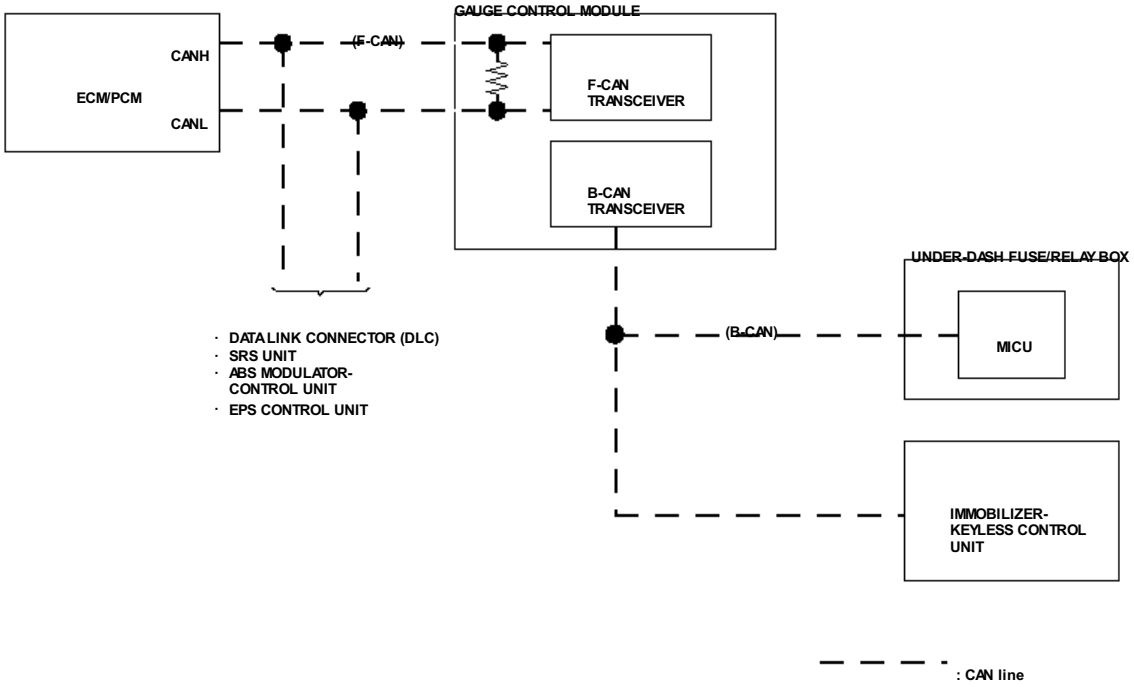
The body controller area network (B-CAN) and the fast controller area network (F-CAN) share information between multiple electronic control units (ECUs). B-CAN communication moves at a slower speed (33.33 kbps) for convenience related items and for other functions. F-CAN information moves at a faster speed (500 kbps) for ‘‘real time" functions such as fuel and emissions data. To allow both systems to share information, the gauge control module translates information from B-CAN to F-CAN and from F-CAN to B-CAN.

- The single wire method is used between the units not requiring the communication to move at a fast speed.
- Using a single wire method reduces the number of the wires used on B-CAN.



Gateway Function

The gauge control module acts as a gateway to allow both systems to share information. The gauge control module translates information from B-CAN to F-CAN and from F-CAN to B-CAN.



Network “Loss of Communication" Error Checking Function

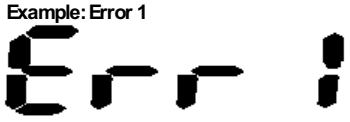
The ECUs on the CAN circuit send messages to each other. If there is any malfunction on the network, the odo/trip display on the gauge control module can indicate the error messages by entering the gauge self-diagnostic function.

Error Code List

Error code	Type of communication line(s) error
Error 1	F-CAN communication
Error 2	B-CAN communication
Error 12	F-CAN and B-CAN communication

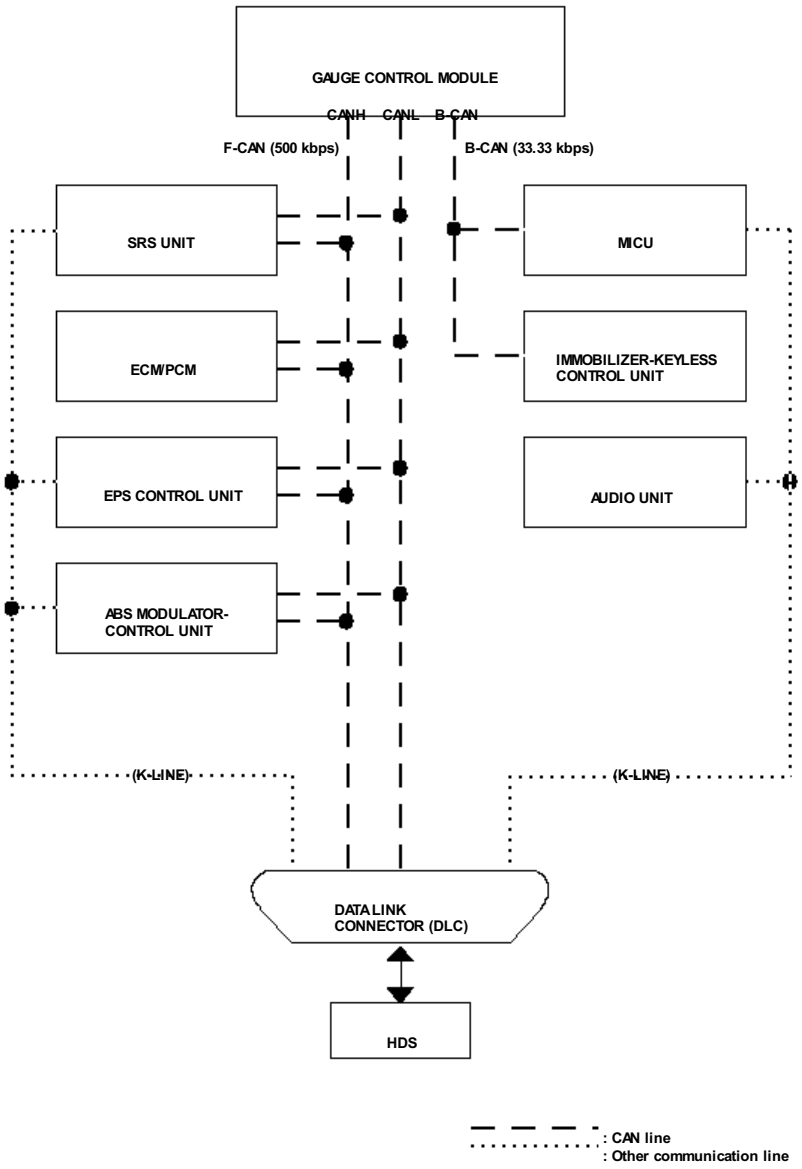
NOTE: For further information about Error indication, refer to the gauge control module self-diagnostic function.

Example: Error 1



Self-diagnostic Function

By connecting the HDS to the data link connector (DLC), the HDS can retrieve and indicate the diagnostic results of each ECU. The diagnostic line called K-LINE is distinguished from the CAN lines, and connected to the CAN related ECUs. The MICU is a gateway between the HDS and B-CAN related ECUs, and sends B-CAN diagnostic results to the HDS.



Wake-up and Sleep Function

The multiplex control system has ‘‘wake-up" and ‘‘sleep" functions to decrease the parasitic draw on the battery when the ignition switch is OFF.

- In the sleep mode, the MICU stops functioning (communication and CPU control) when it is not necessary for the system to operate.
- As soon as any operation is requested (for example, a door is unlocked), the related control unit the sleep mode immediately wakes up and begins to function.
- When the ignition switch is turned OFF, and the driver's door is opened, then closed, there is a delay of about 40 seconds before the control unit goes from the wake-up mode to the sleep mode.
- The sleep mode will not function if any door is opened or if a ignition switch is in the ignition.
- The draw is reduced from 200 mA to less than 35 mA when in the sleep mode.

Fail-safe Function

To prevent improper operation, the MICU has a fail-safe function. In the fail-safe mode, the output signal is fixed when any part of the system malfunctions (for example, a faulty control unit or communication line).
Each control unit has a hardware fail-safe function that fixes the output signal when there is a CPU malfunction, and a software fail-safe function that ignores the signal from a control unit, which allows the system to operate normally.

Power Supply Voltage Monitoring Function

The MICU monitors the power supply voltage (back-up voltage). If the voltage goes below 10 V, the MICU sends a MICU message and will not store DTCs.

	Input	Output
MICU	Battery voltage	
B-CAN		MICU message

Headlights

The MICU controls the headlights based upon the ignition switch (IG1) and the combination light switch signals.

	Input	Output
MICU	IG1 power supply Combination light switch (SMALL) Headlight switch (OFF) Headlight switch (ON) Dimmer switch Passing switch	Headlight (LOW) Headlight (HIGH) Front position lights/Taillights
B-CAN		MICU (RM) massage MICU (HLSW) massage

Turn Signal

The MICU controls the turn signal/hazard flasher lights based upon the input signals from the turn signal switch and the hazard warning switch.

	Input	Output
MICU	IG1 power supply Hazard warning switch Turn signal switch (left) Turn signal switch (right)	Turn signal lights (left) Turn signal lights (right)

Entry Light

The MICU controls the interior lights based upon the input signals of each switches and the B-CAN signals.

	Input	Output
MICU	IG1 power supply Ignition key switch Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch Driver's door lock knob switch (LOCK/UNLOCK)	Individual map light
B-CAN	Keyless LOCK/UNLOCK signal	

Cargo Area Light

The MICU controls the cargo area light based upon the tailgate latch switch signal.

	Input	Output
MICU	Tailgate latch switch	Cargo area light

Windshield Wiper Operation

The MICU controls the windshield wiper motor based upon the signals from each switch and the B-CAN.

	Input	Output
MICU	IG1 power supply Windshield wiper switch (INT/LO) Windshield wiper switch (LO/HI) Windshield wiper switch (MIST) Windshield washer switch Windshield wiper switch (As)	Windshield wiper motor (INT) Windshield wiper motor (HI) Windshield washer motor
B-CAN	IG1 METER signal	

Rear Window Wiper Operation

The MICU controls the rear window wiper motor and washer motor based upon the wiper/washer switch signals.

	Input	Output
MICU	IG1 power supply Rear window wiper switch Rear window washer switch Windshield washer switch Windshield wiper switch (INT) Windshield wiper switch (LO) Windshield wiper switch (HI)	Rear window wiper motor Rear window washer motor

Washer Operation

The MICU controls the windshield and rear window washer motor based upon the washer switch signals.

	Input	Output
MICU	IG1 power supply Windshield washer switch Rear window washer switch	Windshield washer motor Rear window washer motor

Key Interlock

The MICU controls the key interlock solenoid based upon the ignition switch (ACC), the transmission range switch, and the park-pin switch signals.

	Input	Output
MICU	Ignition switch (ACC) Transmission range switch (P) Park-pin switch	Key interlock solenoid

Key-in Reminder

The MICU controls the door lock actuators based upon the ignition key switch, the driver's door switch, and the driver's door lock knob switch signals.

	Input	Output
MICU	Ignition key switch Driver's door switch Driver's door lock knob switch (UNLOCK)	Door lock actuators (LOCK) Door lock actuators (UNLOCK)

Power Window Timer (Key-off operation)

The MICU controls the power window key-off operation based upon the ignition key switch and the driver's door switch, and front passenger's door switch signals.

	Input	Output
MICU	IG1 power supply Ignition key switch Driver's door switch Front passenger's door switch	Power window timer

Collision Detection Signal (CDS)

The MICU controls the door lock actuators based upon the IG1 and the SRS signals.

	Input	Output
MICU	IG1 power supply	Door lock actuators (LOCK/UNLOCK)
B-CAN	Front impact sensor Side impact sensor (first) Side impact sensor (second) SRS unit rollover signal	

Power Door Locks

The MICU controls the door lock actuators based upon the input signals of each switch.

	Input	Output
MICU	IG1 power supply Ignition key switch Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch Tailgate latch switch Driver's door lock switch (LOCK/UNLOCK) Driver's door key cylinder switch (LOCK/UNLOCK) Driver's door lock knob switch (LOCK/UNLOCK)	Door lock actuators (LOCK) Door lock actuators (UNLOCK)

Door Lock Response Operation

The MICU controls the door lock actuators based upon the B-CAN signals.

	Input	Output
MICU		Door lock actuators (LOCK) Door lock actuators (UNLOCK)
B-CAN	Door lock signal	

Keyless Entry System

The MICU controls the door lock actuators based upon the input signals of each switch and the B-CAN signals.

	Input	Output
MICU	IG1 power supply Ignition key switch Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch Tailgate latch switch Driver's door lock knob switch (LOCK/UNLOCK) Driver's door lock switch (LOCK/UNLOCK) Driver's door key cylinder switch (LOCK/UNLOCK)	Door lock actuators (LOCK) Door lock actuators (UNLOCK)
B-CAN	Keyless LOCK/UNLOCK signal	Relock message

Power Door Locks (LOCK operation)

The MICU controls the actuators based upon the input signals of each switch.

	Input	Output
MICU	IG1 power supply Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch Tailgate latch switch Driver's door lock knob switch (UNLOCK) Front passenger's door lock knob switch (UNLOCK) Left rear door lock knob switch (UNLOCK) Right rear door lock knob switch (UNLOCK) Transmission range switch (P position) Brake pedal position switch	Door lock actuators (LOCK)
B-CAN	Vehicle speed pulse signal	

Power Door Locks (UNLOCK operation)

The MICU controls the door lock actuators based upon the input signals of each switch.

	Input	Output
MICU	IG1 power supply Ignition key switch Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch Tailgate latch switch Driver's door lock knob switch (UNLOCK) Front passenger's door lock knob switch (UNLOCK) Left rear door lock knob switch (UNLOCK) Right rear door lock knob switch (UNLOCK) Transmission range switch (P position) Brake pedal position switch	Door lock actuators (UNLOCK) Driver's door lock actuators (UNLOCK)

Security Alarm System

The MICU controls the turn signal lights and the horns based upon the input signals of each switch and the B-CAN signals.

	Input	Output
MICU	IG1 power supply Ignition key switch Audio switch Tailgate latch switch Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch Driver's door key cylinder switch (LOCK/UNLOCK) Driver's door lock knob switch (UNLOCK) Front passenger's door lock knob switch (UNLOCK) Left rear door lock knob switch (UNLOCK) Right rear door lock knob switch (UNLOCK) Tailgate lock knob switch (UNLOCK) Hood switch	Turn signal lights (left) Turn signal lights (right) Horn *
B-CAN	Keyless signal Door lock signal Immobilizer signal	MICU (SET1) message MICU (SET2) message ALARM (ACTION) message

*: Without ultrasonic system

Answer Back Response Operation

The MICU controls the turn signal system based upon the B-CAN signals.

	Input	Output
MICU	IG1 power supply	Turn signal lights (left) Turn signal lights (right)
B-CAN	Answer back signal (Hazard) Vehicle speed pulse signal	

Answer Back Response Operation

The MICU controls the lighting system and horn based upon the B-CAN signals.

	Input	Output
MICU		Horn(s) Headlights (low beam) Position lights and taillights
B-CAN	Answer back signal (headlight low, horn, position lights)	

Ultrasonic System

The MICU communicates with the alarm control siren by the serial communication lines, and the MICU controls the ultra sonic and the inclining sensor system.

	Input	Output
MICU	Security system input signals	Security system output signals
B-CAN	Security system input signals	Security system output signals MICU message

A/C Pressure Switch

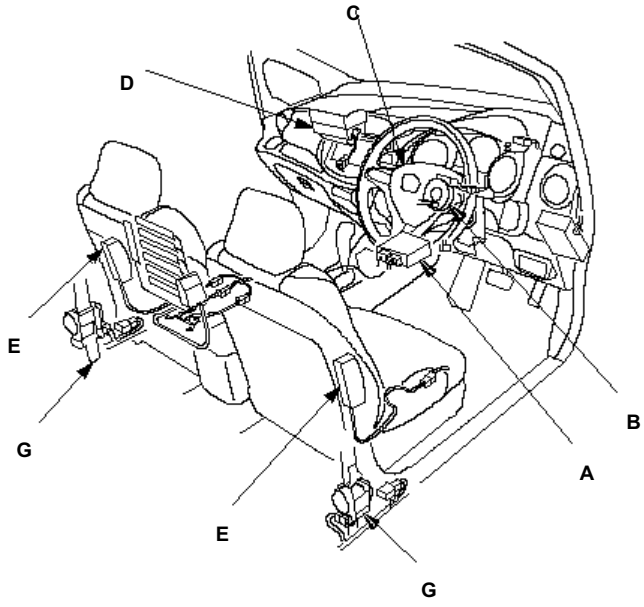
The MICU sends the A/C pressure switch signal based upon the ignition switch and the A/C pressure switch.

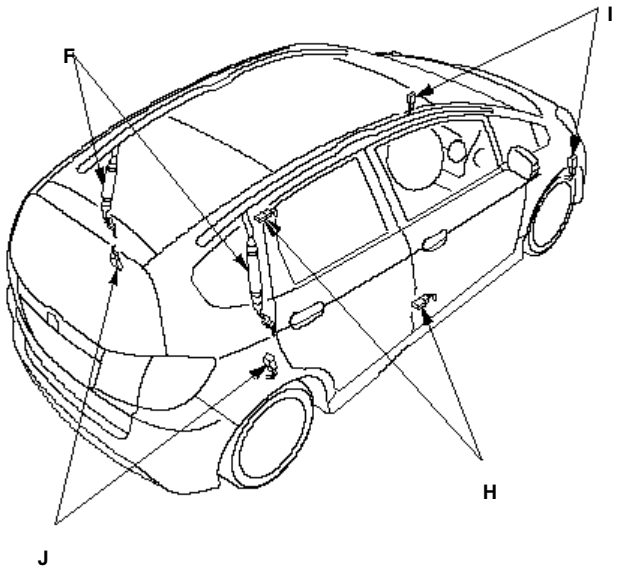
	Input	Output
MICU	IG1 power supply A/C pressure switch	
B-CAN		A/C pressure switch signal

SRS Components

Airbags

The SRS is a safety device which, when used with the seat belt, is designed to help protect the driver and front passenger in a frontal impact exceeding a certain set limit. The system consists of the SRS unit including safing sensor and impact sensor (A), the cable reel (B), the driver's airbag (C), the front passenger's airbag (D), side airbags (E), side curtain airbags (F), seat belt tensioners (G), side impact sensors (first) (H), front impact sensors (I), and side impact sensors (second) (J).
Since the driver's and front passenger's airbags use the same sensors, both normally inflate at the same time. However, it is possible for only one airbag to inflate. This can occur when the severity of a collision is at the margin, or threshold, that the SRS unit determines whether or not the airbags will deploy. In such cases, the seat belt will provide sufficient protection, and the supplemental protection offered by the airbag would be minimal.





Side Airbag Cutoff Indicator/OPDS Operation

The indicator comes on if the front passenger's seat is occupied by a small adult or child who is leaning into the deployment path, or an object (grocery bag, briefcase, purse, etc.) is in the seat. This indicates the passenger's side airbag is off and will not deploy; there is no problem with the side airbag. If the passenger sits upright or moves to another seat, or you remove the object from the seat, the indicator should go off. There will be some delay between the occupant's repositioning, and when the indicator will turn on or off.

SRS Operation

The main circuit in the SRS unit senses and judges the force of impact and, if necessary, ignites the inflator charges. If battery voltage is too low or power is disconnected due to the impact, the voltage regulator and the back-up power circuit will keep voltage at a constant level.

For the SRS to operate

Seat Belt Tensioners

(1) A front impact sensor or side impact sensor must activate and send electric signals to the microprocessor.
(2) The microprocessor must compute the signals and send them to the tensioners.
(3) The charges must ignite and deploy the tensioners.

Driver's and Front Passenger's Airbag(s)

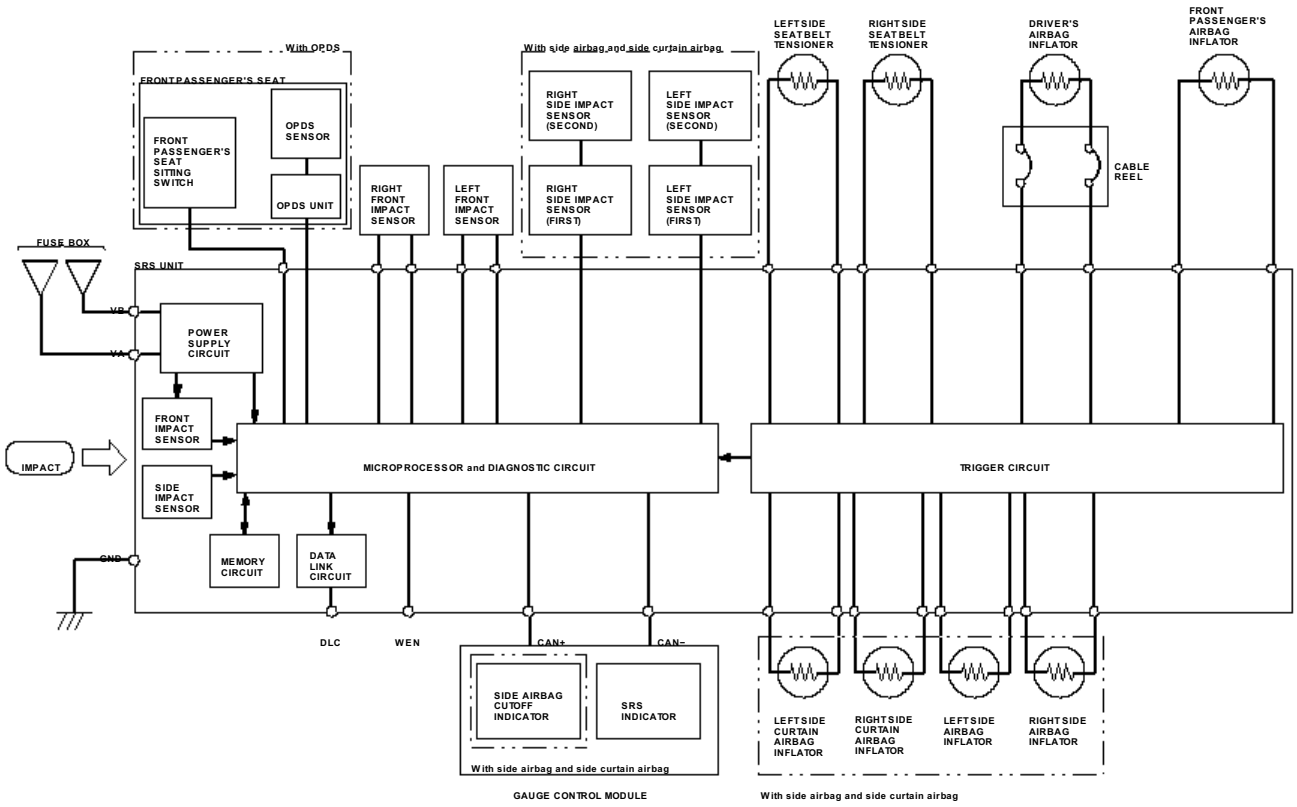
(1) A front impact sensor must activate, and send electric signals to the microprocessor.
(2) The microprocessor must compute the signals, and send them to the airbag inflator(s).
(3) The inflators that received signals must ignite and deploy the airbags.

Side Airbag(s)

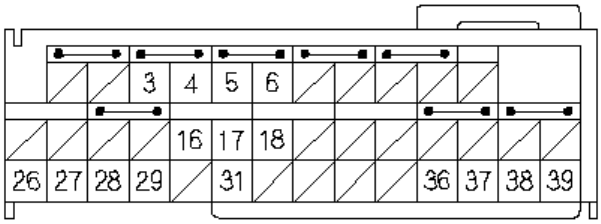
(1) A side impact sensor must activate, and send electric signals to the microprocessor.
(2) The microprocessor must compute the signals and send them to the side airbag inflator(s). However, the microprocessor cuts off the signals to the front passenger's side airbag if the SRS unit determines that the front passenger's head is in the deployment path of the side airbag.
(3) The inflator that receives the signal must ignite and deploy the side airbag.

Side Curtain Airbag(s)

(1) Side impact sensor must activate, and send electrical signals to the microprocessor.
(2) The microprocessor must compute the signals and send them to the side curtain airbag and side airbag inflator(s).
(3) The inflator that receives the signals must ignite and deploy the side curtain airbag and side airbag at the same time.



SRS Unit Inputs and Outputs at Connector A (39P)

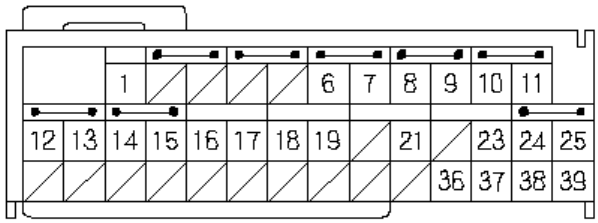


Wire side of female terminals

29	BLK *	SRS GND 2	Ground circuit for the SRS unit (G504)
31	RED *	WEN	Data link connector
36	BRN *	LFS−	Ground for the left front impact sensor
37	RED *	LFS+	Power source for the left front impact sensor
38	LT BLU *	RFS−	Ground for the right front impact sensor
39	GRN *	RFS+	Power source for the right front impact sensor

*: Wire colors may be substituted in this table.

SRS Unit Inputs and Outputs at Connector B (39P)



Wire side of female terminals

18	WHT *2	RRBO	Rear right side seat belt buckle switch
19	YEL *2	FLBC	Left side seat belt buckle switch
21	GRN *2	FRBC	Right side seat belt buckle switch
23	LT BLU *2	SS+	Power source for seat sitting switch
24	BLU *2	RCA1−	Ground for the right side curtain airbag inflator
25	YEL *2	RCA1+	Power source for the right side curtain airbag inflator
36	GRY *2	LBS1−	Ground for the left side impact sensor (first)
37	PNK *2	LBS1+	Power source for the left side impact sensor (first)
38	LT GRN *2	RBS1−	Ground for the right side impact sensor (first)
39	BRN *2	RBS1+	Power source for the right side impact sensor (first)

*1: Wire colors may be substituted in this table.
*2: With side airbag and side curtain airbag.

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

20,000km(1year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**

Visually inspect the following items:

  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Every 60,000 km (37,500 miles)

- **Replace air cleaner element**

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 120,000 km (75,000 miles) or 8 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 3 years

- **Replace brake fluid**

- Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
- Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

40,000km(2year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**
  - If the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 20,000 km (12,500 miles) or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Every 60,000 km (37,500 miles)

- **Replace air cleaner element**

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 120,000 km (75,000 miles) or 8 years

- **Replace Manual Transmission Fluid**

- M/T
- i-SHIFT

Use genuine Honda MTF.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- [ ] **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

60,000km(3year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Every 60,000 km (37,500 miles)

- **Replace air cleaner element**

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 120,000 km (75,000 miles) or 8 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

Inspect vehicle corrosion: refer to the Body Repair Manual

- External Paintwork and Panel Corrosion Check
- Under Body Corrosion Check

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

80,000km(4year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**
  - If the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 20,000 km (12,500 miles) or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Every 60,000 km (37,500 miles)

- **Replace air cleaner element**

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 120,000 km (75,000 miles) or 8 years

- **Replace Manual Transmission Fluid**

- M/T
- i-SHIFT

Use genuine Honda MTF.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- [ ] **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

100,000km(5year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Every 60,000 km (37,500 miles)

- **Replace air cleaner element**

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 120,000 km (75,000 miles) or 8 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

Inspect vehicle corrosion: refer to the Body Repair Manual

- External Paintwork and Panel Corrosion Check
- Under Body Corrosion Check

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

120,000km(6year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Replace fuel filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Inspect idle speed**
- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**
  - If the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 20,000 km (12,500 miles) or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Every 60,000 km (37,500 miles)

- **Replace air cleaner element**

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 120,000 km (75,000 miles) or 8 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

Use genuine Honda MTF.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

140,000km(7year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Every 60,000 km (37,500 miles)

- **Replace air cleaner element**

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 120,000 km (75,000 miles) or 8 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

Inspect vehicle corrosion: refer to the Body Repair Manual

- External Paintwork and Panel Corrosion Check
- Under Body Corrosion Check

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

160,000km(8year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**
  - If the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 20,000 km (12,500 miles) or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Every 60,000 km (37,500 miles)

- **Replace air cleaner element**

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 120,000 km (75,000 miles) or 8 years

- **Replace Manual Transmission Fluid**

- M/T
- i-SHIFT

Use genuine Honda MTF.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- [ ] **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

180,000km(9year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Every 60,000 km (37,500 miles)

- **Replace air cleaner element**

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 120,000 km (75,000 miles) or 8 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

Inspect vehicle corrosion: refer to the Body Repair Manual

- External Paintwork and Panel Corrosion Check
- Under Body Corrosion Check

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

200,000km(10year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**
  - If the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 20,000 km (12,500 miles) or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Every 60,000 km (37,500 miles)

- **Replace air cleaner element**

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 120,000 km (75,000 miles) or 8 years

- **Replace Manual Transmission Fluid**

- M/T
- i-SHIFT

Use genuine Honda MTF.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- [ ] **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

220,000km(11year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Every 60,000 km (37,500 miles)

- **Replace air cleaner element**

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 120,000 km (75,000 miles) or 8 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

Inspect vehicle corrosion: refer to the Body Repair Manual

- External Paintwork and Panel Corrosion Check
- Under Body Corrosion Check

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

240,000km(12year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Replace fuel filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Inspect idle speed**
- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**
  - If the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 20,000 km (12,500 miles) or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Every 60,000 km (37,500 miles)

- **Replace air cleaner element**

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 120,000 km (75,000 miles) or 8 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

Use genuine Honda MTF.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

12,000miles(1year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**

Visually inspect the following items:

  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Every 60,000 km (37,500 miles)

- **Replace air cleaner element**

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 120,000 km (75,000 miles) or 8 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 3 years

- **Replace brake fluid**

- Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
- Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

25,000miles(2year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**
  - If the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 20,000 km (12,500 miles) or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Every 60,000 km (37,500 miles)

- **Replace air cleaner element**

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 120,000 km (75,000 miles) or 8 years

- **Replace Manual Transmission Fluid**

- M/T
- i-SHIFT

Use genuine Honda MTF.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- [ ] **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

37,000miles(3year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Every 60,000 km (37,500 miles)

- **Replace air cleaner element**

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 120,000 km (75,000 miles) or 8 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

Inspect vehicle corrosion: refer to the Body Repair Manual

- External Paintwork and Panel Corrosion Check
- Under Body Corrosion Check

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

50,000miles(4year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**
  - If the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 20,000 km (12,500 miles) or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Every 60,000 km (37,500 miles)

- **Replace air cleaner element**

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 120,000 km (75,000 miles) or 8 years

- **Replace Manual Transmission Fluid**

- M/T
- i-SHIFT

Use genuine Honda MTF.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- [ ] **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

62,000miles(5year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Every 60,000 km (37,500 miles)

- **Replace air cleaner element**

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 120,000 km (75,000 miles) or 8 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

Inspect vehicle corrosion: refer to the Body Repair Manual

- External Paintwork and Panel Corrosion Check
- Under Body Corrosion Check

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

75,000miles(6year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Replace fuel filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Inspect idle speed**
- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**
  - If the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 20,000 km (12,500 miles) or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Every 60,000 km (37,500 miles)

- **Replace air cleaner element**

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 120,000 km (75,000 miles) or 8 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

Use genuine Honda MTF.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

87,000miles(7year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Every 60,000 km (37,500 miles)

- **Replace air cleaner element**

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 120,000 km (75,000 miles) or 8 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

Inspect vehicle corrosion: refer to the Body Repair Manual

- External Paintwork and Panel Corrosion Check
- Under Body Corrosion Check

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

100,000miles(8year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**
  - If the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 20,000 km (12,500 miles) or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Every 60,000 km (37,500 miles)

- **Replace air cleaner element**

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 120,000 km (75,000 miles) or 8 years

- **Replace Manual Transmission Fluid**

- M/T
- i-SHIFT

Use genuine Honda MTF.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- [ ] **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

112,000miles(9year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Every 60,000 km (37,500 miles)

- **Replace air cleaner element**

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 120,000 km (75,000 miles) or 8 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

Inspect vehicle corrosion: refer to the Body Repair Manual

- External Paintwork and Panel Corrosion Check
- Under Body Corrosion Check

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

125,000miles(10year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**
  - If the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 20,000 km (12,500 miles) or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Every 60,000 km (37,500 miles)

- **Replace air cleaner element**

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 120,000 km (75,000 miles) or 8 years

- **Replace Manual Transmission Fluid**

- M/T
- i-SHIFT

Use genuine Honda MTF.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- [ ] **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

137,000miles(11year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Every 60,000 km (37,500 miles)

- **Replace air cleaner element**

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 120,000 km (75,000 miles) or 8 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

Inspect vehicle corrosion: refer to the Body Repair Manual

- External Paintwork and Panel Corrosion Check
- Under Body Corrosion Check

Maintenance Schedule for Normal Conditions - for Service Reminder System non-applicable EU countries

150,000miles(12year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Replace fuel filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Inspect idle speed**
- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**
  - If the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 20,000 km (12,500 miles) or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Every 60,000 km (37,500 miles)

- **Replace air cleaner element**

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 120,000 km (75,000 miles) or 8 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

Use genuine Honda MTF.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

20,000km(1year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Eexcept KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Replace every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil**

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

  Use normal conditions except in dusty conditions.

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 60,000 km (37,500 miles) or 4 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 10,000 km (6,250 miles) or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Visually inspect the following items:

- [ ] **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- [ ] **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- [ ] **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- [ ] **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

40,000km(2year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Eexcept KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Replace every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil**

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

  Use normal conditions except in dusty conditions.

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 60,000 km (37,500 miles) or 4 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 10,000 km (6,250 miles) or 6 months

- **Check front and rear brakes**

- Check the brake pad and disc thickness. Check for damage.
- Check the calipers for damage, leaks, and tightness.

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

60,000km(3year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Eexcept KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Replace every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil**

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

  Use normal conditions except in dusty conditions.

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 60,000 km (37,500 miles) or 4 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 10,000 km (6,250 miles) or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Visually inspect the following items:

- [ ] **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- [ ] **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- [ ] **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- [ ] **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

80,000km(4year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Eexcept KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Replace every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil**

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

  Use normal conditions except in dusty conditions.

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 60,000 km (37,500 miles) or 4 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 10,000 km (6,250 miles) or 6 months

- **Check front and rear brakes**

- Check the brake pad and disc thickness. Check for damage.
- Check the calipers for damage, leaks, and tightness.

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

100,000km(5year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Eexcept KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Replace every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil**

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

  Use normal conditions except in dusty conditions.

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 60,000 km (37,500 miles) or 4 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 10,000 km (6,250 miles) or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Visually inspect the following items:

- [ ] **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- [ ] **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- [ ] **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- [ ] **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

120,000km(6year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Replace fuel filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Inspect idle speed**
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Eexcept KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Replace every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil**

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

  Use normal conditions except in dusty conditions.

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 60,000 km (37,500 miles) or 4 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

Use genuine Honda MTF.

Every 10,000 km (6,250 miles) or 6 months

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Visually inspect the following items:

- [ ] **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- [ ] **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- [ ] **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- [ ] **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

140,000km(7year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Eexcept KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Replace every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil**

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

  Use normal conditions except in dusty conditions.

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 60,000 km (37,500 miles) or 4 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 10,000 km (6,250 miles) or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Visually inspect the following items:

- [ ] **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- [ ] **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- [ ] **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- [ ] **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

160,000km(8year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Eexcept KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Replace every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil**

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

  Use normal conditions except in dusty conditions.

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 60,000 km (37,500 miles) or 4 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 10,000 km (6,250 miles) or 6 months

- **Check front and rear brakes**

- Check the brake pad and disc thickness. Check for damage.
- Check the calipers for damage, leaks, and tightness.

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

180,000km(9year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Eexcept KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Replace every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil**

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

  Use normal conditions except in dusty conditions.

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 60,000 km (37,500 miles) or 4 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 10,000 km (6,250 miles) or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Visually inspect the following items:

- [ ] **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- [ ] **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- [ ] **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- [ ] **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

200,000km(10year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Eexcept KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Replace every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil**

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

  Use normal conditions except in dusty conditions.

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 60,000 km (37,500 miles) or 4 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 10,000 km (6,250 miles) or 6 months

- **Check front and rear brakes**

- Check the brake pad and disc thickness. Check for damage.
- Check the calipers for damage, leaks, and tightness.

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

220,000km(11year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Eexcept KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Replace every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil**

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

  Use normal conditions except in dusty conditions.

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 60,000 km (37,500 miles) or 4 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 10,000 km (6,250 miles) or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Visually inspect the following items:

- [ ] **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- [ ] **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- [ ] **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- [ ] **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

240,000km(12year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Replace fuel filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Inspect idle speed**
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Eexcept KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Replace every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil**

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

  Use normal conditions except in dusty conditions.

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 60,000 km (37,500 miles) or 4 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

Use genuine Honda MTF.

Every 10,000 km (6,250 miles) or 6 months

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Visually inspect the following items:

- [ ] **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- [ ] **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- [ ] **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- [ ] **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

12,000miles(1year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Eexcept KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Replace every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil**

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

  Use normal conditions except in dusty conditions.

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 60,000 km (37,500 miles) or 4 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 10,000 km (6,250 miles) or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Visually inspect the following items:

- [ ] **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- [ ] **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- [ ] **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- [ ] **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

25,000miles(2year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Eexcept KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Replace every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil**

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

  Use normal conditions except in dusty conditions.

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 60,000 km (37,500 miles) or 4 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 10,000 km (6,250 miles) or 6 months

- **Check front and rear brakes**

- Check the brake pad and disc thickness. Check for damage.
- Check the calipers for damage, leaks, and tightness.

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

37,000miles(3year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Eexcept KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Replace every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil**

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

  Use normal conditions except in dusty conditions.

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 60,000 km (37,500 miles) or 4 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 10,000 km (6,250 miles) or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Visually inspect the following items:

- [ ] **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- [ ] **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- [ ] **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- [ ] **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

50,000miles(4year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Eexcept KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Replace every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil**

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

  Use normal conditions except in dusty conditions.

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 60,000 km (37,500 miles) or 4 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 10,000 km (6,250 miles) or 6 months

- **Check front and rear brakes**

- Check the brake pad and disc thickness. Check for damage.
- Check the calipers for damage, leaks, and tightness.

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

62,000miles(5year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Eexcept KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Replace every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil**

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

  Use normal conditions except in dusty conditions.

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 60,000 km (37,500 miles) or 4 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 10,000 km (6,250 miles) or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Visually inspect the following items:

- [ ] **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- [ ] **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- [ ] **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- [ ] **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

75,000miles(6year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Replace fuel filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Inspect idle speed**
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Eexcept KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Replace every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil**

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

  Use normal conditions except in dusty conditions.

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 60,000 km (37,500 miles) or 4 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

Use genuine Honda MTF.

Every 10,000 km (6,250 miles) or 6 months

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Visually inspect the following items:

- [ ] **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- [ ] **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- [ ] **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- [ ] **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

87,000miles(7year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Eexcept KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Replace every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil**

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

  Use normal conditions except in dusty conditions.

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 60,000 km (37,500 miles) or 4 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 10,000 km (6,250 miles) or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Visually inspect the following items:

- [ ] **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- [ ] **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- [ ] **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- [ ] **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

100,000miles(8year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Eexcept KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Replace every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil**

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

  Use normal conditions except in dusty conditions.

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 60,000 km (37,500 miles) or 4 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 10,000 km (6,250 miles) or 6 months

- **Check front and rear brakes**

- Check the brake pad and disc thickness. Check for damage.
- Check the calipers for damage, leaks, and tightness.

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

112,000miles(9year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Eexcept KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Replace every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil**

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

  Use normal conditions except in dusty conditions.

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 60,000 km (37,500 miles) or 4 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 10,000 km (6,250 miles) or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Visually inspect the following items:

- [ ] **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- [ ] **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- [ ] **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- [ ] **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

125,000miles(10year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Eexcept KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Replace every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil**

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

  Use normal conditions except in dusty conditions.

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 60,000 km (37,500 miles) or 4 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 10,000 km (6,250 miles) or 6 months

- **Check front and rear brakes**

- Check the brake pad and disc thickness. Check for damage.
- Check the calipers for damage, leaks, and tightness.

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

137,000miles(11year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Eexcept KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Replace every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil**

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

  Use normal conditions except in dusty conditions.

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 60,000 km (37,500 miles) or 4 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.

Every 10,000 km (6,250 miles) or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Visually inspect the following items:

- [ ] **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- [ ] **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- [ ] **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- [ ] **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Severe Conditions - for Service Reminder System non-applicable EU countries

150,000miles(12year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Replace fuel filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Inspect idle speed**
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating and air conditioning system is less than normal.
- **Check lights alignment**

  Check the position of the headlights.
- **Test drive (noise, stability, dashboard operation)**
- **Check expiration date for TRK (Temporary Repair Kit) bottle (if equipped)**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS/VSA lines)**

  Check the master cylinder and ABS/VSA modulator- control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - M/T
  - i-SHIFT
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Eexcept KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.
- **Tyre condition**

Replace every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil**

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

  Use normal conditions except in dusty conditions.

Every 100,000 km (62,500 miles)

- **Inspect valve clearance**

Every 120,000 km (75,000 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 60,000 km (37,500 miles) or 4 years

- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

Use genuine Honda MTF.

Every 10,000 km (6,250 miles) or 6 months

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Visually inspect the following items:

- [ ] **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- [ ] **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- [ ] **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every year

- [ ] **Inspect vehicle corrosion: refer to the Body Repair Manual**
  - External Paintwork and Panel Corrosion Check
  - Under Body Corrosion Check

Maintenance Schedule for Normal and Severe Conditions - New Zealand

20,000km(1year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines , and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - New Zealand

40,000km(2year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for “severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Inspect drive belt
  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- Check parking brake adjustment
  Check the parking brake operation.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines , and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - New Zealand

60,000km(3year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for ‘‘severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace Manual Transmission Fluid**

  Use genuine Honda MTF.
- **Replace Automatic Transmission Fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines , and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - New Zealand

80,000km(4year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for “severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace fuel filter**
- **Inspect drive belt**
  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines , and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - New Zealand

100,000km(5year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Replace Automatic Transmission Fluid
  Use genuine Honda ATF-Z1.
- Replace dust and pollen filter
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines , and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *
- ***Visually inspect the following items:***
- Tie-rod ends, steering gearbox, and boots
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- Replace engine coolant

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - New Zealand

120,000km(6year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Inspect drive belt**
  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Inspect idle speed**
- **Replace Manual Transmission Fluid**
  Use genuine Honda MTF.
- **Replace Manual Transmission Fluid**
  Use genuine Honda MTF.
- **Replace Automatic Transmission Fluid**
  Use genuine Honda ATF-Z1.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines , and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**

- Check the boot and boot band for cracks.
- Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- [ ] **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- [ ] **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - New Zealand

140,000km(7year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Replace Automatic Transmission Fluid
  Use genuine Honda ATF-Z1.
- Replace dust and pollen filter
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines , and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *
- ***Visually inspect the following items:***
- Tie-rod ends, steering gearbox, and boots
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- Replace engine coolant

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - New Zealand

160,000km(8year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for “severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace fuel filter**
- **Inspect drive belt**
  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines , and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - New Zealand

180,000km(9year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace Manual Transmission Fluid**

  Use genuine Honda MTF.
- **Replace Automatic Transmission Fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines , and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - New Zealand

200,000km(10year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for “severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Inspect drive belt**
  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Replace Automatic Transmission Fluid**
  Use genuine Honda ATF-Z1.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines , and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *
- ***Visually inspect the following items:***
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - New Zealand

12,000miles(1year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines , and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - New Zealand

25,000miles(2year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for “severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Inspect drive belt**
  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines , and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *
- ***Visually inspect the following items:***
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - New Zealand

37,000miles(3year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for “severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace Manual Transmission Fluid**

  Use genuine Honda MTF.
- **Replace Automatic Transmission Fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines , and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - New Zealand

50,000miles(4year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for “severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace fuel filter**
- **Inspect drive belt**
  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines , and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - New Zealand

62,000miles(5year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Replace Automatic Transmission Fluid

  Use genuine Honda ATF-Z1.
- Replace dust and pollen filter
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- Brake hoses and lines (including ABS lines)

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines , and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *
- ***Visually inspect the following items:***
- Tie-rod ends, steering gearbox, and boots
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- Replace engine coolant

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - New Zealand

75,000miles(6year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for “severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Inspect drive belt**
  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Inspect idle speed**
- **Replace Manual Transmission Fluid**
  Use genuine Honda MTF.
- **Replace Manual Transmission Fluid**
  Use genuine Honda MTF.
- **Replace Automatic Transmission Fluid**
  Use genuine Honda ATF-Z1.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines , and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**

- Check the boot and boot band for cracks.
- Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- [ ] **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- [ ] **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - New Zealand

87,000miles(7year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Replace Automatic Transmission Fluid

  Use genuine Honda ATF-Z1.
- Replace dust and pollen filter
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- Brake hoses and lines (including ABS lines)

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines , and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *
- ***Visually inspect the following items:***
- Tie-rod ends, steering gearbox, and boots
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- Replace engine coolant

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - New Zealand

100,000miles(8year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace fuel filter**
- **Inspect drive belt**
  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines , and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - New Zealand

112,000miles(9year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for ‘‘severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace Manual Transmission Fluid**

  Use genuine Honda MTF.
- **Replace Automatic Transmission Fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines , and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - New Zealand

125,000miles(10year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Inspect drive belt**
  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Replace Automatic Transmission Fluid**
  Use genuine Honda ATF-Z1.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines , and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *
- ***Visually inspect the following items:***
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal Conditions - South Africa

15,000km(1year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**
  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**
  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check that brake fluid level between upper and lower marks on the reservoir.

Every 30,000 km or 1 year

- **Replace dust and pollen filter**
  - If the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 km or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.

Maintenance Schedule for Normal Conditions - South Africa

30,000km(2year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**
  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**
  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check that brake fluid level between upper and lower marks on the reservoir.

Every 30,000 km or 1 year

- **Replace dust and pollen filter**
  - If the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 km or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.

Maintenance Schedule for Normal Conditions - South Africa

45,000km(3year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check that brake fluid level between upper and lower marks on the reservoir.

Every 30,000 km or 1 year

- **Replace dust and pollen filter**
  - If the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 km or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.

Maintenance Schedule for Normal Conditions - South Africa

60,000km(4year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**
  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**
  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check that brake fluid level between upper and lower marks on the reservoir.

Every 30,000 km or 1 year

- **Replace dust and pollen filter**
  - If the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 km or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.

Maintenance Schedule for Normal Conditions - South Africa

75,000km(5year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check that brake fluid level between upper and lower marks on the reservoir.

Every 30,000 km or 1 year

- **Replace dust and pollen filter**
  - If the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 km or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.

Maintenance Schedule for Normal Conditions - South Africa

90,000km(6year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Replace fuel filter**

  Replace fuel filter every 45,000 km or 3 years, if the fuel the customer uses is suspected to be contaminated.
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check that brake fluid level between upper and lower marks on the reservoir.

Every 30,000 km or 1 year

- **Replace dust and pollen filter**
  - If the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 km or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.

Maintenance Schedule for Normal Conditions - South Africa

105,000km(7year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Inspect idle speed**
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check that brake fluid level between upper and lower marks on the reservoir.

Every 30,000 km or 1 year

- **Replace dust and pollen filter**
  - If the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 km or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.

Maintenance Schedule for Normal Conditions - South Africa

120,000km(8year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**
  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**
  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check that brake fluid level between upper and lower marks on the reservoir.

Every 30,000 km or 1 year

- **Replace dust and pollen filter**
  - If the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 km or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.

Maintenance Schedule for Normal Conditions - South Africa

135,000km(9year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Replace Manual Transmission Fluid**
- **Replace Automatic Transmission Fluid** **Use genuine Honda ATF-Z1.**

  Replace 120,000 km or 8 years, then every 75,000 km or 4 years
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check that brake fluid level between upper and lower marks on the reservoir.

Every 30,000 km or 1 year

- **Replace dust and pollen filter**
  - If the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 km or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.

Maintenance Schedule for Normal Conditions - South Africa

150,000km(10year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**
  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**
  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check that brake fluid level between upper and lower marks on the reservoir.

Every 30,000 km or 1 year

- **Replace dust and pollen filter**
  - If the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 km or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.

Maintenance Schedule for Normal Conditions - South Africa

9,000miles(1year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**
  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**
  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check that brake fluid level between upper and lower marks on the reservoir.

Every 30,000 km or 1 year

- **Replace dust and pollen filter**
  - If the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 km or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.

Maintenance Schedule for Normal Conditions - South Africa

18,000miles(2year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**
  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**
  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check that brake fluid level between upper and lower marks on the reservoir.

Every 30,000 km or 1 year

- **Replace dust and pollen filter**
  - If the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 km or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.

Maintenance Schedule for Normal Conditions - South Africa

28,000miles(3year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check that brake fluid level between upper and lower marks on the reservoir.

Every 30,000 km or 1 year

- **Replace dust and pollen filter**
  - If the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 km or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.

Maintenance Schedule for Normal Conditions - South Africa

37,000miles(4year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**
  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**
  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check that brake fluid level between upper and lower marks on the reservoir.

Every 30,000 km or 1 year

- **Replace dust and pollen filter**
  - If the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 km or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.

Maintenance Schedule for Normal Conditions - South Africa

46,000miles(5year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check that brake fluid level between upper and lower marks on the reservoir.

Every 30,000 km or 1 year

- **Replace dust and pollen filter**
  - If the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 km or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.

Maintenance Schedule for Normal Conditions - South Africa

56,000miles(6year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Replace fuel filter**

  Replace fuel filter every 45,000 km or 3 years, if the fuel the customer uses is suspected to be contaminated.
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check that brake fluid level between upper and lower marks on the reservoir.

Every 30,000 km or 1 year

- **Replace dust and pollen filter**
  - If the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 km or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.

Maintenance Schedule for Normal Conditions - South Africa

65,000miles(7year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Inspect idle speed**
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check that brake fluid level between upper and lower marks on the reservoir.

Every 30,000 km or 1 year

- **Replace dust and pollen filter**
  - If the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 km or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.

Maintenance Schedule for Normal Conditions - South Africa

75,000miles(8year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**
  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**
  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check that brake fluid level between upper and lower marks on the reservoir.

Every 30,000 km or 1 year

- **Replace dust and pollen filter**
  - If the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 km or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.

Maintenance Schedule for Normal Conditions - South Africa

84,000miles(9year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Replace Manual Transmission Fluid**
- **Replace Automatic Transmission Fluid** **Use genuine Honda ATF-Z1.**

  Replace 120,000 km or 8 years, then every 75,000 km or 4 years
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check that brake fluid level between upper and lower marks on the reservoir.

Every 30,000 km or 1 year

- **Replace dust and pollen filter**
  - If the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 km or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.

Maintenance Schedule for Normal Conditions - South Africa

93,000miles(10year)

Follow the normal conditions maintenance schedule if the severe driving conditions specified in the severe conditions maintenance schedule do not apply.

Service at the indicated distance or time whichever comes first

- **Replace engine oil**
- **Replace engine oil filter**
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**
  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**
  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check that brake fluid level between upper and lower marks on the reservoir.

Every 30,000 km or 1 year

- **Replace dust and pollen filter**
  - If the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 km or 1 year.
  - Replace the filter whenever airflow from the heating and air conditioning system is less than normal.

Maintenance Schedule for Severe Conditions - South Africa

15,000km(1year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km per trip or, in freezing temperatures, driving less than 16 km per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**
  When the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system** **Check the exhaust pipe and muffler for damage, leaks, and tightness.**
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 7,500 km

- **Replace engine oil**

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**
  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**
  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 7,500 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level between upper and lower marks on the reservoir.

Maintenance Schedule for Severe Conditions - South Africa

30,000km(2year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km per trip or, in freezing temperatures, driving less than 16 km per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**
  When the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system** **Check the exhaust pipe and muffler for damage, leaks, and tightness.**
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 7,500 km

- **Replace engine oil**

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**
  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**
  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 7,500 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level between upper and lower marks on the reservoir.

Maintenance Schedule for Severe Conditions - South Africa

45,000km(3year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km per trip or, in freezing temperatures, driving less than 16 km per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Inspect drive belt**
  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Replace dust and pollen filter**
  When the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system** **Check the exhaust pipe and muffler for damage, leaks, and tightness.**
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 7,500 km

- **Replace engine oil**

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**
  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**
  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 7,500 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level between upper and lower marks on the reservoir.

Maintenance Schedule for Severe Conditions - South Africa

60,000km(4year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km per trip or, in freezing temperatures, driving less than 16 km per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Replace Manual Transmission Fluid**
  Use genuine Honda MTF.
- **Replace Automatic Transmission Fluid**
  Use genuine Honda ATF-Z1.
  Replace 60,000 km or 4 years, then every 45,000 km or 3 years
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**
  When the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system** **Check the exhaust pipe and muffler for damage, leaks, and tightness.**
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 7,500 km

- **Replace engine oil**

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**
  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**
  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 7,500 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**

- Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
- Check the brake fluid level between upper and lower marks on the reservoir.

Maintenance Schedule for Severe Conditions - South Africa

75,000km(5year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km per trip or, in freezing temperatures, driving less than 16 km per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Replace dust and pollen filter**

  When the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating.
- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system** **Check the exhaust pipe and muffler for damage, leaks, and tightness.**
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 7,500 km

- **Replace engine oil**

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 7,500 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level between upper and lower marks on the reservoir.

Maintenance Schedule for Severe Conditions - South Africa

90,000km(6year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km per trip or, in freezing temperatures, driving less than 16 km per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Replace fuel filter**

  Replace fuel filter every 45,000 km or 3 years, if the fuel the customer uses is suspected to be contaminated.
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating.
- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system** **Check the exhaust pipe and muffler for damage, leaks, and tightness.**
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 7,500 km

- **Replace engine oil**

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 7,500 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**

- Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
- Check the brake fluid level between upper and lower marks on the reservoir.

Maintenance Schedule for Severe Conditions - South Africa

105,000km(7year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km per trip or, in freezing temperatures, driving less than 16 km per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Inspect idle speed**
- **Replace Automatic Transmission Fluid**

  Use genuine Honda ATF-Z1.
  Replace 60,000 km or 4 years, then every 45,000 km or 3 years
- **Replace dust and pollen filter**

  When the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating.
- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system** **Check the exhaust pipe and muffler for damage, leaks, and tightness.**
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 7,500 km

- **Replace engine oil**

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 7,500 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level between upper and lower marks on the reservoir.

Maintenance Schedule for Severe Conditions - South Africa

120,000km(8year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km per trip or, in freezing temperatures, driving less than 16 km per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Replace Manual Transmission Fluid**
  Use genuine Honda MTF.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**
  When the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system** **Check the exhaust pipe and muffler for damage, leaks, and tightness.**
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 7,500 km

- **Replace engine oil**

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**
  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**
  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 7,500 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level between upper and lower marks on the reservoir.

Maintenance Schedule for Severe Conditions - South Africa

135,000km(9year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km per trip or, in freezing temperatures, driving less than 16 km per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Inspect drive belt**
  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Replace dust and pollen filter**
  When the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system** **Check the exhaust pipe and muffler for damage, leaks, and tightness.**
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 7,500 km

- **Replace engine oil**

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**
  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**
  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 7,500 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level between upper and lower marks on the reservoir.

Maintenance Schedule for Severe Conditions - South Africa

150,000km(10year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km per trip or, in freezing temperatures, driving less than 16 km per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Replace Automatic Transmission Fluid**
  Use genuine Honda ATF-Z1.
  Replace 60,000 km or 4 years, then every 45,000 km or 3 years
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**
  When the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system** **Check the exhaust pipe and muffler for damage, leaks, and tightness.**
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 7,500 km

- **Replace engine oil**

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**
  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**
  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 7,500 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level between upper and lower marks on the reservoir.

Maintenance Schedule for Severe Conditions - South Africa

9,000miles(1year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km per trip or, in freezing temperatures, driving less than 16 km per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**
  When the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system** **Check the exhaust pipe and muffler for damage, leaks, and tightness.**
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 7,500 km

- **Replace engine oil**

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**
  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**
  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 7,500 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level between upper and lower marks on the reservoir.

Maintenance Schedule for Severe Conditions - South Africa

18,000miles(2year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km per trip or, in freezing temperatures, driving less than 16 km per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**
  When the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system** **Check the exhaust pipe and muffler for damage, leaks, and tightness.**
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 7,500 km

- **Replace engine oil**

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**
  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**
  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 7,500 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level between upper and lower marks on the reservoir.

Maintenance Schedule for Severe Conditions - South Africa

28,000miles(3year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km per trip or, in freezing temperatures, driving less than 16 km per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Inspect drive belt**
  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Replace dust and pollen filter**
  When the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system** **Check the exhaust pipe and muffler for damage, leaks, and tightness.**
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 7,500 km

- **Replace engine oil**

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**
  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**
  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 7,500 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level between upper and lower marks on the reservoir.

Maintenance Schedule for Severe Conditions - South Africa

37,000miles(4year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km per trip or, in freezing temperatures, driving less than 16 km per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Replace Manual Transmission Fluid**
  Use genuine Honda MTF.
- **Replace Automatic Transmission Fluid**
  Use genuine Honda ATF-Z1.
  Replace 60,000 km or 4 years, then every 45,000 km or 3 years
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**
  When the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system** **Check the exhaust pipe and muffler for damage, leaks, and tightness.**
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 7,500 km

- **Replace engine oil**

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**
  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**
  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 7,500 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**

- Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
- Check the brake fluid level between upper and lower marks on the reservoir.

Maintenance Schedule for Severe Conditions - South Africa

46,000miles(5year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km per trip or, in freezing temperatures, driving less than 16 km per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Replace dust and pollen filter**

  When the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating.
- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system** **Check the exhaust pipe and muffler for damage, leaks, and tightness.**
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 7,500 km

- **Replace engine oil**

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 7,500 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level between upper and lower marks on the reservoir.

Maintenance Schedule for Severe Conditions - South Africa

56,000miles(6year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km per trip or, in freezing temperatures, driving less than 16 km per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Replace fuel filter**

  Replace fuel filter every 45,000 km or 3 years, if the fuel the customer uses is suspected to be contaminated.
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating.
- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system** **Check the exhaust pipe and muffler for damage, leaks, and tightness.**
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 7,500 km

- **Replace engine oil**

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 7,500 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**

- Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
- Check the brake fluid level between upper and lower marks on the reservoir.

Maintenance Schedule for Severe Conditions - South Africa

65,000miles(7year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km per trip or, in freezing temperatures, driving less than 16 km per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Inspect idle speed**
- **Replace Automatic Transmission Fluid**

  Use genuine Honda ATF-Z1.
  Replace 60,000 km or 4 years, then every 45,000 km or 3 years
- **Replace dust and pollen filter**

  When the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating.
- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system** **Check the exhaust pipe and muffler for damage, leaks, and tightness.**
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 7,500 km

- **Replace engine oil**

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 7,500 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level between upper and lower marks on the reservoir.

Maintenance Schedule for Severe Conditions - South Africa

75,000miles(8year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km per trip or, in freezing temperatures, driving less than 16 km per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Replace Manual Transmission Fluid**
  Use genuine Honda MTF.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**
  When the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system** **Check the exhaust pipe and muffler for damage, leaks, and tightness.**
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 7,500 km

- **Replace engine oil**

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**
  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**
  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 7,500 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level between upper and lower marks on the reservoir.

Maintenance Schedule for Severe Conditions - South Africa

84,000miles(9year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km per trip or, in freezing temperatures, driving less than 16 km per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Replace dust and pollen filter**

  When the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating.
- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system** **Check the exhaust pipe and muffler for damage, leaks, and tightness.**
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 7,500 km

- **Replace engine oil**

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 7,500 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level between upper and lower marks on the reservoir.

Maintenance Schedule for Severe Conditions - South Africa

93,000miles(10year)

Follow the severe conditions maintenance schedule if the customer's vehicle is driven MAINLY under one or more of the following conditions:

- Driving less than 8 km per trip or, in freezing temperatures, driving less than 16 km per trip.
- Driving in extremely hot over 35 °C (95 °F) conditions.
- Extensive idling, or long periods of stop-and-go driving.
- Towing trailer, driving with a car-top carrier, or driving in mountainous conditions.
- Driving on muddy, dusty, or de-iced roads.

NOTE: If the vehicle is driven OCCASIONALLY under severe conditions, follow the normal conditions maintenance schedule.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Replace Automatic Transmission Fluid**

  Use genuine Honda ATF-Z1.
  Replace 60,000 km or 4 years, then every 45,000 km or 3 years
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

  When the vehicle is drive mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace the filter whenever airflow from the heating.
- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system** **Check the exhaust pipe and muffler for damage, leaks, and tightness.**
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 7,500 km

- **Replace engine oil**

Every 15,000 km

- **Replace air cleaner element**
- **Rotate tyres**

  Check tyre inflation and condition at least once per month.

Every 45,000 km

- **Inspect valve clearance**

Every 105,000 km

- **Replace spark plugs**

At 200,000 km or 10 years, then every 100,000 km or 5 years

- **Replace engine coolant**

  Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 7,500 km or 6 months

- **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust cover for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 3 years

- **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level between upper and lower marks on the reservoir.

Maintenance Schedule for Normal and Severe Conditions - Except EU, New Zealand, and South Africa

20,000km(1year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - i-SHIFT
  - ATF
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *
- ***Visually inspect the following items:***
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except EU, New Zealand, and South Africa

40,000km(2year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Inspect drive belt**
  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - i-SHIFT
  - ATF
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *
- ***Visually inspect the following items:***
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- [ ] **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except EU, New Zealand, and South Africa

60,000km(3year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for “severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.
- **Replace Automatic Transmission Fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - i-SHIFT
  - ATF
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- [ ] **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- [ ] **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except EU, New Zealand, and South Africa

80,000km(4year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace fuel filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - i-SHIFT
  - ATF
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- [ ] **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except EU, New Zealand, and South Africa

100,000km(5year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace Automatic Transmission Fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - i-SHIFT
  - ATF
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except EU, New Zealand, and South Africa

120,000km(6year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Inspect drive belt**
  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Inspect idle speed**
- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.
- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.
- **Replace Automatic Transmission Fluid**
  Use genuine Honda ATF-Z1.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - i-SHIFT
  - ATF
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**

- Check steering linkage.
- Check the boot for damage and leaking grease.

Suspension components

- Check the bolts for tightness.
- Check all dust covers for deterioration and damage.

Driveshaft boots

- Check the boot and boot band for cracks.
- Check boots for leaking grease.

Every 30,000 km (18,750 miles)

Replace air cleaner element

Every 40,000 km (25,000 miles)

Inspect valve clearance

Every 100,000 km (62,500 miles)

Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

Replace engine coolant

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

Check front and rear brakes

- Check the brake pad and disc thickness. Check for damage.
- Check the calipers for damage, leaks, and tightness.

Every 3 years

Replace brake fluid

- Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
- Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

Rotate tyres

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except EU, New Zealand, and South Africa

140,000km(7year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace Automatic Transmission Fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - i-SHIFT
  - ATF
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except EU, New Zealand, and South Africa

160,000km(8year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace fuel filter**
- **Inspect drive belt**
  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - i-SHIFT
  - ATF
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- [ ] **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except EU, New Zealand, and South Africa

180,000km(9year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for “severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.
- **Replace Automatic Transmission Fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - i-SHIFT
  - ATF
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- [ ] **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- [ ] **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except EU, New Zealand, and South Africa

200,000km(10year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Inspect drive belt**
  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Replace Automatic Transmission Fluid**
  Use genuine Honda ATF-Z1.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - i-SHIFT
  - ATF
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- [ ] **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- [ ] **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except EU, New Zealand, and South Africa

12,000miles(1year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - i-SHIFT
  - ATF
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except EU, New Zealand, and South Africa

25,000miles(2year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Inspect drive belt**
  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - i-SHIFT
  - ATF
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *
- ***Visually inspect the following items:***
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- [ ] **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except EU, New Zealand, and South Africa

37,000miles(3year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for “severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.
- **Replace Automatic Transmission Fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - i-SHIFT
  - ATF
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- [ ] **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- [ ] **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except EU, New Zealand, and South Africa

50,000miles(4year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace fuel filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - i-SHIFT
  - ATF
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- [ ] **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except EU, New Zealand, and South Africa

62,000miles(5year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace Automatic Transmission Fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - i-SHIFT
  - ATF
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except EU, New Zealand, and South Africa

75,000miles(6year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Inspect drive belt**
  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Inspect idle speed**
- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.
- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.
- **Replace Automatic Transmission Fluid**
  Use genuine Honda ATF-Z1.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - i-SHIFT
  - ATF
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**

- Check steering linkage.
- Check the boot for damage and leaking grease.

Suspension components

- Check the bolts for tightness.
- Check all dust covers for deterioration and damage.

Driveshaft boots

- Check the boot and boot band for cracks.
- Check boots for leaking grease.

Every 30,000 km (18,750 miles)

Replace air cleaner element

Every 40,000 km (25,000 miles)

Inspect valve clearance

Every 100,000 km (62,500 miles)

Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

Replace engine coolant

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

Check front and rear brakes

- Check the brake pad and disc thickness. Check for damage.
- Check the calipers for damage, leaks, and tightness.

Every 3 years

Replace brake fluid

- Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
- Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

Rotate tyres

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except EU, New Zealand, and South Africa

87,000miles(7year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace Automatic Transmission Fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - i-SHIFT
  - ATF
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except EU, New Zealand, and South Africa

100,000miles(8year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace fuel filter**
- **Inspect drive belt**

  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Check parking brake adjustment**

  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - i-SHIFT
  - ATF
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- [ ] **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except EU, New Zealand, and South Africa

112,000miles(9year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for “severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace Manual Transmission Fluid**
  - M/T
  - i-SHIFT

  Use genuine Honda MTF.
- **Replace Automatic Transmission Fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - i-SHIFT
  - ATF
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- [ ] **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- [ ] **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except EU, New Zealand, and South Africa

125,000miles(10year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*:Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Inspect drive belt**
  Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
- **Replace Automatic Transmission Fluid**
  Use genuine Honda ATF-Z1.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - M/T
  - i-SHIFT
  - ATF
  - Brake fluid
  - Clutch fluid M/T , i-SHIFT
  - Windshield washer fluid
- **Exhaust system**
  - KE, KG model
  - Except KE, KG model

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- [ ] **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- [ ] **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

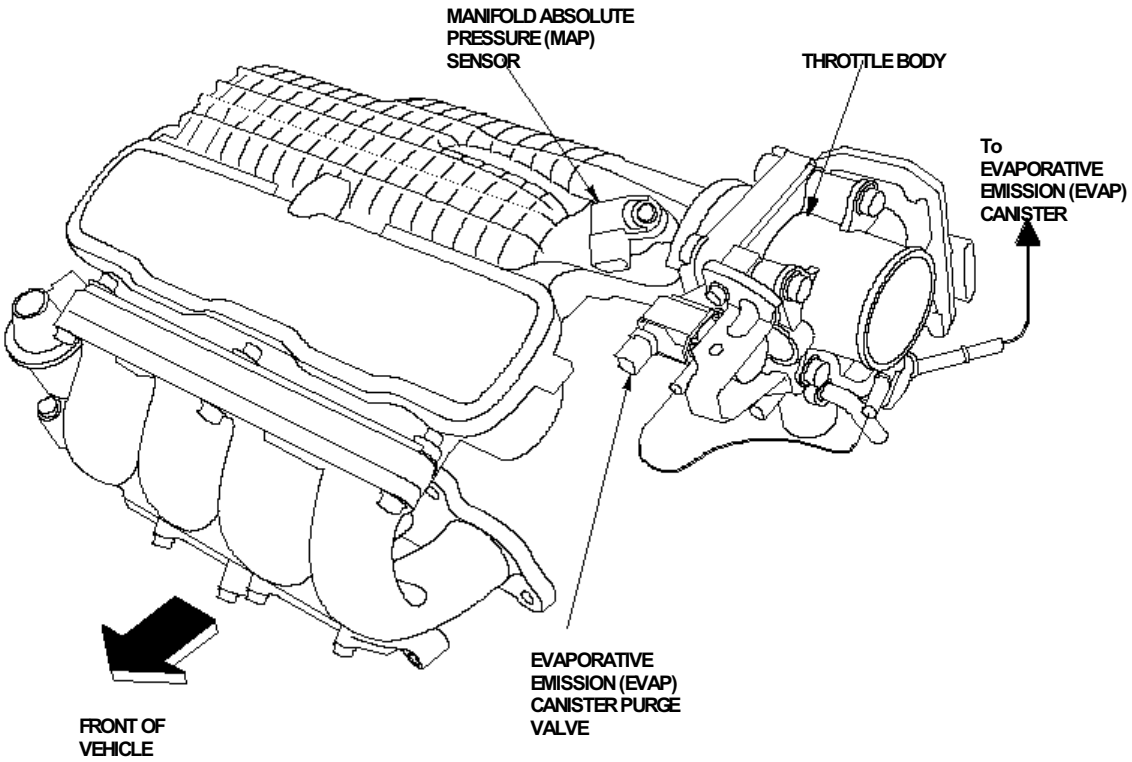
- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

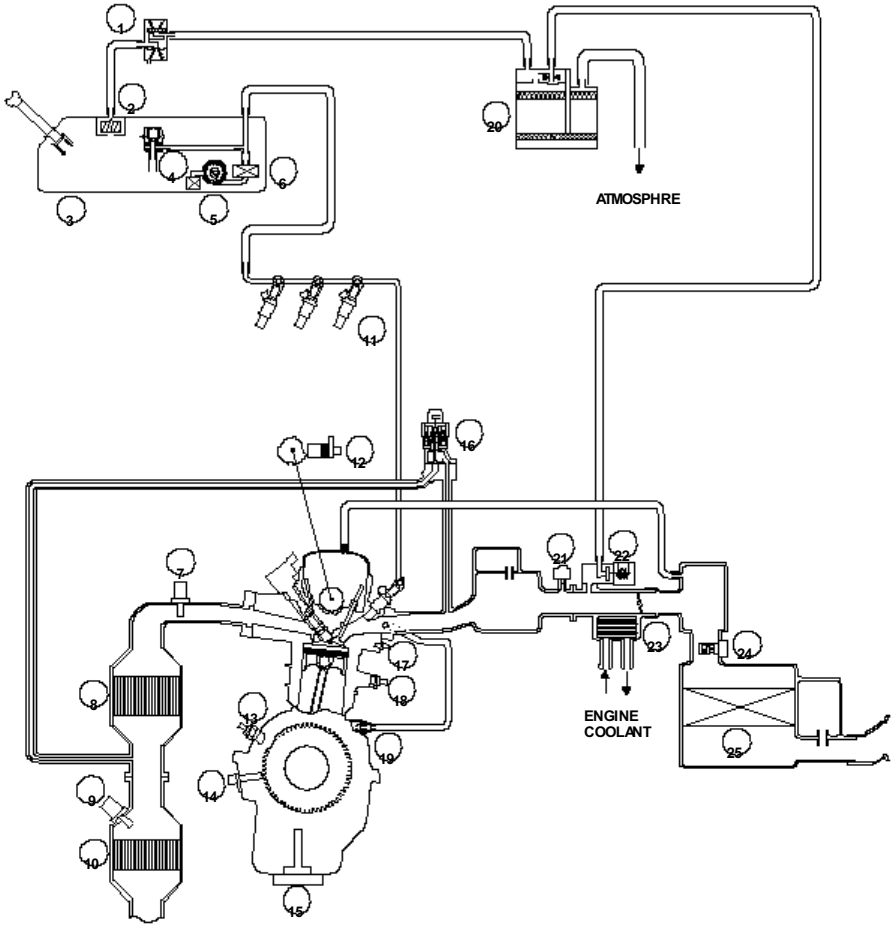
- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Vacuum Hose Routing



Vacuum Distribution



(1) EVAPORATIVE EMISSION (EVAP) TWO WAY VALVE
(2) FUEL TANK VAPOR/LIQUID SEPARATION VALVE
(3) FUEL TANK
(4) FUEL PRESSURE REGULATOR
(5) FUEL PUMP
(6) FUEL FILTER
(7) AIR FUEL RATIO (A/F) SENSOR (SENSOR 1)
(8) WARM UP THREE WAY CATALYTIC CONVERTER (WU-TWC)
(9) SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S) (SENSOR 2)
(10) UNDER-FLOOR THREE WAY CATALYTIC CONVERTER (TWC)
(11) INJECTOR
(12) CAMSHAFT POSITION (CMP) SENSOR
(13) OIL PRESSURE SWITCH
(14) CRANKSHAFT POSITION (CKP) SENSOR
(15) ENGINE OIL LEVEL SENSOR (KE, KG models)
(16) EXHAUST GAS RECIRCULATION (EGR) VALVE and POSITION SENSOR (KE, KG models)
(17) ENGINE COOLANT TEMPERATURE (ECT) SENSOR 1
(18) KNOCK SENSOR
(19) POSITIVE CRANKCASE VENTILATION (PCV) VALVE
(20) EVAPORATIVE EMISSION (EVAP) CANISTER
(21) MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR
(22) EVAPORATIVE EMISSION (EVAP) CANISTER PURGE VALVE
(23) THROTTLE BODY
(24) MASS AIR FLOW (MAF) SENSOR/INTAKE AIR TEMPERATURE (IAT) SENSOR
(25) AIR CLEANER

Exhaust Gas Recirculation (EGR) System (KE, KG models)

Refer to the system diagram to see a functional layout of the system.

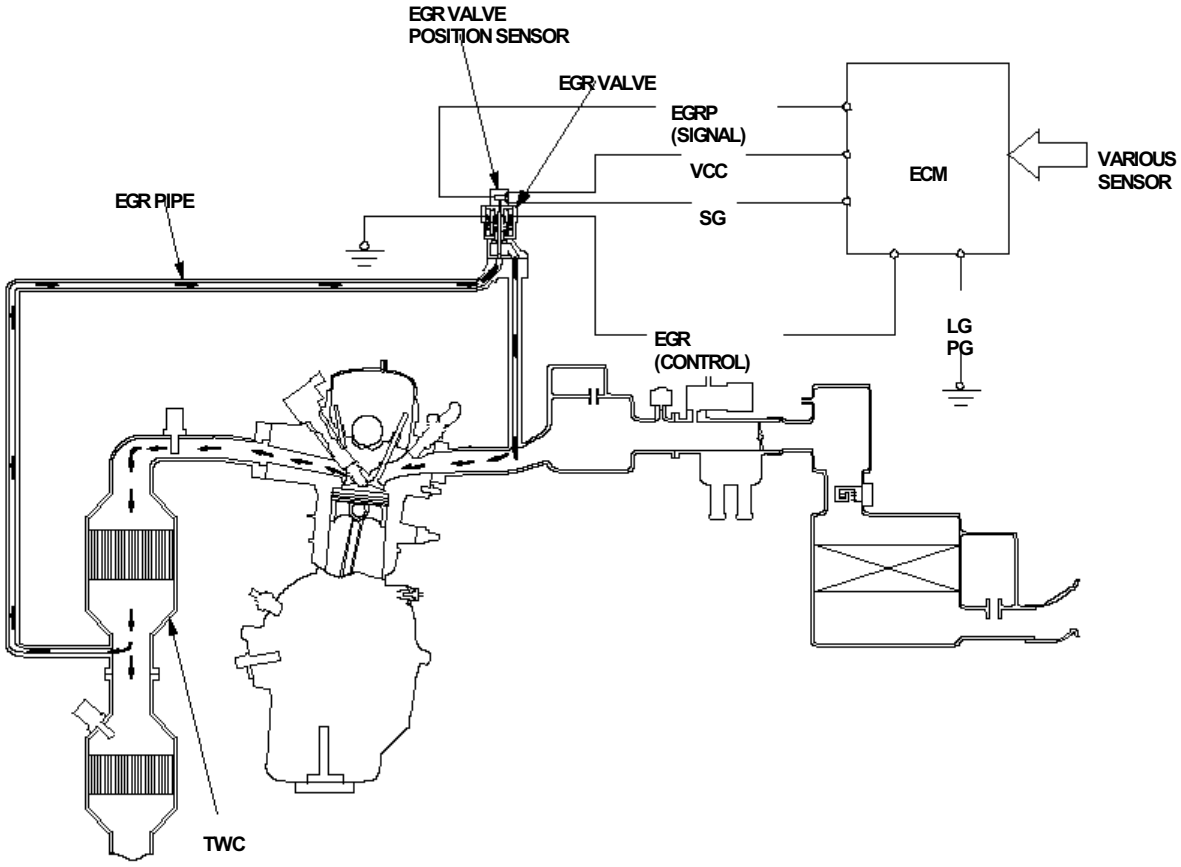
EGR Valve

The EGR valve lowers peak combustion temperatures and reduces oxides of nitrogen emissions (NOx) by recirculating exhaust gas through the intake manifold and into the combustion chambers.

Exhaust Gas Recirculation (EGR) System Diagram (KE, KG models)

The EGR system reduces oxides of nitrogen (NOx) emissions by recirculating exhaust gas through the EGR pipe and the intake manifold, and into the combustion chambers. Routing the exhaust gas through the EGR pipe helps to prevent carbon deposits from forming in the intake manifold and the throttle body. The ECM memory includes the ideal EGR valve position for varying operating conditions.

The EGR valve position sensor detects the amount of EGR valve lift and sends it to the ECM. The ECM then compares it with the ideal lift in its memory (based on signals sent from other sensors). If there is any difference between the two, the ECM cuts current to the EGR valve.



Fuel Supply System

Fuel Cutoff Control

During deceleration with the throttle valve closed, current to the injectors is cut off to improve fuel economy at engine speeds over 850 rpm (min^{-1}) (A/T) (M/T: 910 rpm (min^{-1})) (i-SHIFT: 850 rpm (min^{-1})). Fuel cutoff also occurs when the engine speed exceeds 7,000 rpm (min^{-1}) (L15A7 engine) (L13Z1: 6,600 rpm (min^{-1})) (L12B1: 6,600 rpm (min^{-1})), regardless of the position of the throttle valve, to protect the engine from over-rewing. When the vehicle is stopped, the ECM/PCM cuts the fuel at engine speeds over 5,000 rpm (min^{-1}) (A/T), 6,600 rpm (min^{-1}) (L13Z1 engine M/T) (L12B1 engine M/T: 6,600 rpm (min^{-1})) (L15A7 engine M/T: 6,800 rpm (min^{-1})). On a cold engine, fuel cut occurs at a lower engine speed.

Fuel Pump Control

When the ignition is turned on, the ECM/PCM grounds PGM-FI main relay 2 which feeds current to the fuel pump for 2 seconds to pressurize the fuel system. With the engine running, the ECM/PCM grounds PGM-FI main relay 2 and feeds current to the fuel pump. When the engine is not running and the ignition is on, the ECM/PCM cuts ground to PGM-FI main relay 2 which cuts current to the fuel pump.

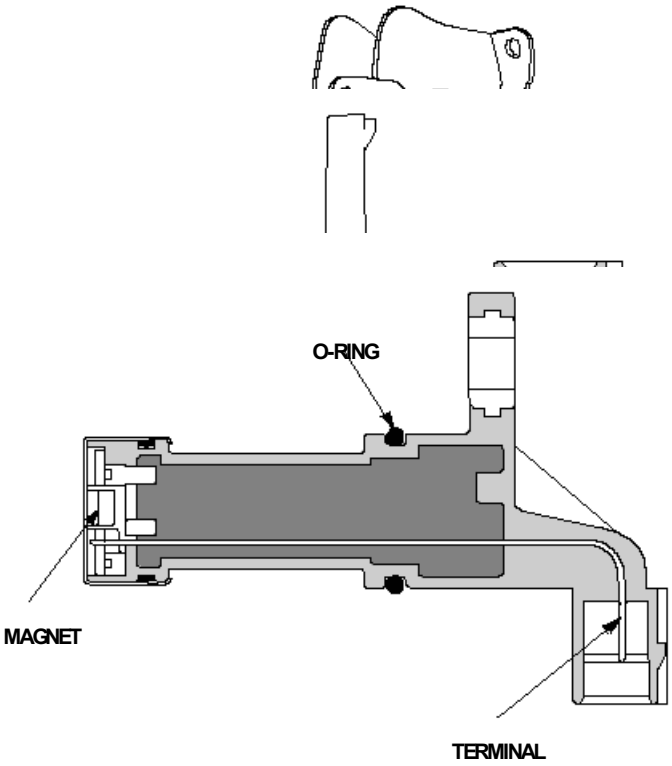
PGM-FI Main Relay 1 and 2

PGM-FI main relay 1 is energized whenever the ignition switch is ON (II) to supply battery voltage to the ECM/PCM, power to the injectors, and power for PGM-FI main relay 2. PGM-FI main relay 2 is energized to supply power to the fuel pump for 2 seconds when the ignition switch is turned to ON (II), and when the engine is cranking or running.

PGM-FI System

Clutch Pedal Position Switch A (KE, KG models (M/T))

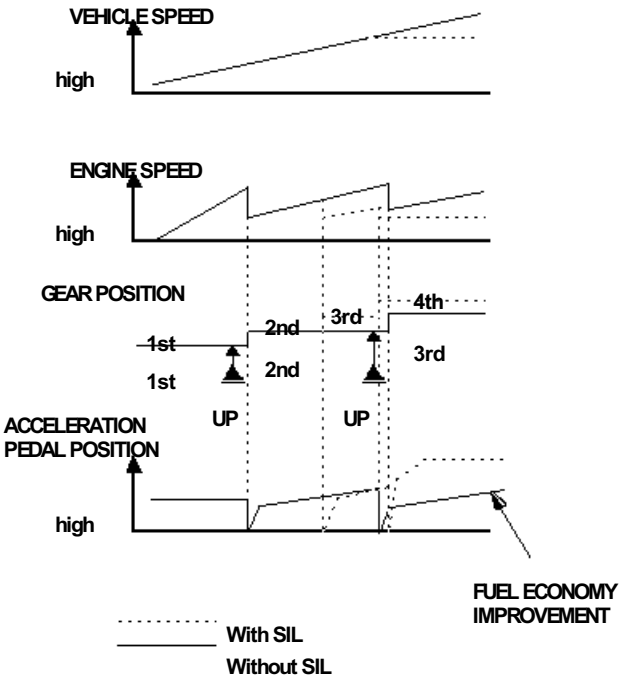
The clutch pedal position switch A signals the ECM when the clutch switch pedal is pressed. When the clutch pedal position switch A is ON, the ECM turned off shift indicator lamp (SIL) via the F -CAN.



Shift Indicator Lamp (SIL) (KE, KG models (M/T))

The shift indicator lamp (SIL) indicates optimal gear shift position in optimal shift timing for better actual fuel consumption.
When prompting to one-gear shift up, shift up indicator lamp illuminate on.
When prompting to one-gear shift down, shift down indicator lamp illuminate on.

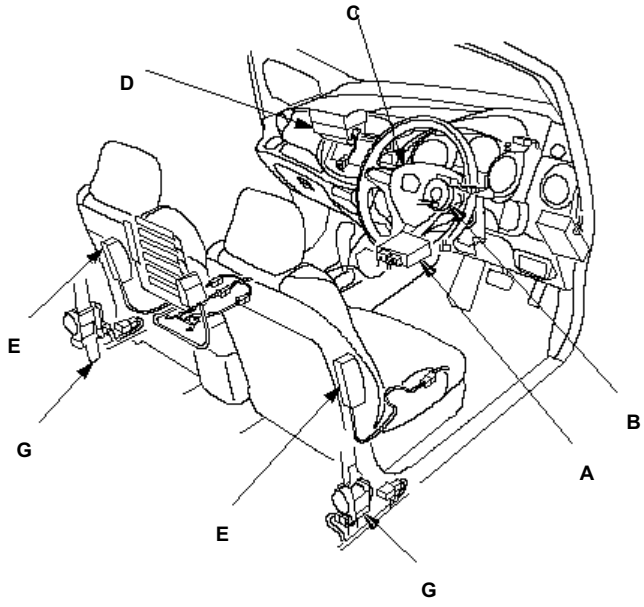
ooking on acceleration pedal
revent excessive footing on acceleration pedal

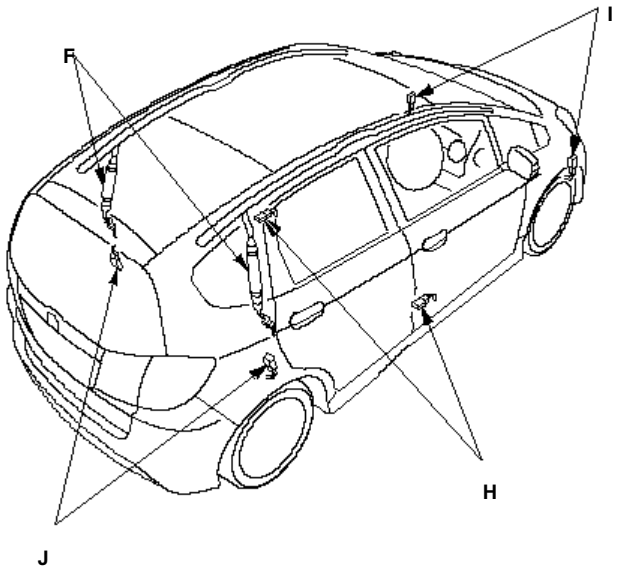


SRS Components

Airbags

The SRS is a safety device which, when used with the seat belt, is designed to help protect the driver and front passenger in a frontal impact exceeding a certain set limit. The system consists of the SRS unit including safing sensor and impact sensor (A), the cable reel (B), the driver's airbag (C), the front passenger's airbag (D), side airbags (E), side curtain airbags (F), seat belt tensioners (G), side impact sensors (first) (H), front impact sensors (I), and side impact sensors (second) (J).
Since the driver's and front passenger's airbags use the same sensors, both normally inflate at the same time. However, it is possible for only one airbag to inflate. This can occur when the severity of a collision is at the margin, or threshold, that the SRS unit determines whether or not the airbags will deploy. In such cases, the seat belt will provide sufficient protection, and the supplemental protection offered by the airbag would be minimal.





Side Airbag Cutoff Indicator/OPDS Operation

The indicator comes on if the front passenger's seat is occupied by a small adult or child who is leaning into the deployment path, or an object (grocery bag, briefcase, purse, etc.) is in the seat. This indicates the passenger's side airbag is off and will not deploy; there is no problem with the side airbag. If the passenger sits upright or moves to another seat, or you remove the object from the seat, the indicator should go off. There will be some delay between the occupant's repositioning, and when the indicator will turn on or off.

SRS Operation

The main circuit in the SRS unit senses and judges the force of impact and, if necessary, ignites the inflator charges. If battery voltage is too low or power is disconnected due to the impact, the voltage regulator and the back-up power circuit will keep voltage at a constant level.

For the SRS to operate

Seat Belt Tensioners

(1) A front impact sensor or side impact sensor must activate and send electric signals to the microprocessor.
(2) The microprocessor must compute the signals and send them to the tensioners.
(3) The charges must ignite and deploy the tensioners.

Driver's and Front Passenger's Airbag(s)

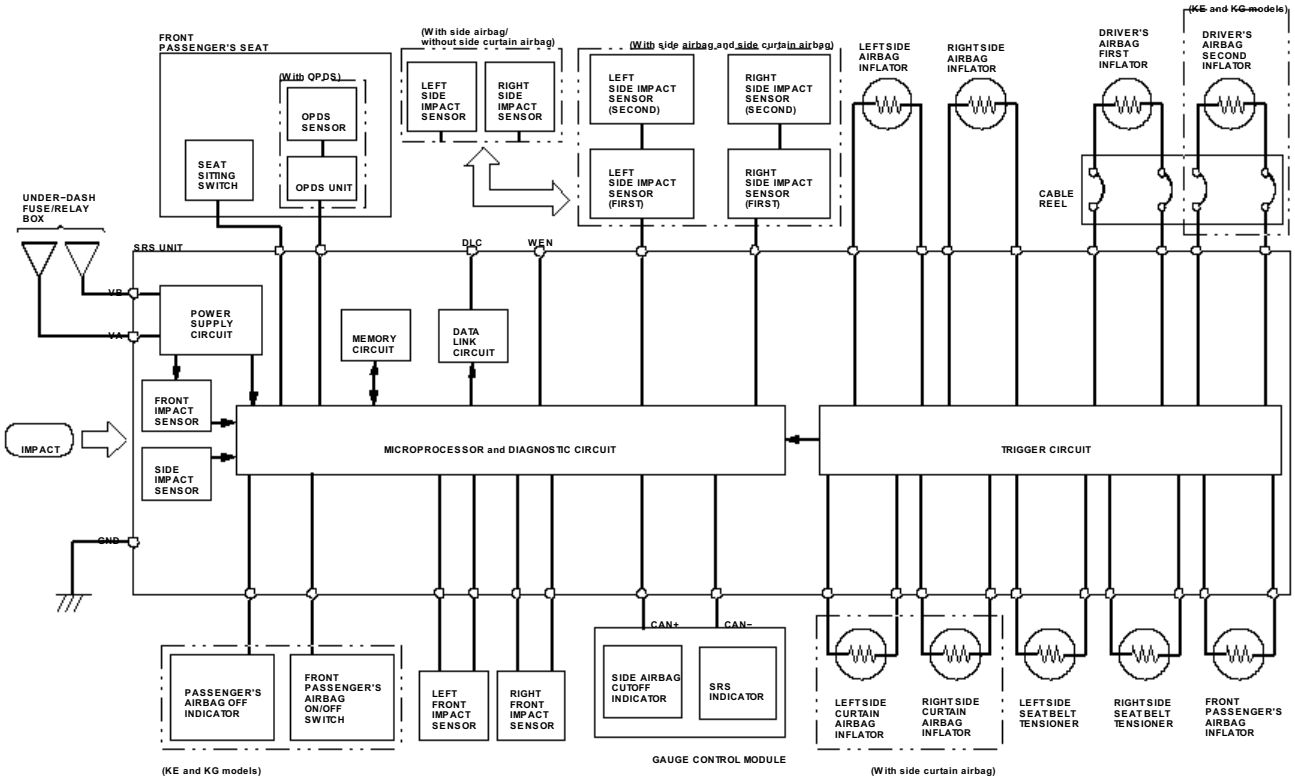
(1) A front impact sensor must activate, and send electric signals to the microprocessor.
(2) The microprocessor must compute the signals, and send them to the airbag inflator(s).
(3) The inflators that received signals must ignite and deploy the airbags.

Side Airbag(s)

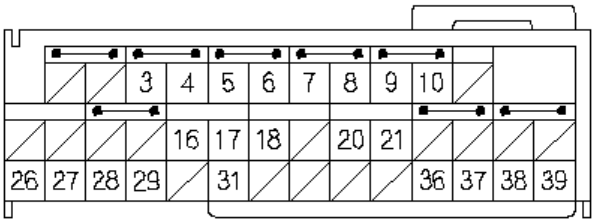
(1) A side impact sensor must activate, and send electric signals to the microprocessor.
(2) The microprocessor must compute the signals and send them to the side airbag inflator(s). However, the microprocessor cuts off the signals to the front passenger's side airbag if the SRS unit determines that the front passenger's head is in the deployment path of the side airbag.
(3) The inflator that receives the signal must ignite and deploy the side airbag.

Side Curtain Airbag(s)

(1) Side impact sensor must activate, and send electrical signals to the microprocessor.
(2) The microprocessor must compute the signals and send them to the side curtain airbag and side airbag inflator(s).
(3) The inflator that receives the signals must ignite and deploy the side curtain airbag and side airbag at the same time.



SRS Unit Inputs and Outputs at Connector A (39P)

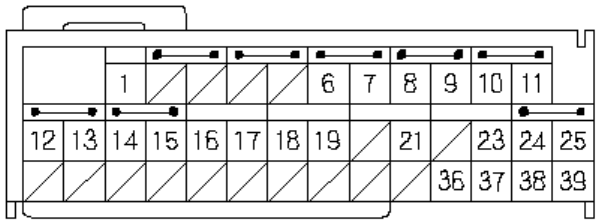


Wire side of female terminals

18	BLU *1	K-LINE	Sends and receives scan tool signal (serial data)
20 *4	GRN	PTT	Sends and receives communication signal with the passenger's airbag off indicator
21 *4	PNK	ACS	Power source for the front passenger's airbag ON/OFF switch
26	WHT *1	VA	SRS system sub power (common with OPDS or passenger's airbag off indicator)
27	PUR *1	VB	SRS dedicated power (dedicated booster circuit)
28	BLK *1	SRS GND 1	Ground circuit for the SRS unit (G504)
29	BLK *1	SRS GND 2	Ground circuit for the SRS unit (G504)
31	RED *1	WEN	Data link connector
36	BRN *1	LFS−	Ground for the left front impact sensor
37	RED *1	LFS+	Power source for the left front impact sensor
38	LT BLU *1	RFS−	Ground for the right front impact sensor
39	GRN *1	RFS+	Power source for the right front impact sensor

*1: Wire colors may be substituted in this table.
*2: KG model
*3: KE model
*4: KE and KG models

SRS Unit Inputs and Outputs at Connector B (39P)



Wire side of female terminals

18 *1	WHT *2	RRBO	Rear right side seat belt buckle switch
19 *1	YEL *2	FLBC	Front left side seat belt buckle switch
21 *1	GRN *2	FRBC	Front right side seat belt buckle switch
23 *1	LT BLU *2	SS+	Power source for seat sitting switch
24 *1	BLU *2	RCA1−	Ground for the right side curtain airbag inflator
25 *1	YEL *2	RCA1+	Power source for the right side curtain airbag inflator
36 *1	GRY *2	LBS1−	Ground for the left side impact sensor (first)
37 *1	PNK *2	LBS1+	Power source for the left side impact sensor (first)
38 *1	LT GRN *2	RBS1−	Ground for the right side impact sensor (first)
39 *1	BRN *2	RBS1+	Power source for the right side impact sensor (first)

*1: Terminal may be lost, depending on the SRS equipment.
*2: Wire colors may be substituted in this table.

Anti-theft Feature

The audio unit has a coded theft protection circuit. Make sure you have the anti-theft security code before:

- Disconnecting the battery.
- Disconnecting the audio unit 24P connector.
- Removing the No. 1 (10 A) fuse from the under-hood fuse/relay box.

When the audio unit is reconnected to the power and the ignition switch is turned to ON (II), ‘‘CODE" will be displayed. Then, enter the 5-digit anti-theft security code.
When replacing the audio unit, be sure to give the customer the new anti-theft security code.

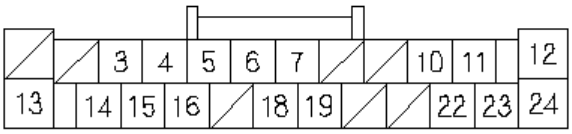
Muting Logic

During HFT mode, HFT voice will be outputted from the front speakers and tweeters, while rear speakers are muted. The outline of the muting logic is shown following table.

Item	Normal	During HFT mode
Left front speaker and tweeter	Audio sound	HFT voice
Right front speaker and tweeter	Audio sound	HFT voice
Left rear speaker	Audio sound	Muted
Right rear speaker	Audio sound	Muted

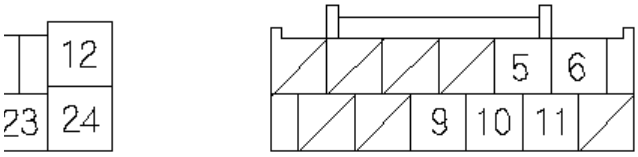
Audio Unit Connector for Inputs and Outputs

AUDIO UNIT CONNECTOR A (24P)



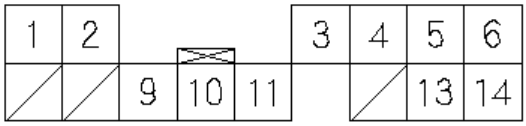
Wire side of female terminals

AUDIO UNIT CONNECTOR B (12P)
(With hands free telephone system)



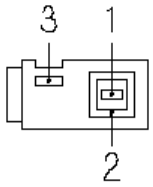
Wire side of female terminals

AUDIO UNIT CONNECTOR C (14P)
(With USB adapter)



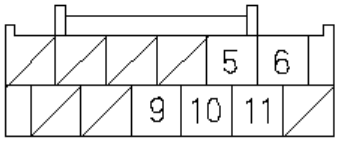
Wire side of female terminals

AUDIO UNIT CONNECTOR D (3P)

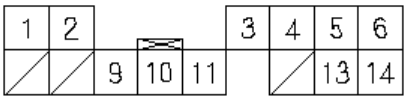


Terminal side of female terminals

Connects to
TELEM SIG SH)
ICON)
EM SIG−)
EM SIG+)
MUTE)

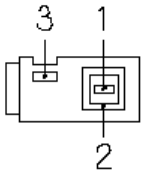


Connects to



Wire side of female terminals

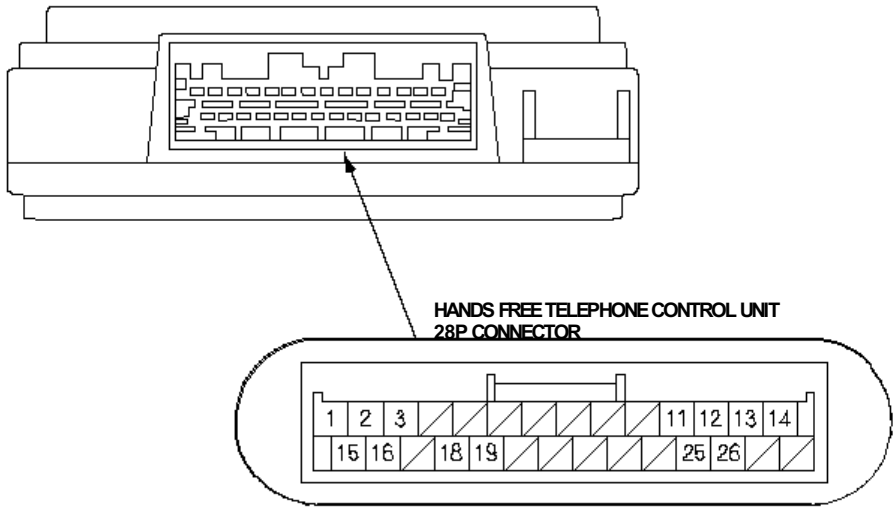
AUDIO UNIT CONNECTOR D (3P)



Terminal side of female terminals

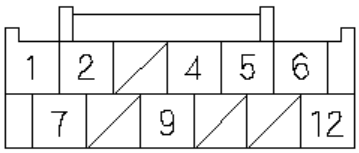
Connects to

Hands Free Telephone Control Unit Inputs and Outputs



HVAC Control Unit Inputs and Outputs

HVAC CONTROL UNIT 12P CONNECTOR

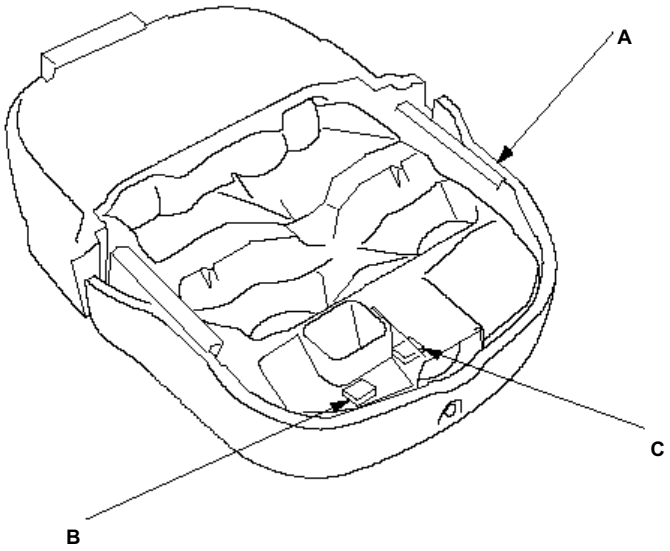


Wire side of female terminals

Automatic Lighting System

The automatic lighting system turns on the headlights, all other exterior lights, and the dash lights when the automatic lighting sensor senses low ambient light. The automatic lighting sensor is built into the automatic lighting/rain sensor (A) and located on the windscreen near the rearview mirror, and it operates when the AUTO position of the combination light switch is selected.

The automatic lighting sensor connects to B-CAN and uses the two photodiode sensors. One (B) of the two photodiode sensors is to measure the ambient illuminant, and the other (C) is to measure the forward illuminant.



Daytime Running Lights

The daytime running lights system includes the MICU, the left and right low beam headlights, the daytime running lights relay, the left and right position lights, taillights, and license plate lights. The daytime running lights operate with the ignition switch ON (II) and the combination light switch off.
NOTE:

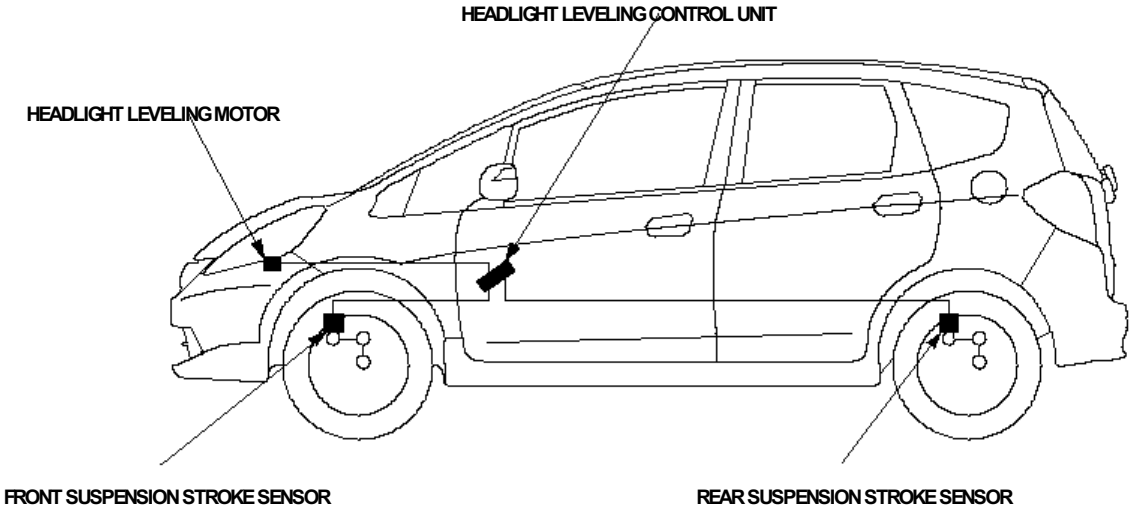
- The daytime running lights are disabled when the ignition switch is turned to LOCK (0).
- The left and right position lights, taillights, and license plate lights revert to normal operation with the combination light switch on.

Headlight Leveling System (With HID)

The headlights leveling system is composed of the headlight leveling control unit, the front and rear suspension stroke sensors, and the left and right headlight leveling motors.

The system uses the front and rear suspension stroke sensors to monitor the vehicle ride height. The ride height is monitored every 1 second while the vehicle is running, and when the vehicle stops with the ignition switch ON (II).

If the control unit detects the ride height change, the control unit controls the headlight leveling motors to adjust the headlight vertical position.



Suspension Stroke Sensors

The headlight leveling system uses the front and rear suspension stroke sensor signals. The front suspension stroke sensor is located at the left front suspension area. A short link connects the arm of the sensor to the lower arm. The rear suspension stroke sensor is located at the left rear suspension area. A short link connects the arm of the sensor to the lower arm.
The sensors detect the vehicle ride height and sends a voltage signal (about 0.5−4.5 V) to the headlight leveling control unit.

Headlight Leveling Control Unit

The headlight leveling control unit is located under the driver's side of the dashboard. The headlight leveling control unit uses the voltage signals it receives from the front and rear suspension stroke sensors to determine the voltage signal (about 2−11 V) it sends to control the left and right leveling motors.

Headlight Leveling Motors

The headlight leveling motors are located behind both headlights, and they adjust the headlights vertically based upon the voltage signals (about 2−11 V) they receive from the headlight leveling control unit.

One-push Turn Signal

When the turn signal lever is pushed to L or R position lightly (for 40±10 or more and less than 350±10 msec) under the condition that the ignition switch is ON (II) and the hazard warning switch is OFF, the left or right turn signal indicator on the gauge control module and the turn signal lights blink three times.

This system is integrated with the MICU. The MICU sends output signal to the left or right turn signal lights based upon the input signals of each switch.

MICU Control Function Index

System	Function
Multiplex Control	Sends the switch signal information to the MICU and output the information. The MICU controls the ECUs electric load and communication based upon the information received from the B-CAN.
On-board Diagnosis	The MICU has a gateway function which sends the results of the MICU internal diagnosis and the B-CAN connected ECUs diagnosis to the HDS.
Self-diagnosis	Test mode 1 diagnoses the communication line between the MICU and B-CAN connected unit. Test mode 2 checks the switch inputs connected to the MICU.
Interior Light(s)	The MICU controls the interior lights ON, OFF and dimming based upon the information of the related switches and/or the B-CAN related information.
Sleep Function	The MICU has a sleep function, which it enters during power down mode.

The MICU also controls the function of these circuits:

- Entry lights control (ceiling light, cargo area light)
- Exterior lights control
- Horn
- Interlock system
- Keyless entry
- Power door locks
- Security alarm
- Turn signal/hazard flasher
- Wiper/washer
- Power window key-off timer

Hardware Fail-safe Control

Fail-safe Function

When a CPU problem or a abnormal power supply voltage is detected, the MICU moves to the hardware fail-safe mode, and each system output load is set to the pre-programmed fail-safe value.

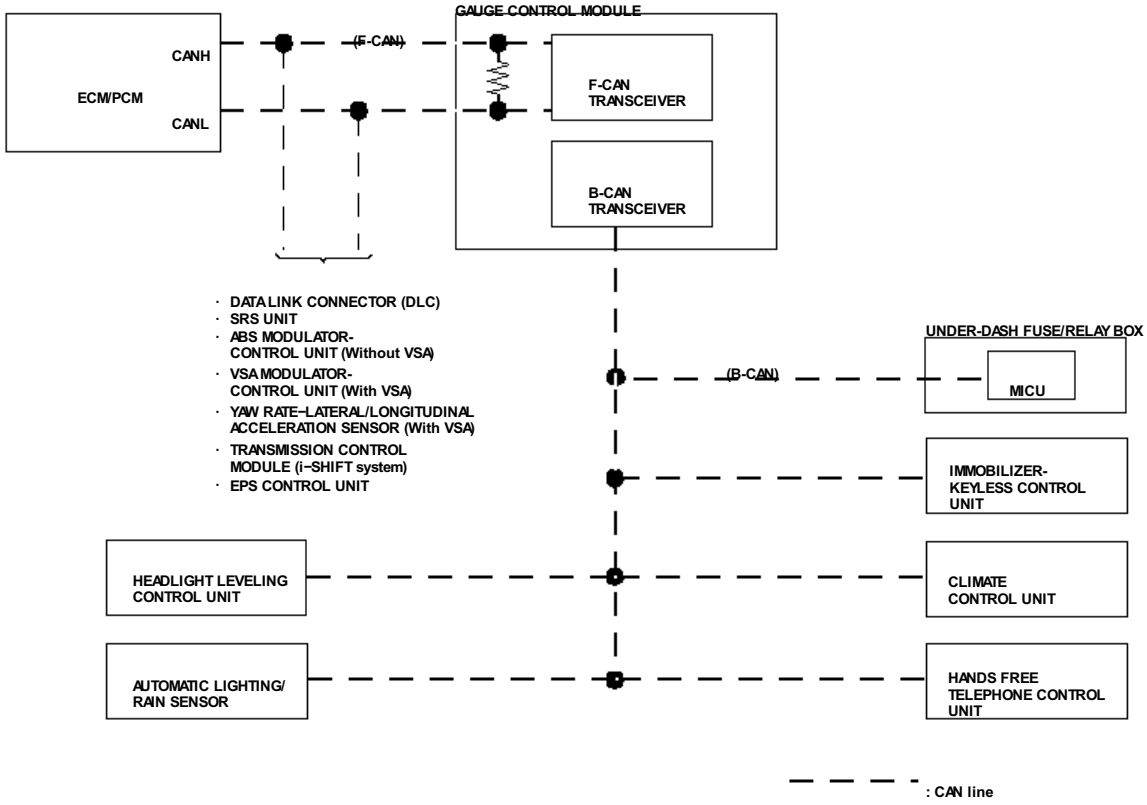
Software Fail-safe Control

When any of the data from the B-CAN circuit cannot be received within a specified time, or an unusual combination of the data is recognized, the MICU moves to the software fail-safe mode. The data that cannot be received is compulsorily fixed to a pre-programmed value.

B-CAN

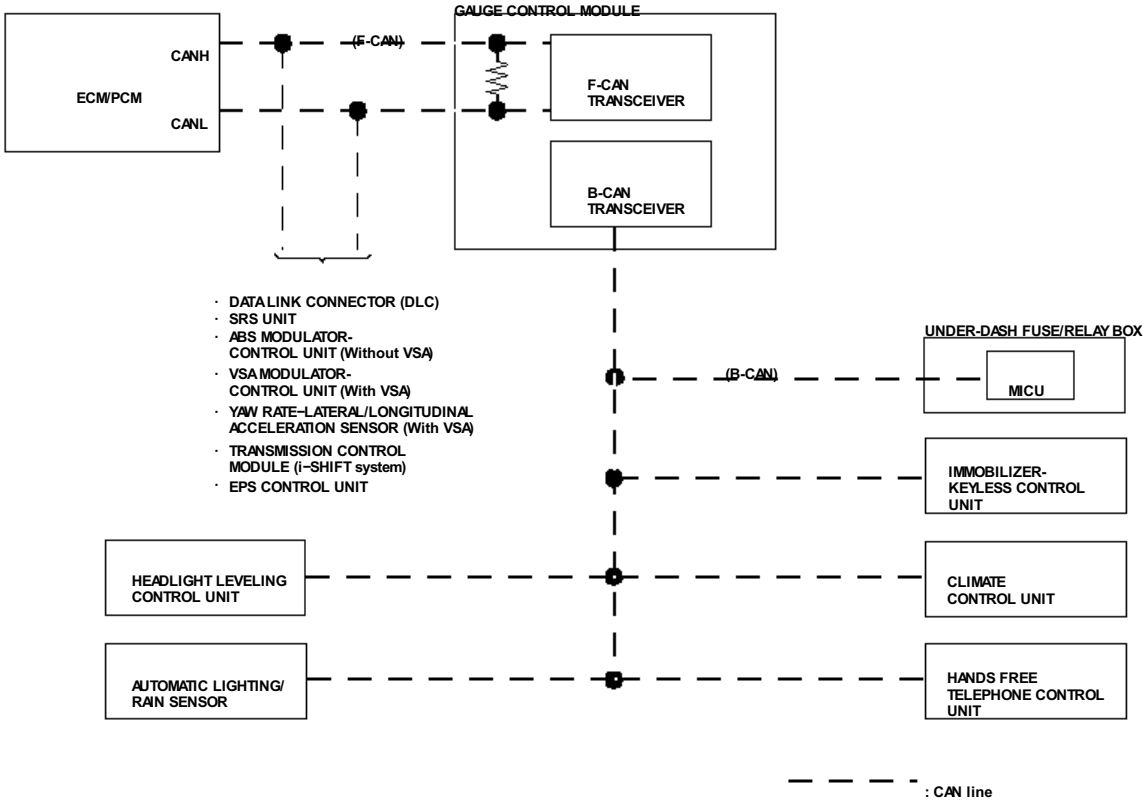
The body controller area network (B-CAN) and the fast controller area network (F-CAN) share information between multiple electronic control units (ECUs). B-CAN communication moves at a slower speed (33.33 kbps) for convenience related items and for other functions. F-CAN information moves at a faster speed (500 kbps) for ‘‘real time" functions such as fuel and emissions data. To allow both systems to share information, the gauge control module translates information from B-CAN to F-CAN and from F-CAN to B-CAN.

- The single wire method is used between the units not requiring the communication to move at a fast speed.
- Using a single wire method reduces the number of the wires used on B-CAN.



Gateway Function

The gauge control module acts as a gateway to allow both systems to share information. The gauge control module translates information from B-CAN to F-CAN and from F-CAN to B-CAN.



Network “Loss of Communication" Error Checking Function

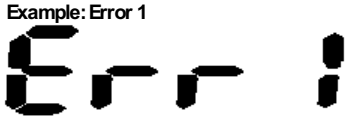
The ECUs on the CAN circuit send messages to each other. If there is any malfunction on the network, the odo/trip display on the gauge control module can indicate the error messages by entering the gauge self-diagnostic function.

Error Code List

Error code	Type of communication line(s) error
Error 1	F-CAN communication
Error 2	B-CAN communication
Error 12	F-CAN and B-CAN communication

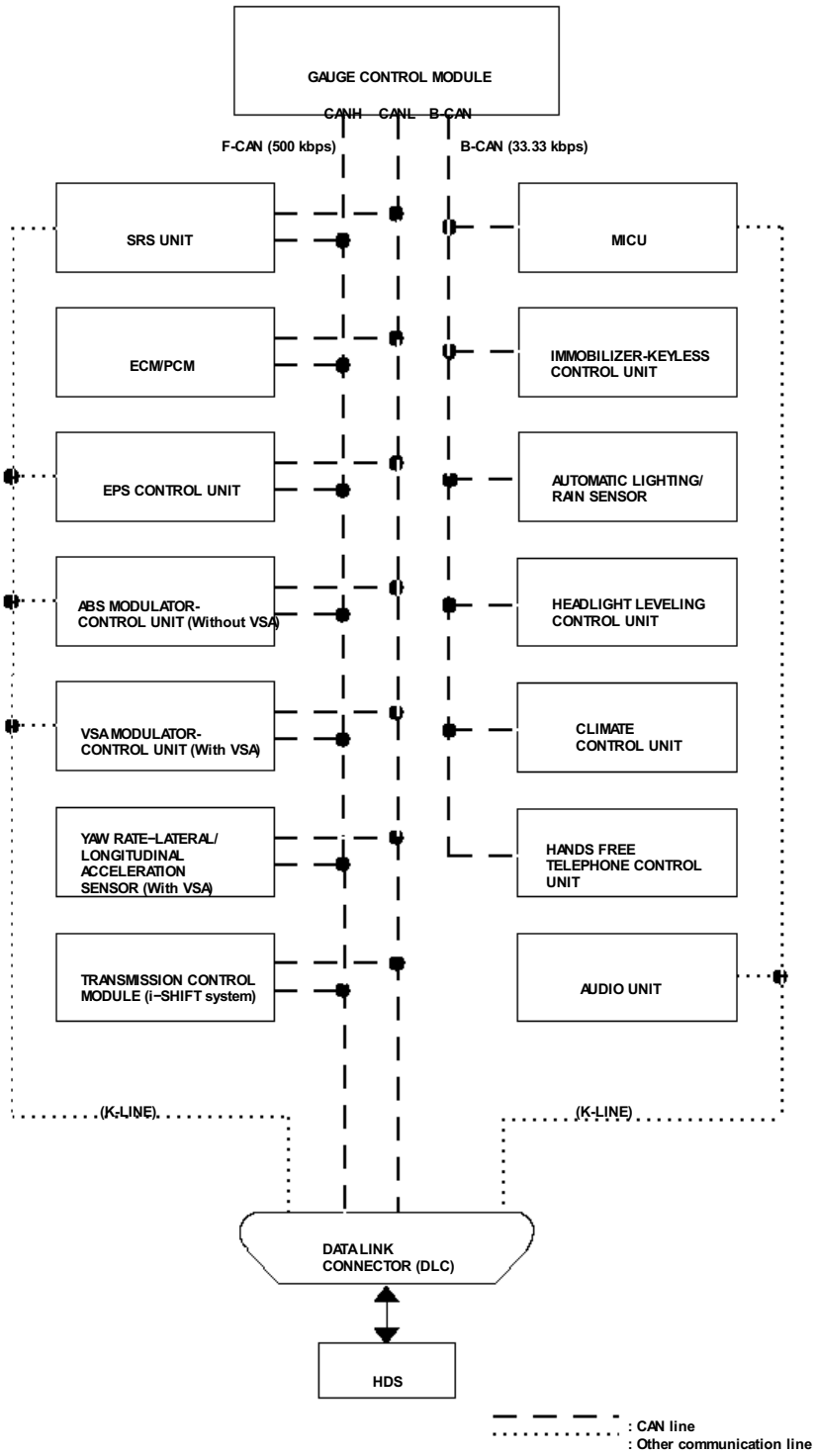
NOTE: For further information about Error indication, refer to the gauge control module self-diagnostic function.

Example: Error 1



Self-diagnostic Function

By connecting the HDS to the data link connector (DLC), the HDS can retrieve and indicate the diagnostic results of each ECU. The diagnostic line called K-LINE is distinguished from the CAN lines, and connected to the CAN related ECUs. The MICU is a gateway between the HDS and B-CAN related ECUs, and sends B-CAN diagnostic results to the HDS.



Wake-up and Sleep Function

The multiplex control system has ‘‘wake-up" and ‘‘sleep" functions to decrease the parasitic draw on the battery when the ignition switch is OFF.

- In the sleep mode, the MICU stops functioning (communication and CPU control) when it is not necessary for the system to operate.
- As soon as any operation is requested (for example, a door is unlocked), the related control unit in the sleep mode immediately wakes up and begins to function.
- When the ignition switch is turned OFF, and the driver's door is opened, then closed, there is a delay of about 40 seconds before the control unit goes from the wake-up mode to the sleep mode.
- The sleep mode will not function if any door is opened or if a ignition switch is in any positions except LOCK (0) position.
- The draw is reduced from 200 mA to less than 35 mA when in the sleep mode.

Fail-safe Function

To prevent improper operation, the MICU has a fail-safe function. In the fail-safe mode, the output signal is fixed when any part of the system malfunctions (for example, a faulty control unit or communication line).
Each control unit has a hardware fail-safe function that fixes the output signal when there is a CPU malfunction, and a software fail-safe function that ignores the signal from a control unit, which allows the system to operate normally.

Power Supply Voltage Monitoring Function

The MICU monitors the power supply voltage (back-up voltage). If the voltage goes below 10 V, the MICU sends a MICU message and will not store DTCs.

	Input	Output
MICU	Battery voltage	
B-CAN		MICU message

Headlights

The MICU controls the headlights based upon the ignition switch (IG1) and the combination light switch signals.

	Input	Output
MICU	IG1 power supply Combination light switch (SMALL) Headlight switch (OFF) Headlight switch (ON) Dimmer switch Passing switch	Headlight (LOW) Headlight (HIGH) Front position lights/Taillights High/Low beam switching solenoid *
B-CAN		MICU (RM) message MICU (HLSW) message

*: With HID

Turn Signal

The MICU controls the turn signal/hazard flasher lights based upon the input signals from the turn signal switch and the hazard warning switch.

	Input	Output
MICU	IG1 power supply Hazard warning switch Turn signal switch (left) Turn signal switch (right)	Turn signal lights (left) Turn signal lights (right)

Entry Light

The MICU controls the interior lights based upon the input signals of each switches and the B-CAN signals.

	Input	Output
MICU	IG1 power supply Ignition key switch Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch Driver's door lock knob switch (LOCK/UNLOCK)	Individual map light
B-CAN	Keyless LOCK/UNLOCK signal	

Cargo Area Light

The MICU controls the cargo area light based upon the tailgate latch switch signal.

	Input	Output
MICU	Tailgate latch switch	Cargo area light

Automatic Lighting System

The MICU controls the automatic lighting system as based upon the input signals from the combination switch and the B-CAN signals.

	Input	Output
MICU	Headlight switch (OFF) Dimmer switch Combination light switch (SMALL) Passing switch	Headlight (LOW) Headlight (HIGH) Front position lights/Taillights
B-CAN *	Automatic lighting signal (ALSMALL) Automatic lighting signal (ALHLLO)	

*: With automatic lighting system

Front Fog Light

The MICU controls the front fog lights based upon the input signals from the each switch.

	Input	Output
MICU	IG1 power supply Combination light switch (SMALL) Headlight switch (OFF) Headlight switch (ON) Front fog light switch	Front fog light relay
B-CAN		Combination light switch (FRFOG) message MICU (FRFOGRLY) message

Rear Fog Light

The MICU controls the rear fog light based upon the input signals from the each switch and the B-CAN signal.

	Input	Output
MICU	IG1 power supply Headlight switch (OFF) Headlight switch (ON) Combination light switch (SMALL) Rear fog light switch	Rear fog light relay
B-CAN *	Automatic lighting signal (ALHLLO)	Combination light switch (RRFOG) message MICU (RRFOGRLY) message

*: With automatic lighting system

Daytime Running Lights (KG model)

The MICU controls the exterior lights as daytime running lights based upon the input signals from the each switch and the B-CAN signals.

	Input	Output
MICU	IG1 power supply IG2 power supply Headlight switch (OFF) Headlight switch (ON) Dimmer switch Combination light switch (SMALL) Passing switch	Headlight (LOW) Headlight (HIGH) Front position lights/Taillights Daytime running lights relay
B-CAN *	Automatic lighting signal (ALSMALL) Automatic lighting signal (ALHLLO)	

*: With automatic lighting system

Windshield Wiper/Washer (Normally operation)

The MICU controls the windshield wiper motor based upon the signals from each switch and the B-CAN.

	Input	Output
MICU	IG1 power supply Windshield wiper switch (INT/LO) Windshield wiper switch (LO/HI) Windshield wiper switch (MIST) Windshield washer switch Windshield wiper intermittent dwell time controller Windshield wiper switch (As)	Windshield wiper motor (INT) Windshield wiper motor (HI) Windshield washer motor
B-CAN	IG1 METER signal	Windshield wiper switch (FRINT) message Windshield wiper switch (FRWIPLO) message Windshield wiper switch (FRWIPHI) message Windshield wiper switch (FRWASH) message Windshield wiper switch (FRMIST) message Windshield wiper switch (FRINTVR) message MICU (FRWIPAS) message

Rear Window Wiper/Washer (Normally operation)

The MICU controls the rear window wiper motor and washer motor based upon the wiper/washer switch signals.

	Input	Output
MICU	IG1 power supply Rear window wiper switch Rear window washer switch Windshield washer switch Windshield wiper switch (INT) Windshield wiper switch (LO) Windshield wiper switch (HI)	Rear window wiper motor Rear window washer motor

Windshield Wiper/Washer (Vehicle Speed Sense)

The MICU controls the windshield wiper motor and windshield washer motor based upon the B-CAN signal and input signals.

	Input	Output
MICU	IG1 power supply Brake pedal position switch Windshield wiper switch (INT/LO) Windshield wiper switch (HI/LO) Windshield wiper switch (MIST) Windshield washer switch Windshield wiper intermittent dwell time controller Windshield wiper switch (As) Transmission range switch (P position)	Windshield wiper motor (INT) Windshield wiper motor (HI) Windshield washer motor
B-CAN	Transmission (PBRAKE) signal Vehicle speed pulse Engine RPM	Windshield wiper switch (FRINT) message Windshield wiper switch (FRWIPLO) message Windshield wiper switch (FRWIPHI) message Windshield wiper switch (FRWASH) message Windshield wiper switch (FRMIST) message Windshield wiper switch (FRINTVR) message

Key Interlock

The MICU controls the key interlock solenoid based upon the ignition switch (ACC), the transmission range switch, and the park-pin switch signals.

	Input	Output
MICU	Ignition switch (ACC) Transmission range switch (P) Park-pin switch	Key interlock solenoid

Key-in Reminder

The MICU controls the door lock actuators based upon the ignition key switch, the driver's door switch, and the driver's door lock knob switch signals.

	Input	Output
MICU	Ignition key switch Driver's door switch Driver's door lock knob switch (UNLOCK)	Door lock actuators (LOCK) Door lock actuators (UNLOCK)

Automatic Front Wiper

The MICU control the windshield wiper motor and windshield washer motor based upon the B-CAN signal and input signals.

	Input	Output
MICU	IG1 power supply Windshield wiper switch (INT and LO) Windshield wiper switch (HI and LO) Windshield wiper switch (MIST) Wiper switch rainfall sensitivity adjuster Windshield wiper switch (As)	Windshield wiper motor (INT) Windshield wiper motor (HI)
B-CAN	Automatic wiper (ASREQ) signal Automatic wiper (AHREQ) signal Automatic wiper (ALREQ) signal Automatic wiper (RSFAIL) signal	Windshield wiper switch (FRINT) message Windshield wiper switch (FRWIPLO) message Windshield wiper switch (FRWIPHI) message Windshield wiper switch (FRWASH) message Windshield wiper switch (FRMIST) message Windshield wiper switch (FRINTVR) message

Rear Window Wiper/Washer (With reverse linked rear wiper)

The MICU control the rear window wiper motor and rear window washer motor based upon the B-CAN signal and input signals.

	Input	Output
MICU	IG1 power supply Back-up lights switch Windshield washer motor switch Rear window washer motor switch Rear window wiper switch Windshield wiper switch (INT) Windshield wiper switch (LO) Windshield wiper switch (HI)	Rear window wiper motor Rear window washer motor
B-CAN	Automatic wiper (ASREQ) signal Automatic wiper (AHREQ) signal Automatic wiper (ALREQ) signal Automatic wiper (RSFAIL) signal Automatic wiper (RAIN) signal	Rear window wiper switch (RRWIP) message Rear window wiper switch (RRWASH) message

Windshield/Rear Window Washer

The MICU controls the windshield washer and rear window washer motor based upon the IG1 signal and windshield/rear window washer switch signal.

	Input	Output
MICU	IG1 power supply Windshield washer motor switch Rear window washer motor switch	Windshield washer motor Rear window washer motor

Power Window Timer (Key-off operation)

The MICU controls the power window key-off operation based upon the ignition key switch and the driver's door switch, and front passenger's door switch signals.

	Input	Output
MICU	IG1 power supply Ignition key switch Driver's door switch Front passenger's door switch	Power window timer

Collision Detection Signal (CDS)

The MICU controls the door lock actuators based upon the IG1 and the SRS signals.

	Input	Output
MICU	IG1 power supply	Door lock actuators (LOCK/UNLOCK)
B-CAN	Front impact sensor Side impact sensor (first) Side impact sensor (second) SRS unit rollover signal	

Power Door Locks

The MICU controls the door lock actuators based upon the input signals of each switch.

	Input	Output
MICU	IG1 power supply Ignition key switch Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch Tailgate latch switch Driver's door lock switch (LOCK/UNLOCK) Driver's door key cylinder switch (LOCK/UNLOCK) Driver's door lock knob switch (LOCK/UNLOCK)	Door lock actuators (LOCK) Door lock actuators (UNLOCK)

Door Lock Response Operation

The MICU controls the door lock actuators based upon the B-CAN signals.

	Input	Output
MICU		Door lock actuators (LOCK) Door lock actuators (UNLOCK)
B-CAN	Door lock signal	

Keyless Entry System

The MICU controls the door lock actuators based upon the input signals of each switch and the B-CAN signals.

	Input	Output
MICU	IG1 power supply Ignition key switch Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch Tailgate latch switch Driver's door lock knob switch (LOCK/UNLOCK) Driver's door lock switch (LOCK/UNLOCK) Driver's door key cylinder switch (LOCK/UNLOCK)	Door lock actuators (LOCK) Door lock actuators (UNLOCK)
B-CAN	Keyless LOCK/UNLOCK signal	Relock message

Power Door Locks (LOCK operation)

The MICU controls the actuators based upon the input signals of each switch.

	Input	Output
MICU	IG1 power supply Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch Tailgate latch switch Driver's door lock knob switch (UNLOCK) Front passenger's door lock knob switch (UNLOCK) Left rear door lock knob switch (UNLOCK) Right rear door lock knob switch (UNLOCK) Transmission range switch (P position) Brake pedal position switch	Door lock actuators (LOCK)
B-CAN	Vehicle speed pulse signal	

Power Door Locks (UNLOCK operation)

The MICU controls the door lock actuators based upon the input signals of each switch.

	Input	Output
MICU	IG1 power supply Ignition key switch Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch Tailgate latch switch Driver's door lock knob switch (UNLOCK) Front passenger's door lock knob switch (UNLOCK) Left rear door lock knob switch (UNLOCK) Right rear door lock knob switch (UNLOCK) Transmission range switch (P position) Brake pedal position switch	Door lock actuators (UNLOCK) Driver's door lock actuators (UNLOCK)

Security Alarm System

The MICU controls the turn signal lights and the horns based upon the input signals of each switch and the B-CAN signals.

	Input	Output
MICU	IG1 power supply Ignition key switch Audio switch Tailgate latch switch Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch Driver's door key cylinder switch (LOCK/UNLOCK) Driver's door lock knob switch (UNLOCK) Front passenger's door lock knob switch (UNLOCK) Left rear door lock knob switch (UNLOCK) Right rear door lock knob switch (UNLOCK) Hood switch	Turn signal lights (left) Turn signal lights (right) Horn
B-CAN	Keyless signal Door lock signal Immobilizer signal	MICU (SET1) message MICU (SET2) message ALARM (ACTION) message

Answer Back Response Operation

The MICU controls the turn signal system based upon the B-CAN signals.

	Input	Output
MICU	IG1 power supply	Turn signal lights (left) Turn signal lights (right)
B-CAN	Answer back signal (Hazard) Vehicle speed pulse signal	

Answer Back Response Operation

The MICU controls the lighting system and horn based upon the B-CAN signals.

	Input	Output
MICU		Horn(s) Headlights (low beam) Position lights and taillights
B-CAN	Answer back signal (headlight low, horn, position lights)	

Super Locking System (KE model)

The MICU controls the super locking system based upon the input signals of each switch and the B-CAN signals.

	Input	Output
MICU	IG1 power supply Ignition key switch Driver's door switch Front passenger's door switch Right rear door switch Left rear door switch Tailgate latch switch Driver's door lock knob switch (UNLOCK) Front passenger's door lock knob switch (UNLOCK) Right rear door lock knob switch (UNLOCK) Left rear door lock knob switch (UNLOCK) Tailgate lock knob switch (UNLOCK) Driver's door key cylinder switch (LOCK/UNLOCK) Driver's door lock switch (LOCK/UNLOCK)	Door lock actuators (LOCK) Door lock actuators (UNLOCK) Super locking SET signal
B-CAN	Keyless LOCK/UNLOCK signal Door lock signal	

A/C Pressure Switch

The MICU sends the A/C pressure switch signal based upon the ignition switch and the A/C pressure switch.

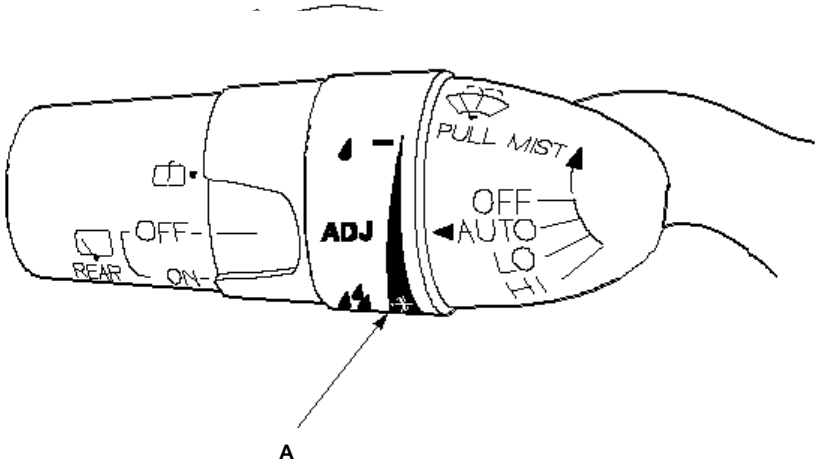
	Input	Output
MICU	IG1 power supply A/C pressure switch	
B-CAN		A/C pressure switch signal

Super locking system

The super locking system is integrated with the MICU. The MICU receives input signals form the switches which are related to the door lock system. Then, the MICU sends output signals to the super locking actuators to set the super locking.
When the super locking is set, all the doors can't be opened from the inside of the vehicle, even though the inner handles or lock knobs are operated.
When the key cylinder is turned to the LOCK position twice within 5 seconds, the super locking is set.
The super locking also can be set with the transmitter. When the LOCK button on the transmitter is pressed twice within 5 seconds, the super locking is set.
To cancel the super locking, unlock the driver's door with the key or the transmitter.

Automatic Wiper System

The automatic wiper system automatically turns on the windshield wipers by sensing rainfall with the rain sensor which is built into the automatic lighting/rain sensor (A) and located on the windscreen near the rearview mirror. The rain sensor operates when the AUTO position of the wiper/washer switch is selected. The rain sensor consists of photodiodes (B) and LEDs (C), connects to B-CAN, senses rainfall, and outputs automatic wiper messages.

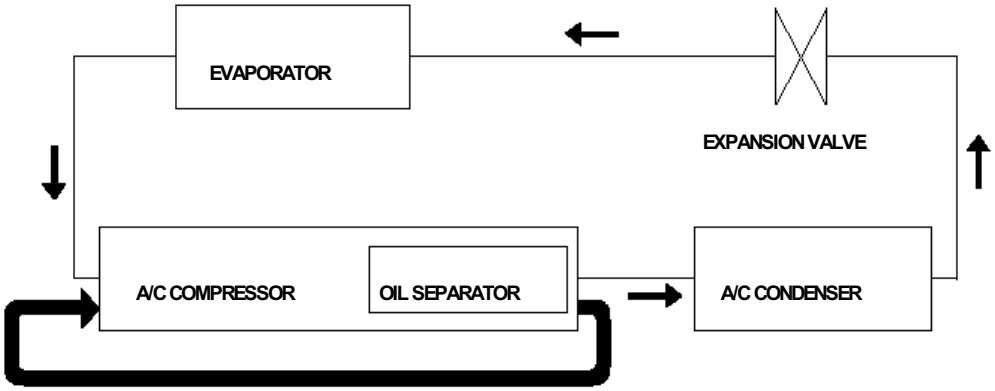


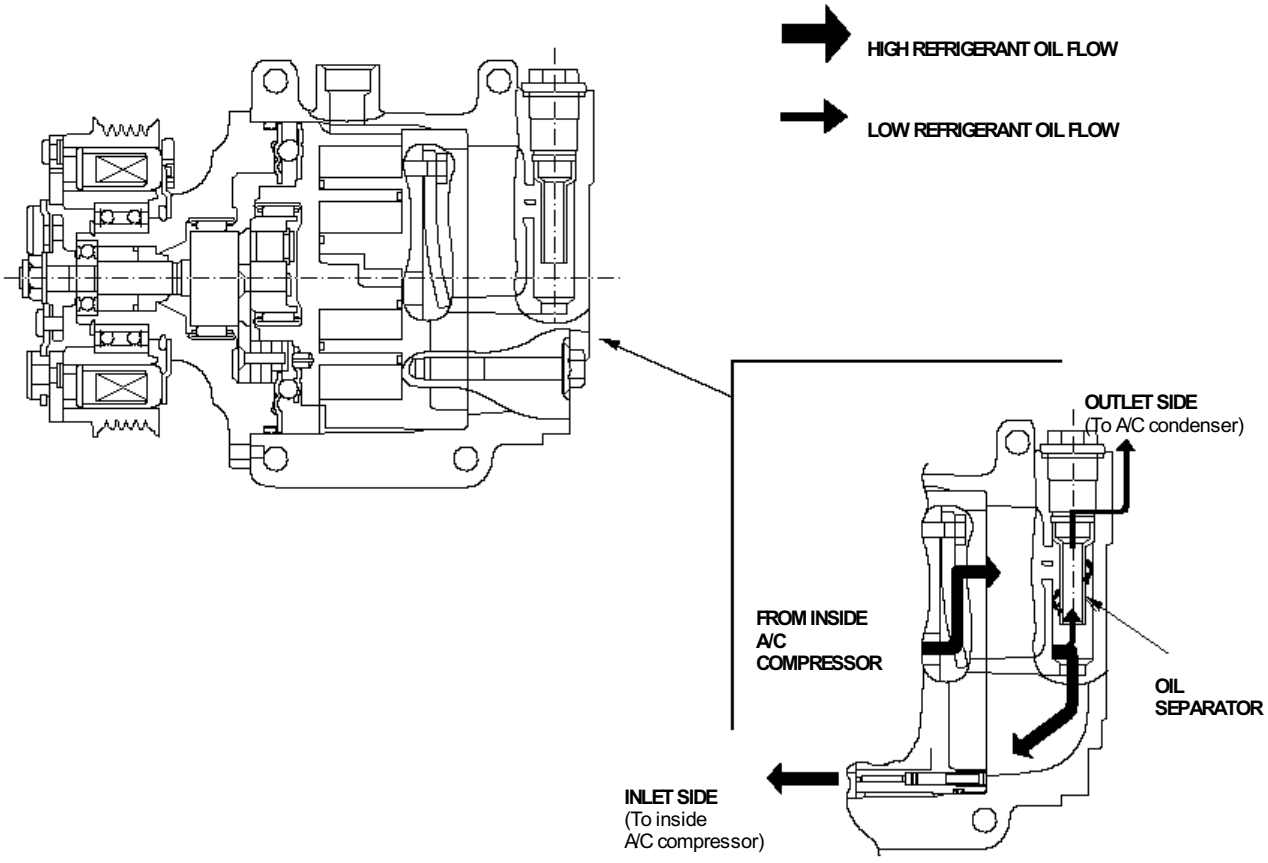
Reverse Linked Rear Wiper

When the shift lever is moved to the Reverse (R) position with the front windshield wiper activated, the rear wiper operates automatically even if the rear wiper switch is off.

Oil Separator

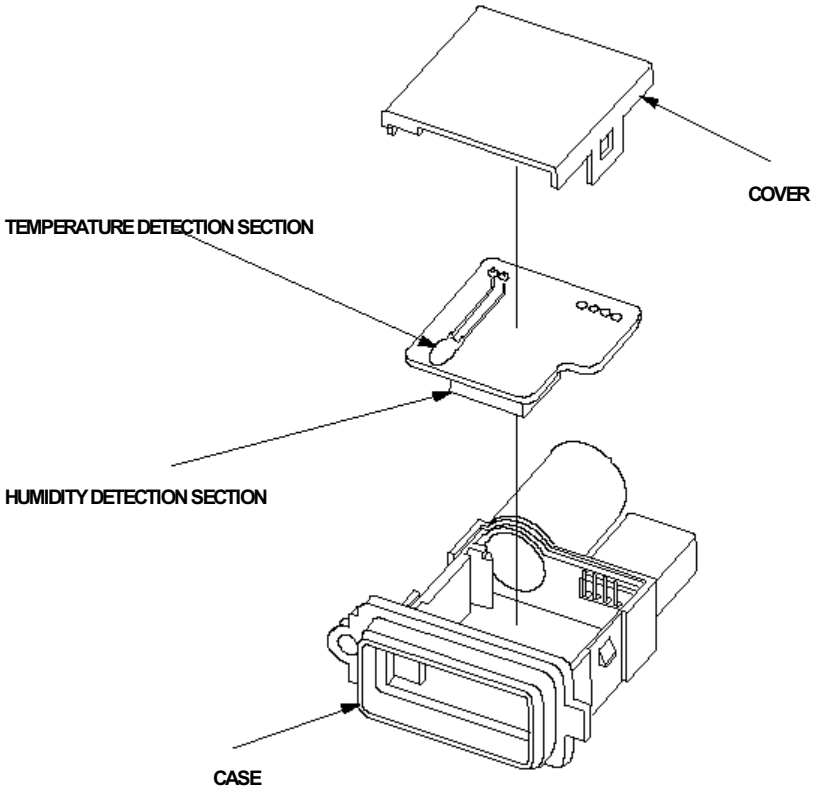
Oil emission from the A/C compressor to the A/C line is reduced by placing the oil separator in the A/C compressor. This results in a thinner oil film inside of the heat exchangers (A/C condenser and evaporator). Air conditioning efficiency is increased without sacrificing engine performance.





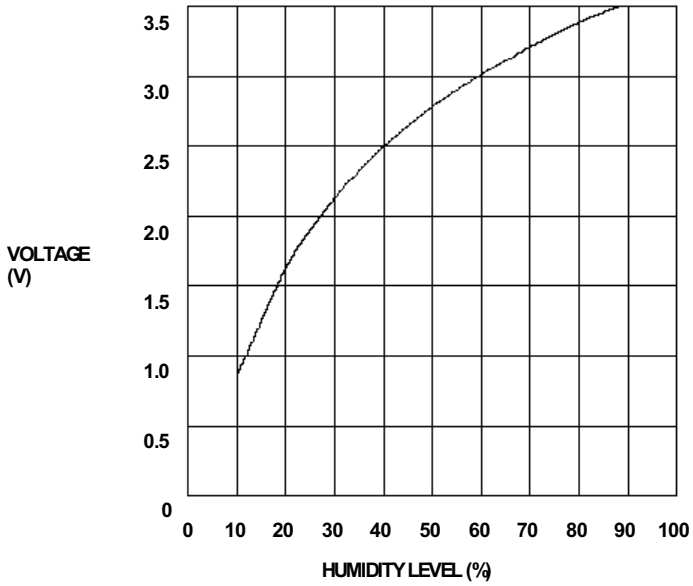
Humidity/In-car Temperature Sensor

The humidity sensor consists of the two sensors. One is the humidity detection part and another is the in-car temperature detection part. When the climate control unit receives the signals of the in-car condition from the humidity sensor, and judges that the humidity in the vehicle is very low, the climate control unit controls the compressor for reducing the engine power loss.



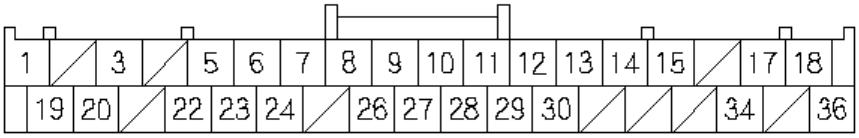
Humidity/In-car Temperature Sensor Quality

The resistance of the humidity sensor changes by the adsorption and the evaporation of moisture. The resistance change of humidity sensor changes the output voltage.



Climate Control Unit Inputs and Outputs

CLIMATE CONTROL UNIT 36P CONNECTOR

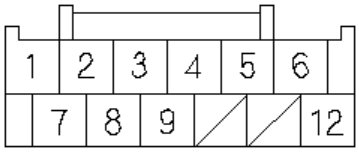


Wire side of female terminals

17	BRN	IG2 (Power)	INPUT
18	GRY	ILLUMINATION + (MICU)	INPUT
19	PUR	SUNLIGHT SENSOR	OUTPUT
20	LT BLU	IN-CAR TEMPERATURE SENSOR	OUTPUT
22	PNK	OUTSIDE AIR TEMPERATURE SENSOR	OUTPUT
23	ORN	EVAPORATOR TEMPERATURE SENSOR	OUTPUT
24	WHT	HUMIDITY SENSOR	OUTPUT
26	BLU	A/C SIGNAL	INPUT
27	PNK	MODE 1	OUTPUT
28	YEL	MODE 2	OUTPUT
29	WHT	MODE 3	OUTPUT
30	GRY	MODE 4	OUTPUT
34	ORN	POWER TRANSISTOR CONTROL	OUTPUT
36	BLK	ILLUMINATION − (G502)	OUTPUT

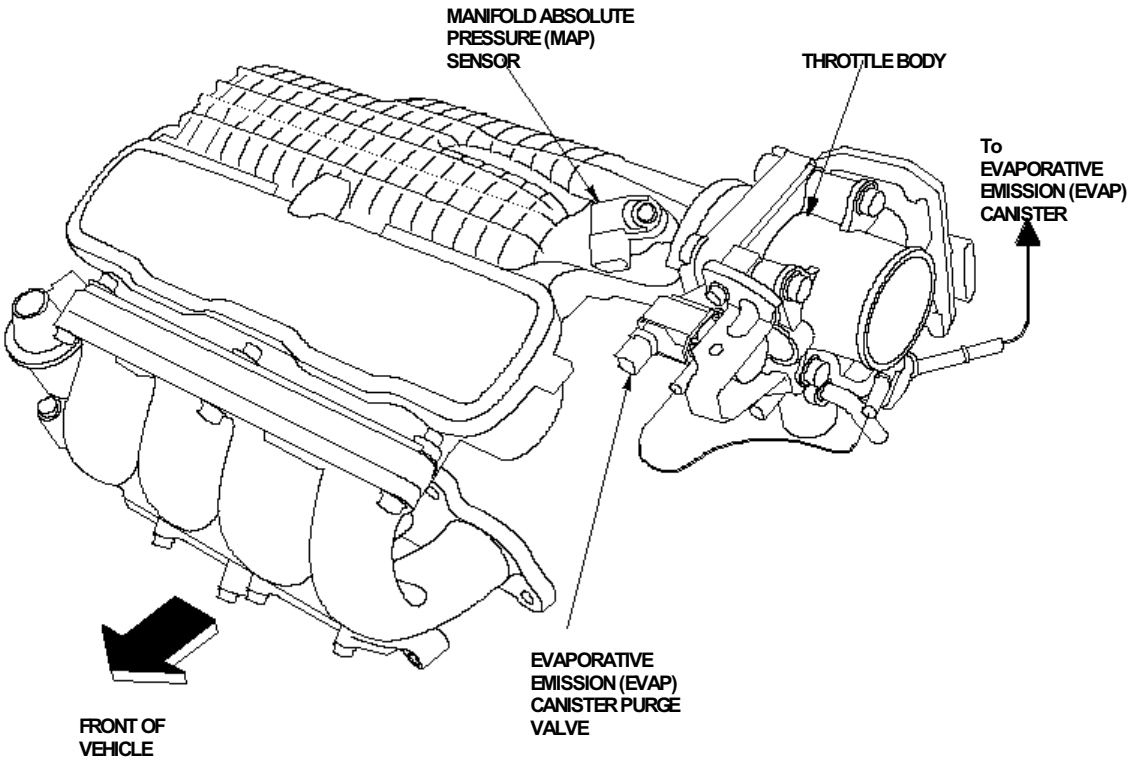
HVAC Control Unit Inputs and Outputs

HVAC CONTROL UNIT 12P CONNECTOR

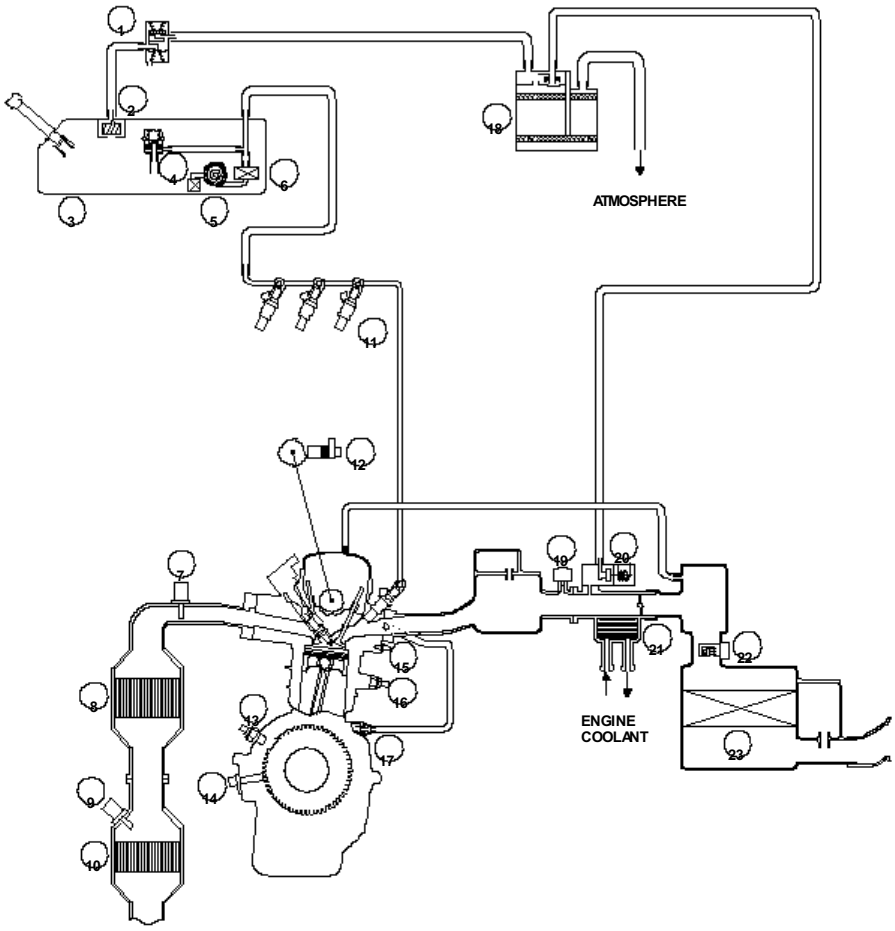


Wire side of female terminals

Vacuum Hose Routing



Vacuum Distribution



(1) EVAPORATIVE EMISSION (EVAP) TWO WAY VALVE
(2) FUEL TANK VAPOR/LIQUID SEPARATION VALVE
(3) FUEL TANK
(4) FUEL PRESSURE REGULATOR
(5) FUEL PUMP
(6) FUEL FILTER
(7) AIR FUEL RATIO (A/F) SENSOR (SENSOR 1)
(8) WARM UP THREE WAY CATALYTIC CONVERTER (WU-TWC)
(9) SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S) (SENSOR 2)
(10) UNDER-FLOOR THREE WAY CATALYTIC CONVERTER (TWC)
(11) INJECTOR
(12) CAMSHAFT POSITION (CMP) SENSOR
(13) OIL PRESSURE SWITCH
(14) CRANKSHAFT POSITION (CKP) SENSOR
(15) ENGINE COOLANT TEMPERATURE (ECT) SENSOR 1
(16) KNOCK SENSOR
(17) POSITIVE CRANKCASE VENTILATION (PCV) VALVE
(18) EVAPORATIVE EMISSION (EVAP) CANISTER
(19) MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR
(20) EVAPORATIVE EMISSION (EVAP) CANISTER PURGE VALVE
(21) THROTTLE BODY
(22) MASS AIR FLOW (MAF) SENSOR/INTAKE AIR TEMPERATURE (IAT) SENSOR
(23) AIR CLEANER

Maintenance Schedule for Normal and Severe Conditions - KM model

20,000km(1year)

This Maintenance Schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
Follow the Normal Conditions Maintenance Schedule if the severe driving conditions specified in the Severe Conditions Maintenance Schedule do not apply.
The following items must be used for "Severe Conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to E.

- Engine oil and engine oil filter: A/B/C/D/E
- Manual transmission fluid: B/D

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS)**
  Check the master cylinder and ABS modulator-control unit for damage and leakage.
- **All fluid levels and condition of fluid**
  - Engine coolant
  - MTF
  - ATF
  - Clutch fluid
  - Brake fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil**

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil**

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the front brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear, and contamination.
  - Check the caliper for damage, leaks, and tightness.

Visually inspect the following items

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect the valve clearance**

Every 10,000 km (6,250 miles)

- **Replace fuel filter**

Have a qualified technician change the fuel filter. Since the fuel system is under pressure, fuel can spray out and create a hazard if all fuel line connections are not handled correctly.

- [ ] **Rotate tyres (Check tyre inflation and condition at least once per month)**

Every 10,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, thereafter every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between the upper and lower marks on the reservoir.

Maintenance Schedule for Normal and Severe Conditions - KM model

40,000km(2year)

This Maintenance Schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
Follow the Normal Conditions Maintenance Schedule if the severe driving conditions specified in the Severe Conditions Maintenance Schedule do not apply.
The following items must be used for "Severe Conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to E.

- Engine oil and engine oil filter: A/B/C/D/E
- Manual transmission fluid: B/D

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS)**
  Check the master cylinder and ABS modulator-control unit for damage and leakage.
- **All fluid levels and condition of fluid**
  - Engine coolant
  - MTF
  - ATF
  - Clutch fluid
  - Brake fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil**

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil**

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the front brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear, and contamination.
  - Check the caliper for damage, leaks, and tightness.

Visually inspect the following items

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect the valve clearance**

Every 10,000 km (6,250 miles)

- **Replace fuel filter**

Have a qualified technician change the fuel filter. Since the fuel system is under pressure, fuel can spray out and create a hazard if all fuel line connections are not handled correctly.

- [ ] **Rotate tyres (Check tyre inflation and condition at least once per month)**

Every 10,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, thereafter every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between the upper and lower marks on the reservoir.

Maintenance Schedule for Normal and Severe Conditions - KM model

60,000km(3year)

This Maintenance Schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
Follow the Normal Conditions Maintenance Schedule if the severe driving conditions specified in the Severe Conditions Maintenance Schedule do not apply.
The following items must be used for "Severe Conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to E.

- Engine oil and engine oil filter: A/B/C/D/E
- Manual transmission fluid: B/D

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Replace manual transmission fluid (MTF)**

  Use genuine Honda MTF.
- **Replace automatic transmission fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS)**

  Check the master cylinder and ABS modulator-control unit for damage and leakage.
- **All fluid levels and condition of fluid**
  - Engine coolant
  - MTF
  - ATF
  - Clutch fluid
  - Brake fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil**

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil**

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the front brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear, and contamination.
  - Check the caliper for damage, leaks, and tightness.

Visually inspect the following items

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect the valve clearance**

Every 10,000 km (6,250 miles)

Replace fuel filter

Have a qualified technician change the fuel filter. Since the fuel system is under pressure, fuel can spray out and create a hazard if all fuel line connections are not handled correctly.

Rotate tyres (Check tyre inflation and condition at least once per month)

Every 10,000 km (62,500 miles)

Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, thereafter every 100,000 km (60,000 miles) or 5 years

Replace engine coolant

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 3 years

Replace brake fluid

- Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
- Check the brake fluid level is between the upper and lower marks on the reservoir.

Maintenance Schedule for Normal and Severe Conditions - KM model

80,000km(4year)

This Maintenance Schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
Follow the Normal Conditions Maintenance Schedule if the severe driving conditions specified in the Severe Conditions Maintenance Schedule do not apply.
The following items must be used for "Severe Conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to E.

- Engine oil and engine oil filter: A/B/C/D/E
- Manual transmission fluid: B/D

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS)**
  Check the master cylinder and ABS modulator-control unit for damage and leakage.
- **All fluid levels and condition of fluid**
  - Engine coolant
  - MTF
  - ATF
  - Clutch fluid
  - Brake fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil**

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil**

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the front brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear, and contamination.
  - Check the caliper for damage, leaks, and tightness.

Visually inspect the following items

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect the valve clearance**

Every 10,000 km (6,250 miles)

- **Replace fuel filter**

Have a qualified technician change the fuel filter. Since the fuel system is under pressure, fuel can spray out and create a hazard if all fuel line connections are not handled correctly.

- [ ] **Rotate tyres (Check tyre inflation and condition at least once per month)**

Every 10,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, thereafter every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between the upper and lower marks on the reservoir.

Maintenance Schedule for Normal and Severe Conditions - KM model

100,000km(5year)

This Maintenance Schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
Follow the Normal Conditions Maintenance Schedule if the severe driving conditions specified in the Severe Conditions Maintenance Schedule do not apply.
The following items must be used for "Severe Conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to E.

- Engine oil and engine oil filter: A/B/C/D/E
- Manual transmission fluid: B/D

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Replace automatic transmission fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS)**

  Check the master cylinder and ABS modulator-control unit for damage and leakage.
- **All fluid levels and condition of fluid**
  - Engine coolant
  - MTF
  - ATF
  - Clutch fluid
  - Brake fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil**

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil**

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the front brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear, and contamination.
  - Check the caliper for damage, leaks, and tightness.

Visually inspect the following items

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect the valve clearance**

Every 10,000 km (6,250 miles)

- **Replace fuel filter**

Have a qualified technician change the fuel filter. Since the fuel system is under pressure, fuel can spray out and create a hazard if all fuel line connections are not handled correctly.

- [ ] **Rotate tyres (Check tyre inflation and condition at least once per month)**

Every 10,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, thereafter every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between the upper and lower marks on the reservoir.

Maintenance Schedule for Normal and Severe Conditions - KM model

120,000km(6year)

This Maintenance Schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
Follow the Normal Conditions Maintenance Schedule if the severe driving conditions specified in the Severe Conditions Maintenance Schedule do not apply.
The following items must be used for "Severe Conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to E.

- Engine oil and engine oil filter: A/B/C/D/E
- Manual transmission fluid: B/D

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Inspect idle speed**
- **Replace manual transmission fluid (MTF)**
  Use genuine Honda MTF.
- **Replace manual transmission fluid (MTF)**
  Use genuine Honda MTF.
- **Replace automatic transmission fluid**
  Use genuine Honda ATF-Z1.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS)**
  Check the master cylinder and ABS modulator-control unit for damage and leakage.
- **All fluid levels and condition of fluid**
  - Engine coolant
  - MTF
  - ATF
  - Clutch fluid
  - Brake fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil**

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil**

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the front brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear, and contamination.
  - Check the caliper for damage, leaks, and tightness.

Visually inspect the following items

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**

- Check boot and boot band for cracks.
- Check boots for leaking grease.

Every 30,000 km (18,750 miles)

Replace air cleaner element

Every 40,000 km (25,000 miles)

Inspect the valve clearance

Every 10,000 km (6,250 miles)

Replace fuel filter

Have a qualified technician change the fuel filter. Since the fuel system is under pressure, fuel can spray out and create a hazard if all fuel line connections are not handled correctly.

Rotate tyres (Check tyre inflation and condition at least once per month)

Every 10,000 km (62,500 miles)

Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, thereafter every 100,000 km (60,000 miles) or 5 years

Replace engine coolant

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 3 years

Replace brake fluid

- Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
- Check the brake fluid level is between the upper and lower marks on the reservoir.

Maintenance Schedule for Normal and Severe Conditions - KM model

140,000km(7year)

This Maintenance Schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
Follow the Normal Conditions Maintenance Schedule if the severe driving conditions specified in the Severe Conditions Maintenance Schedule do not apply.
The following items must be used for "Severe Conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to E.

- Engine oil and engine oil filter: A/B/C/D/E
- Manual transmission fluid: B/D

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Replace automatic transmission fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS)**

  Check the master cylinder and ABS modulator-control unit for damage and leakage.
- **All fluid levels and condition of fluid**
  - Engine coolant
  - MTF
  - ATF
  - Clutch fluid
  - Brake fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil**

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil**

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the front brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear, and contamination.
  - Check the caliper for damage, leaks, and tightness.

Visually inspect the following items

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect the valve clearance**

Every 10,000 km (6,250 miles)

- **Replace fuel filter**

Have a qualified technician change the fuel filter. Since the fuel system is under pressure, fuel can spray out and create a hazard if all fuel line connections are not handled correctly.

- [ ] **Rotate tyres (Check tyre inflation and condition at least once per month)**

Every 10,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, thereafter every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between the upper and lower marks on the reservoir.

Maintenance Schedule for Normal and Severe Conditions - KM model

160,000km(8year)

This Maintenance Schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
Follow the Normal Conditions Maintenance Schedule if the severe driving conditions specified in the Severe Conditions Maintenance Schedule do not apply.
The following items must be used for "Severe Conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to E.

- Engine oil and engine oil filter: A/B/C/D/E
- Manual transmission fluid: B/D

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS)**
  Check the master cylinder and ABS modulator-control unit for damage and leakage.
- **All fluid levels and condition of fluid**
  - Engine coolant
  - MTF
  - ATF
  - Clutch fluid
  - Brake fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil**

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil**

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the front brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear, and contamination.
  - Check the caliper for damage, leaks, and tightness.

Visually inspect the following items

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect the valve clearance**

Every 10,000 km (6,250 miles)

- **Replace fuel filter**

Have a qualified technician change the fuel filter. Since the fuel system is under pressure, fuel can spray out and create a hazard if all fuel line connections are not handled correctly.

- [ ] **Rotate tyres (Check tyre inflation and condition at least once per month)**

Every 10,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, thereafter every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between the upper and lower marks on the reservoir.

Maintenance Schedule for Normal and Severe Conditions - KM model

180,000km(9year)

This Maintenance Schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
Follow the Normal Conditions Maintenance Schedule if the severe driving conditions specified in the Severe Conditions Maintenance Schedule do not apply.
The following items must be used for "Severe Conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to E.

- Engine oil and engine oil filter: A/B/C/D/E
- Manual transmission fluid: B/D

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.

Service at the indicated distance or time whichever comes first

- ☐ **Replace engine oil filter**
- ☐ **Replace manual transmission fluid (MTF)**

  Use genuine Honda MTF.
- ☐ **Replace automatic transmission fluid**

  Use genuine Honda ATF-Z1.
- ☐ **Replace dust and pollen filter**

Visually inspect the following items

- ☐ Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- ☐ Check tightness of screws, nuts, and joints. If necessary, retighten.

- ☐ **Brake hoses and lines (including ABS)**

  Check the master cylinder and ABS modulator-control unit for damage and leakage.
- ☐ **All fluid levels and condition of fluid**
  - ☐ Engine coolant
  - ☐ MTF
  - ☐ ATF
  - ☐ Clutch fluid
  - ☐ Brake fluid
  - ☐ Windshield washer fluid
- ☐ **Exhaust system**

  Check the catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
- ☐ **Fuel lines and connections**
  - ☐ Check fuel lines for loose connections, cracks, and deterioration.
  - ☐ Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- ☐ **Replace engine oil**

Every 5,000 km (3,125 miles) or 6 months

- ☐ **Replace engine oil**

Every 10,000 km (6,250 miles) or 6 months

- ☐ **Replace engine oil filter**
- ☐ **Check front and rear brakes**
  - ☐ Check the front brake pad and disc thickness. Check for damage.
  - ☐ Check the wheel cylinder for leaks.
  - ☐ Check the brake linings for cracking, glazing, wear, and contamination.
  - ☐ Check the caliper for damage, leaks, and tightness.

Visually inspect the following items

- ☐ **Tie-rod ends, steering gearbox, and boots**
  - ☐ Check steering linkage.
  - ☐ Check the boot for damage and leaking grease.
- ☐ **Suspension components**
  - ☐ Check the bolts for tightness.
  - ☐ Check all dust covers for deterioration and damage.
- ☐ **Driveshaft boots**
  - ☐ Check boot and boot band for cracks.
  - ☐ Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- ☐ **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- ☐ **Inspect the valve clearance**

Every 10,000 km (6,250 miles)

Replace fuel filter

Have a qualified technician change the fuel filter. Since the fuel system is under pressure, fuel can spray out and create a hazard if all fuel line connections are not handled correctly.

Rotate tyres (Check tyre inflation and condition at least once per month)

Every 10,000 km (62,500 miles)

Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, thereafter every 100,000 km (60,000 miles) or 5 years

Replace engine coolant

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 3 years

Replace brake fluid

- Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
- Check the brake fluid level is between the upper and lower marks on the reservoir.

Maintenance Schedule for Normal and Severe Conditions - KM model

200,000km(10year)

This Maintenance Schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
Follow the Normal Conditions Maintenance Schedule if the severe driving conditions specified in the Severe Conditions Maintenance Schedule do not apply.
The following items must be used for "Severe Conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to E.

- Engine oil and engine oil filter: A/B/C/D/E
- Manual transmission fluid: B/D

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.

Service at the indicated distance or time whichever comes first

- ☐ **Replace engine oil filter**
- ☐ **Replace automatic transmission fluid**

  Use genuine Honda ATF-Z1.
- ☐ **Check parking brake adjustment**

  Check the parking brake operation.
- ☐ **Replace dust and pollen filter**

Visually inspect the following items

- ☐ Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- ☐ Check tightness of screws, nuts, and joints. If necessary, retighten.

- ☐ **Brake hoses and lines (including ABS)**

  Check the master cylinder and ABS modulator-control unit for damage and leakage.
- ☐ **All fluid levels and condition of fluid**
  - ☐ Engine coolant
  - ☐ MTF
  - ☐ ATF
  - ☐ Clutch fluid
  - ☐ Brake fluid
  - ☐ Windshield washer fluid
- ☐ **Exhaust system**

  Check the catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
- ☐ **Fuel lines and connections**
  - ☐ Check fuel lines for loose connections, cracks, and deterioration.
  - ☐ Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- ☐ **Replace engine oil**

Every 5,000 km (3,125 miles) or 6 months

- ☐ **Replace engine oil**

Every 10,000 km (6,250 miles) or 6 months

- ☐ **Replace engine oil filter**
- ☐ **Check front and rear brakes**
  - ☐ Check the front brake pad and disc thickness. Check for damage.
  - ☐ Check the wheel cylinder for leaks.
  - ☐ Check the brake linings for cracking, glazing, wear, and contamination.
  - ☐ Check the caliper for damage, leaks, and tightness.

Visually inspect the following items

- ☐ **Tie-rod ends, steering gearbox, and boots**
  - ☐ Check steering linkage.
  - ☐ Check the boot for damage and leaking grease.
- ☐ **Suspension components**
  - ☐ Check the bolts for tightness.
  - ☐ Check all dust covers for deterioration and damage.
- ☐ **Driveshaft boots**
  - ☐ Check boot and boot band for cracks.
  - ☐ Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- ☐ **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- ☐ **Inspect the valve clearance**

Every 10,000 km (6,250 miles)

Replace fuel filter

Have a qualified technician change the fuel filter. Since the fuel system is under pressure, fuel can spray out and create a hazard if all fuel line connections are not handled correctly.

Rotate tyres (Check tyre inflation and condition at least once per month)

Every 10,000 km (62,500 miles)

Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, thereafter every 100,000 km (60,000 miles) or 5 years

Replace engine coolant

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 3 years

Replace brake fluid

- Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
- Check the brake fluid level is between the upper and lower marks on the reservoir.

Maintenance Schedule for Normal and Severe Conditions - KM model

12,000miles(1year)

This Maintenance Schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
Follow the Normal Conditions Maintenance Schedule if the severe driving conditions specified in the Severe Conditions Maintenance Schedule do not apply.
The following items must be used for "Severe Conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to E.

- Engine oil and engine oil filter: A/B/C/D/E
- Manual transmission fluid: B/D

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS)**
  Check the master cylinder and ABS modulator-control unit for damage and leakage.
- **All fluid levels and condition of fluid**
  - Engine coolant
  - MTF
  - ATF
  - Clutch fluid
  - Brake fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil**

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil**

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the front brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear, and contamination.
  - Check the caliper for damage, leaks, and tightness.

Visually inspect the following items

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect the valve clearance**

Every 10,000 km (6,250 miles)

- **Replace fuel filter**

Have a qualified technician change the fuel filter. Since the fuel system is under pressure, fuel can spray out and create a hazard if all fuel line connections are not handled correctly.

- [ ] **Rotate tyres (Check tyre inflation and condition at least once per month)**

Every 10,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, thereafter every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between the upper and lower marks on the reservoir.

Maintenance Schedule for Normal and Severe Conditions - KM model

25,000miles(2year)

This Maintenance Schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
Follow the Normal Conditions Maintenance Schedule if the severe driving conditions specified in the Severe Conditions Maintenance Schedule do not apply.
The following items must be used for "Severe Conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to E.

- Engine oil and engine oil filter: A/B/C/D/E
- Manual transmission fluid: B/D

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS)**
  Check the master cylinder and ABS modulator-control unit for damage and leakage.
- **All fluid levels and condition of fluid**
  - Engine coolant
  - MTF
  - ATF
  - Clutch fluid
  - Brake fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil**

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil**

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the front brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear, and contamination.
  - Check the caliper for damage, leaks, and tightness.

Visually inspect the following items

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect the valve clearance**

Every 10,000 km (6,250 miles)

- **Replace fuel filter**

Have a qualified technician change the fuel filter. Since the fuel system is under pressure, fuel can spray out and create a hazard if all fuel line connections are not handled correctly.

- [ ] **Rotate tyres (Check tyre inflation and condition at least once per month)**

Every 10,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, thereafter every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between the upper and lower marks on the reservoir.

Maintenance Schedule for Normal and Severe Conditions - KM model

37,000miles(3year)

This Maintenance Schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
Follow the Normal Conditions Maintenance Schedule if the severe driving conditions specified in the Severe Conditions Maintenance Schedule do not apply.
The following items must be used for "Severe Conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to E.

- Engine oil and engine oil filter: A/B/C/D/E
- Manual transmission fluid: B/D

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Replace manual transmission fluid (MTF)**

  Use genuine Honda MTF.
- **Replace automatic transmission fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS)**

  Check the master cylinder and ABS modulator-control unit for damage and leakage.
- **All fluid levels and condition of fluid**
  - Engine coolant
  - MTF
  - ATF
  - Clutch fluid
  - Brake fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil**

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil**

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the front brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear, and contamination.
  - Check the caliper for damage, leaks, and tightness.

Visually inspect the following items

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect the valve clearance**

Every 10,000 km (6,250 miles)

Replace fuel filter

Have a qualified technician change the fuel filter. Since the fuel system is under pressure, fuel can spray out and create a hazard if all fuel line connections are not handled correctly.

Rotate tyres (Check tyre inflation and condition at least once per month)

Every 10,000 km (62,500 miles)

Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, thereafter every 100,000 km (60,000 miles) or 5 years

Replace engine coolant

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 3 years

Replace brake fluid

- Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
- Check the brake fluid level is between the upper and lower marks on the reservoir.

Maintenance Schedule for Normal and Severe Conditions - KM model

50,000miles(4year)

This Maintenance Schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
Follow the Normal Conditions Maintenance Schedule if the severe driving conditions specified in the Severe Conditions Maintenance Schedule do not apply.
The following items must be used for "Severe Conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to E.

- Engine oil and engine oil filter: A/B/C/D/E
- Manual transmission fluid: B/D

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS)**
  Check the master cylinder and ABS modulator-control unit for damage and leakage.
- **All fluid levels and condition of fluid**
  - Engine coolant
  - MTF
  - ATF
  - Clutch fluid
  - Brake fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil**

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil**

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the front brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear, and contamination.
  - Check the caliper for damage, leaks, and tightness.

Visually inspect the following items

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect the valve clearance**

Every 10,000 km (6,250 miles)

- **Replace fuel filter**

Have a qualified technician change the fuel filter. Since the fuel system is under pressure, fuel can spray out and create a hazard if all fuel line connections are not handled correctly.

- [ ] **Rotate tyres (Check tyre inflation and condition at least once per month)**

Every 10,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, thereafter every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between the upper and lower marks on the reservoir.

Maintenance Schedule for Normal and Severe Conditions - KM model

62,000miles(5year)

This Maintenance Schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
Follow the Normal Conditions Maintenance Schedule if the severe driving conditions specified in the Severe Conditions Maintenance Schedule do not apply.
The following items must be used for "Severe Conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to E.

- Engine oil and engine oil filter: A/B/C/D/E
- Manual transmission fluid: B/D

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Replace automatic transmission fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS)**

  Check the master cylinder and ABS modulator-control unit for damage and leakage.
- **All fluid levels and condition of fluid**
  - Engine coolant
  - MTF
  - ATF
  - Clutch fluid
  - Brake fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil**

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil**

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the front brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear, and contamination.
  - Check the caliper for damage, leaks, and tightness.

Visually inspect the following items

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect the valve clearance**

Every 10,000 km (6,250 miles)

- **Replace fuel filter**

Have a qualified technician change the fuel filter. Since the fuel system is under pressure, fuel can spray out and create a hazard if all fuel line connections are not handled correctly.

- [ ] **Rotate tyres (Check tyre inflation and condition at least once per month)**

Every 10,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, thereafter every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between the upper and lower marks on the reservoir.

Maintenance Schedule for Normal and Severe Conditions - KM model

75,000miles(6year)

This Maintenance Schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
Follow the Normal Conditions Maintenance Schedule if the severe driving conditions specified in the Severe Conditions Maintenance Schedule do not apply.
The following items must be used for "Severe Conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to E.

- Engine oil and engine oil filter: A/B/C/D/E
- Manual transmission fluid: B/D

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Inspect idle speed**
- **Replace manual transmission fluid (MTF)**
  Use genuine Honda MTF.
- **Replace manual transmission fluid (MTF)**
  Use genuine Honda MTF.
- **Replace automatic transmission fluid**
  Use genuine Honda ATF-Z1.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS)**
  Check the master cylinder and ABS modulator-control unit for damage and leakage.
- **All fluid levels and condition of fluid**
  - Engine coolant
  - MTF
  - ATF
  - Clutch fluid
  - Brake fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil**

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil**

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the front brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear, and contamination.
  - Check the caliper for damage, leaks, and tightness.

Visually inspect the following items

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**

- Check boot and boot band for cracks.
- Check boots for leaking grease.

Every 30,000 km (18,750 miles)

Replace air cleaner element

Every 40,000 km (25,000 miles)

Inspect the valve clearance

Every 10,000 km (6,250 miles)

Replace fuel filter

Have a qualified technician change the fuel filter. Since the fuel system is under pressure, fuel can spray out and create a hazard if all fuel line connections are not handled correctly.

Rotate tyres (Check tyre inflation and condition at least once per month)

Every 10,000 km (62,500 miles)

Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, thereafter every 100,000 km (60,000 miles) or 5 years

Replace engine coolant

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 3 years

Replace brake fluid

- Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
- Check the brake fluid level is between the upper and lower marks on the reservoir.

Maintenance Schedule for Normal and Severe Conditions - KM model

87,000miles(7year)

This Maintenance Schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
Follow the Normal Conditions Maintenance Schedule if the severe driving conditions specified in the Severe Conditions Maintenance Schedule do not apply.
The following items must be used for "Severe Conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to E.

- Engine oil and engine oil filter: A/B/C/D/E
- Manual transmission fluid: B/D

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Replace automatic transmission fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS)**

  Check the master cylinder and ABS modulator-control unit for damage and leakage.
- **All fluid levels and condition of fluid**
  - Engine coolant
  - MTF
  - ATF
  - Clutch fluid
  - Brake fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil**

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil**

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the front brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear, and contamination.
  - Check the caliper for damage, leaks, and tightness.

Visually inspect the following items

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect the valve clearance**

Every 10,000 km (6,250 miles)

- **Replace fuel filter**

Have a qualified technician change the fuel filter. Since the fuel system is under pressure, fuel can spray out and create a hazard if all fuel line connections are not handled correctly.

- [ ] **Rotate tyres (Check tyre inflation and condition at least once per month)**

Every 10,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, thereafter every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between the upper and lower marks on the reservoir.

Maintenance Schedule for Normal and Severe Conditions - KM model

100,000miles(8year)

This Maintenance Schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
Follow the Normal Conditions Maintenance Schedule if the severe driving conditions specified in the Severe Conditions Maintenance Schedule do not apply.
The following items must be used for "Severe Conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to E.

- Engine oil and engine oil filter: A/B/C/D/E
- Manual transmission fluid: B/D

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS)**
  Check the master cylinder and ABS modulator-control unit for damage and leakage.
- **All fluid levels and condition of fluid**
  - Engine coolant
  - MTF
  - ATF
  - Clutch fluid
  - Brake fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil**

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil**

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the front brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear, and contamination.
  - Check the caliper for damage, leaks, and tightness.

Visually inspect the following items

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect the valve clearance**

Every 10,000 km (6,250 miles)

- **Replace fuel filter**

Have a qualified technician change the fuel filter. Since the fuel system is under pressure, fuel can spray out and create a hazard if all fuel line connections are not handled correctly.

- [ ] **Rotate tyres (Check tyre inflation and condition at least once per month)**

Every 10,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, thereafter every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between the upper and lower marks on the reservoir.

Maintenance Schedule for Normal and Severe Conditions - KM model

112,000miles(9year)

This Maintenance Schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
Follow the Normal Conditions Maintenance Schedule if the severe driving conditions specified in the Severe Conditions Maintenance Schedule do not apply.
The following items must be used for "Severe Conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to E.

- Engine oil and engine oil filter: A/B/C/D/E
- Manual transmission fluid: B/D

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter**
- **Replace manual transmission fluid (MTF)**

  Use genuine Honda MTF.
- **Replace automatic transmission fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS)**

  Check the master cylinder and ABS modulator-control unit for damage and leakage.
- **All fluid levels and condition of fluid**
  - Engine coolant
  - MTF
  - ATF
  - Clutch fluid
  - Brake fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
- **Fuel lines and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil**

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil**

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter**
- **Check front and rear brakes**
  - Check the front brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear, and contamination.
  - Check the caliper for damage, leaks, and tightness.

Visually inspect the following items

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect the valve clearance**

Every 10,000 km (6,250 miles)

Replace fuel filter

Have a qualified technician change the fuel filter. Since the fuel system is under pressure, fuel can spray out and create a hazard if all fuel line connections are not handled correctly.

Rotate tyres (Check tyre inflation and condition at least once per month)

Every 10,000 km (62,500 miles)

Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, thereafter every 100,000 km (60,000 miles) or 5 years

Replace engine coolant

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 3 years

Replace brake fluid

- Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
- Check the brake fluid level is between the upper and lower marks on the reservoir.

Maintenance Schedule for Normal and Severe Conditions - KM model

125,000miles(10year)

This Maintenance Schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
Follow the Normal Conditions Maintenance Schedule if the severe driving conditions specified in the Severe Conditions Maintenance Schedule do not apply.
The following items must be used for "Severe Conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to E.

- Engine oil and engine oil filter: A/B/C/D/E
- Manual transmission fluid: B/D

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.

Service at the indicated distance or time whichever comes first

- ☐ **Replace engine oil filter**
- ☐ **Replace automatic transmission fluid**

  Use genuine Honda ATF-Z1.
- ☐ **Check parking brake adjustment**

  Check the parking brake operation.
- ☐ **Replace dust and pollen filter**

Visually inspect the following items

- ☐ Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- ☐ Check tightness of screws, nuts, and joints. If necessary, retighten.

- ☐ **Brake hoses and lines (including ABS)**

  Check the master cylinder and ABS modulator-control unit for damage and leakage.
- ☐ **All fluid levels and condition of fluid**
  - ☐ Engine coolant
  - ☐ MTF
  - ☐ ATF
  - ☐ Clutch fluid
  - ☐ Brake fluid
  - ☐ Windshield washer fluid
- ☐ **Exhaust system**

  Check the catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
- ☐ **Fuel lines and connections**
  - ☐ Check fuel lines for loose connections, cracks, and deterioration.
  - ☐ Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- ☐ **Replace engine oil**

Every 5,000 km (3,125 miles) or 6 months

- ☐ **Replace engine oil**

Every 10,000 km (6,250 miles) or 6 months

- ☐ **Replace engine oil filter**
- ☐ **Check front and rear brakes**
  - ☐ Check the front brake pad and disc thickness. Check for damage.
  - ☐ Check the wheel cylinder for leaks.
  - ☐ Check the brake linings for cracking, glazing, wear, and contamination.
  - ☐ Check the caliper for damage, leaks, and tightness.

Visually inspect the following items

- ☐ **Tie-rod ends, steering gearbox, and boots**
  - ☐ Check steering linkage.
  - ☐ Check the boot for damage and leaking grease.
- ☐ **Suspension components**
  - ☐ Check the bolts for tightness.
  - ☐ Check all dust covers for deterioration and damage.
- ☐ **Driveshaft boots**
  - ☐ Check boot and boot band for cracks.
  - ☐ Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- ☐ **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- ☐ **Inspect the valve clearance**

Every 10,000 km (6,250 miles)

Replace fuel filter

Have a qualified technician change the fuel filter. Since the fuel system is under pressure, fuel can spray out and create a hazard if all fuel line connections are not handled correctly.

Rotate tyres (Check tyre inflation and condition at least once per month)

Every 10,000 km (62,500 miles)

Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, thereafter every 100,000 km (60,000 miles) or 5 years

Replace engine coolant

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 3 years

Replace brake fluid

- Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
- Check the brake fluid level is between the upper and lower marks on the reservoir.

Maintenance Schedule for Normal and Severe Conditions - Except KM model

20,000km(1year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear and contamination.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except KM model

40,000km(2year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Inspect and adjust drive belt**
  Look for cracks and damage, then check the deflection and tension.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear and contamination.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except KM model

60,000km(3year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Replace Manual Transmission Fluid
  Use genuine Honda MTF.
- Replace Automatic Transmission Fluid
  Use genuine Honda ATF-Z1.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear and contamination.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except KM model

80,000km(4year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace fuel filter**
- **Inspect and adjust drive belt**
  Look for cracks and damage, then check the deflection and tension.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear and contamination.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except KM model

100,000km(5year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Replace Automatic Transmission Fluid
  Use genuine Honda ATF-Z1.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear and contamination.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except KM model

120,000km(6year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Inspect and adjust drive belt
  Look for cracks and damage, then check the deflection and tension.
- Inspect idle speed
- Replace Manual Transmission Fluid
  Use genuine Honda MTF.
- Replace Manual Transmission Fluid
  Use genuine Honda MTF.
- Replace Automatic Transmission Fluid
  Use genuine Honda ATF-Z1.
- Check parking brake adjustment
  Check the parking brake operation.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check steering linkage.
  - Check the boot for damage and leaking grease.

- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.

- [ ] **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- [ ] **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- [ ] **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear and contamination.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except KM model

140,000km(7year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Replace Automatic Transmission Fluid

  Use genuine Honda ATF-Z1.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear and contamination.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except KM model

160,000km(8year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace fuel filter**
- **Inspect and adjust drive belt**
  Look for cracks and damage, then check the deflection and tension.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear and contamination.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except KM model

180,000km(9year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace Manual Transmission Fluid**
  Use genuine Honda MTF.
- **Replace Automatic Transmission Fluid**
  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear and contamination.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except KM model

200,000km(10year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Inspect and adjust drive belt**
  Look for cracks and damage, then check the deflection and tension.
- **Replace Automatic Transmission Fluid**
  Use genuine Honda ATF-Z1.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *
- ***Visually inspect the following items:***
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- [ ] **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear and contamination.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except KM model

12,000miles(1year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Check parking brake adjustment
  Check the parking brake operation.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear and contamination.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except KM model

25,000miles(2year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Inspect and adjust drive belt**
  Look for cracks and damage, then check the deflection and tension.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear and contamination.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except KM model

37,000miles(3year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Replace Manual Transmission Fluid
  Use genuine Honda MTF.
- Replace Automatic Transmission Fluid
  Use genuine Honda ATF-Z1.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear and contamination.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except KM model

50,000miles(4year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace fuel filter**
- **Inspect and adjust drive belt**
  Look for cracks and damage, then check the deflection and tension.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear and contamination.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except KM model

62,000miles(5year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Replace Automatic Transmission Fluid
  Use genuine Honda ATF-Z1.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- Driveshaft boots
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- Replace air cleaner element

Every 40,000 km (25,000 miles)

- Inspect valve clearance

Every 100,000 km (62,500 miles)

- Replace spark plugs

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear and contamination.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except KM model

75,000miles(6year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- Replace engine oil filter *
- Inspect and adjust drive belt
  Look for cracks and damage, then check the deflection and tension.
- Inspect idle speed
- Replace Manual Transmission Fluid
  Use genuine Honda MTF.
- Replace Manual Transmission Fluid
  Use genuine Honda MTF.
- Replace Automatic Transmission Fluid
  Use genuine Honda ATF-Z1.
- Check parking brake adjustment
  Check the parking brake operation.
- Replace dust and pollen filter

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- Brake hoses and lines (including ABS lines)
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- Exhaust system
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- Fuel lines, and connections
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- Replace engine oil *

Every 5,000 km (3,125 miles) or 6 months

- Replace engine oil *

Every 10,000 km (6,250 miles) or 6 months

- Replace engine oil filter *

Visually inspect the following items:

- Tie-rod ends, steering gearbox, and boots
  - Check steering linkage.
  - Check the boot for damage and leaking grease.

- Suspension components
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.

- [ ] **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- [ ] **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- [ ] **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear and contamination.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except KM model

87,000miles(7year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace Automatic Transmission Fluid**

  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**

  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**

  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**

  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear and contamination.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except KM model

100,000miles(8year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace fuel filter**
- **Inspect and adjust drive belt**
  Look for cracks and damage, then check the deflection and tension.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear and contamination.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except KM model

112,000miles(9year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Replace Manual Transmission Fluid**
  Use genuine Honda MTF.
- **Replace Automatic Transmission Fluid**
  Use genuine Honda ATF-Z1.
- **Replace dust and pollen filter**

Visually inspect the following items:

- Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
- Check tightness of screws, nuts, and joints. If necessary, retighten.

- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *

Visually inspect the following items:

- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear and contamination.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

Maintenance Schedule for Normal and Severe Conditions - Except KM model

125,000miles(10year)

This maintenance schedule outlines the minimum required maintenance that you should perform to ensure the trouble-free operation of the vehicle. Due to regional and climatic differences, some additional service may be required. Please consult the warranty booklet for a more detailed description.
The following items must be used for "severe conditions" indicated on schedule, if the vehicle is driven MAINLY under the specified conditions A to F.

- Engine oil and engine oil filter: A/B/C/D/E
- Transmission fluid
  M/T: B/D
  A/T: B/C/D/F

A: Driving less than 8 km (5 miles) per trip or, in freezing temperatures, driving less than 16 km (10 miles) per trip.
B: Driving in extremely hot over 35 °C (95 °F) conditions.
C: Extensive idling, or long periods of stop-and-go driving.
D: Towing trailer, driving with a loaded roof rack, or driving in mountainous conditions.
E: Driving on muddy, dusty, or de-iced roads.
F: Driving more than 20,000 km (12,500 miles) per year, or driving at high speed frequently.
*: Only severe schedule is required in some countries, refer to local warranty booklet.

Service at the indicated distance or time whichever comes first

- **Replace engine oil filter** *
- **Inspect and adjust drive belt**
  Look for cracks and damage, then check the deflection and tension.
- **Replace Automatic Transmission Fluid**
  Use genuine Honda ATF-Z1.
- **Check parking brake adjustment**
  Check the parking brake operation.
- **Replace dust and pollen filter**
- **Visually inspect the following items:**
  - Check for correct installation and position, check for cracks, deterioration, rust, and leaks.
  - Check tightness of screws, nuts, and joints. If necessary, retighten.
- **Brake hoses and lines (including ABS lines)**
  Check the master cylinder and ABS modulator-control unit and leakage.
- **All fluid levels and condition of fluids**
  Check levels and check for leaks. If necessary, add.
  - Engine coolant
  - MTF
  - ATF
  - Brake fluid
  - Clutch fluid
  - Windshield washer fluid
- **Exhaust system**
  Check the exhaust pipe and muffler for damage, leaks, and tightness.
- **Fuel lines, and connections**
  - Check fuel lines for loose connections, cracks, and deterioration.
  - Retighten loose connections and replace any damaged parts.

Every 10,000 km (6,250 miles) or 1 year

- **Replace engine oil** *

Every 5,000 km (3,125 miles) or 6 months

- **Replace engine oil** *

Every 10,000 km (6,250 miles) or 6 months

- **Replace engine oil filter** *
- ***Visually inspect the following items:***
- **Tie-rod ends, steering gearbox, and boots**
  - Check steering linkage.
  - Check the boot for damage and leaking grease.
- **Suspension components**
  - Check the bolts for tightness.
  - Check all dust covers for deterioration and damage.
- **Driveshaft boots**
  - Check the boot and boot band for cracks.
  - Check boots for leaking grease.

Every 30,000 km (18,750 miles)

- **Replace air cleaner element**

Every 40,000 km (25,000 miles)

- [ ] **Inspect valve clearance**

Every 100,000 km (62,500 miles)

- [ ] **Replace spark plugs**

At 200,000 km (120,000 miles) or 10 years, then every 100,000 km (60,000 miles) or 5 years

- [ ] **Replace engine coolant**

Use genuine Honda All Season Antifreeze/Coolant Type 2.

Every 10,000 km (6,250 miles)

- [ ] **Check front and rear brakes**
  - Check the brake pad and disc thickness. Check for damage.
  - Check the wheel cylinder for leaks.
  - Check the brake linings for cracking, glazing, wear and contamination.
  - Check the calipers for damage, leaks, and tightness.

Every 3 years

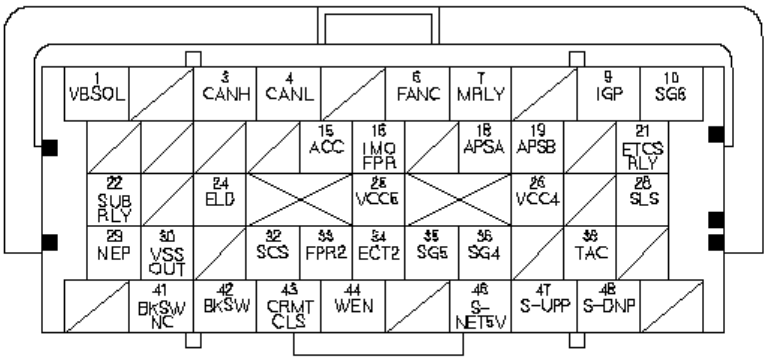
- [ ] **Replace brake fluid**
  - Use only DOT 3 or DOT 4 brake fluid. We recommend genuine Honda Brake Fluid.
  - Check the brake fluid level is between upper and lower marks on the reservoir.

Every 10,000 km (6,250 miles)

- [ ] **Rotate tyres**

Check tyre inflation and condition at least once per month.

ECM/PCM Inputs and Outputs at Connector A (□) (49P)

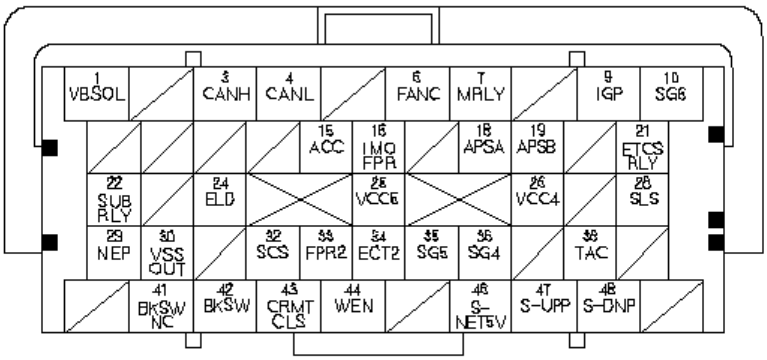


Terminal side of female terminals

16	BRN	IMOFPR (IMMOBILIZER FUEL PUMP RELAY)	Drives PGM-FI main relay 2	About 0 V for 2 seconds after turning ignition switch ON (II), then battery voltage With the engine running: about 0 V
18	ORN	APSA (ACCELERATOR PEDAL POSITION (APP) SENSOR A)	Detects APP sensor A signal	With ignition switch ON (II) and accelerator pedal pressed: about 4.5 V With ignition switch ON (II) and accelerator pedal released: about 1.0 V
19	LT BLU	APSB (ACCELERATOR PEDAL POSITION (APP) SENSOR B)	Detects APP sensor B signal	With ignition switch ON (II) and accelerator pedal pressed: about 2.3 V With ignition switch ON (II) and accelerator pedal released: about 0.5 V
21	RED	ETCSRLY (ELECTRONIC THROTTLE CONTROL SYSTEM (ETCS) CONTROL RELAY)	Drives electronic throttle control system (ETCS) control relay	With ignition switch ON (II): about 0 V
22	ORN	SUBRLY (PGM-FI SUBRELAY)	Drives A/F sensor relay	With ignition switch ON (II): about 0 V
24	PNK	ELD (ELECTRICAL LOAD DETECTOR (ELD))	Detects ELD signal	With ignition switch ON (II): about 0.1−4.8 V (depending on electrical load)

*1: A/T

ECM/PCM Inputs and Outputs at Connector A (□) (49P)

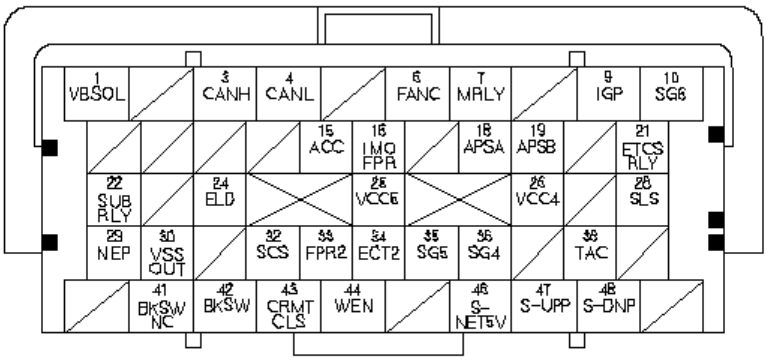


Terminal side of female terminals

36	BLU	SG4 (SENSOR GROUND)	Sensor ground	Less than 0.5 V at all times
38	ORN	TAC (EVAPORATOR TEMPERATURE SENSOR)	Detects evaporator sensor signal	With ignition switch ON (II): about 0.1−4.8 V (depending on evaporator temperature)
41 *2	BRN	BKSWNC (BRAKE PEDAL POSITION SWITCH)	Detects brake pedal position switch signal	With ignition switch ON (II) and brake pedal released: battery voltage With ignition switch ON (II) and brake pedal pressed: about 0 V
42	LT GRN	BKSW (BRAKE PEDAL POSITION SWITCH)	Detects brake pedal position switch signal	With brake pedal released: about 0 V With brake pedal pressed: battery voltage

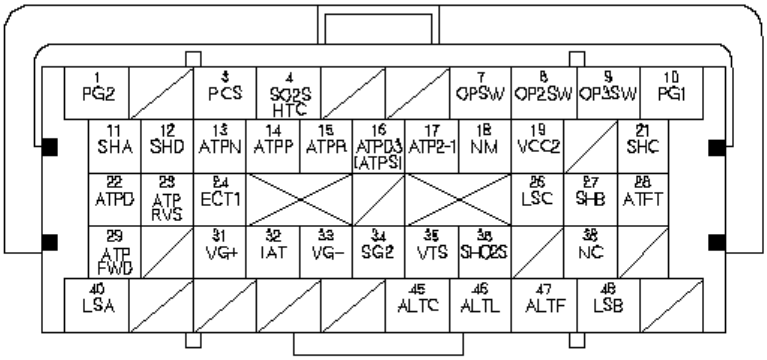
*1: A/T
*2: With cruise control

ECM/PCM Inputs and Outputs at Connector A (□) (49P)



Terminal side of female terminals

ECM/PCM Inputs and Outputs at Connector B (△) (49P)

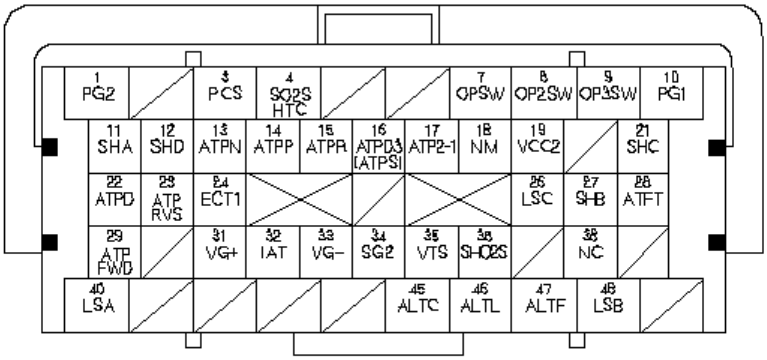


Terminal side of female terminals

		TRANSMISSION FLUID PRESSURE SWITCH)	fluid pressure switch input signal	Without 3rd clutch pressure: about 5.0 V With 3rd clutch pressure: about 0 V
10	BLK	PG1 (POWER GROUND)	Ground circuit for ECM/PCM circuit	Less than 0.5 V at all times
11 *1	BLU/BLK	SHA (SHIFT SOLENOID VALVE A)	Drives shift solenoid valve A	With engine running in D (in 2nd and 4th gears), S (in 2nd and 4th gears), D3 (in 2nd gear), and 2: battery voltage With engine running in P, R, N, 1, D (in 1st, 3rd, and 5th gears), S (in 1st, 3rd, and 5th gears), D3 (in 1st and 3rd gears): about 0 V
12 *1	GRN/RED	SHD (SHIFT SOLENOID VALVE D)	Drives shift solenoid valve D	With engine running in P, R: battery voltage With engine running in N: about 0 V
13 *1	RED/BLK	ATPN (TRANSMISSION RANGE SWITCH N POSITION)	Detects transmission range switch N position input signal	In N: about 0 V In any position other than N: battery voltage
14 *1	BLU/BLK	ATPP (TRANSMISSION RANGE SWITCH P POSITION)	Detects transmission range switch P position input signal	In P: about 0 V In any position other than P: battery voltage
15 *1	WHT	ATPR (TRANSMISSION RANGE SWITCH R POSITION)	Detects transmission range switch R position input signal	In R: about 0 V In any position other than R: battery voltage
16 *7	RED	ATPD3 (TRANSMISSION RANGE SWITCH D3 POSITION)	Detects transmission range switch D3 position input signal	In D3: about 0 V In any position other than D3: battery voltage
16 *6	RED	ATPS (TRANSMISSION RANGE SWITCH S POSITION)	Detects transmission range switch S position input signal	In S: about 0 V In any position other than S: battery voltage

*1: A/T
*6: A/T (with paddle shifter model)
*7: A/T (without paddle shifter model)

ECM/PCM Inputs and Outputs at Connector B (△) (49P)

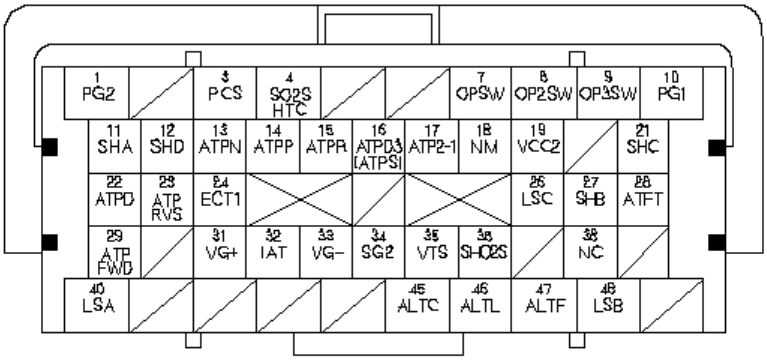


Terminal side of female terminals

24	RED/WHT	ECT1 (ENGINE COOLANT TEMPERATURE (ECT) SENSOR 1)	Detects ECT sensor 1 signal	With ignition switch ON (II): about 0.1–4.8 V (depending on engine coolant temperature)
26 *1	BLU/YEL	LSC (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C)	Drives A/T clutch pressure control solenoid valve C	With ignition switch ON (II): duty controlled
27 *1	GRN/WHT	SHB (SHIFT SOLENOID VALVE B)	Drives shift solenoid valve B	With engine running in R, 1, D (in 1st, 4th, and 5th gears), S (in 1st, 4th, and 5th gears), D3 (in 1st gear): battery voltage With engine running in P, N, 2, D (in 2nd and 3rd gears), D3 (in 2nd and 3rd gears), S (in 2nd and 3rd gears): about 0 V
28 *1	RED/YEL	ATFT (ATF TEMPERATURE SENSOR)	Detects ATF temperature signal	With ignition switch ON (II): about 0.2–4.0 V (depending on ATF temperature)
29 *1	BLU/YEL	ATPFWD (TRANSMISSION RANGE SWITCH FWD POSITION)	Detects transmission range switch D, D3, 2, and S positions input signal	In D, D3, 2 and S: about 0 V In any position other than D, D3, 2 and S: battery voltage

*1: A/T
*7: A/T (without paddle shifter model)

ECM/PCM Inputs and Outputs at Connector B (△) (49P)

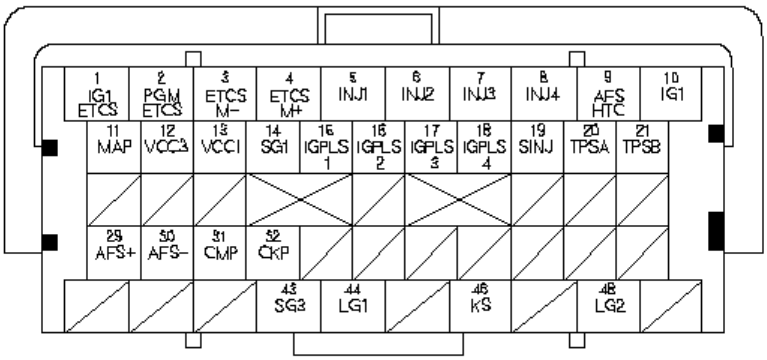


Terminal side of female terminals

		SENSOR)		
40 *1	RED/BLK	LSA (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A)	Drives A/T clutch pressure control solenoid valve A	With ignition switch ON (II): duty controlled
45	WHT/GRN	ALTC (ALTERNATOR CONTROL)	Sends alternator control signal	With fully warmed up engine running: about 5.0 V(depending on electrical load)
46	WHT/BLU	ALTL (ALTERNATOR L SIGNAL)	Detects alternator L signal	With ignition switch ON (II): about 0 V With engine running: battery voltage
47	WHT/RED	ALTF (ALTERNATOR FR SIGNAL)	Detects alternator FR signal	With engine running: about 2.6−3.4 V (depending on electrical load)
48 *1	BRN/WHT	LSB (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B)	Drives A/T clutch pressure control solenoid valve B	With ignition switch ON (II): duty controlled

*1: A/T

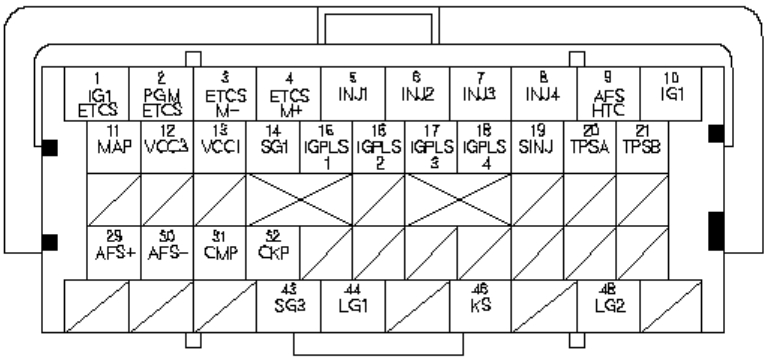
ECM/PCM Inputs and Outputs at Connector C (○) (49P)



Terminal side of female terminals

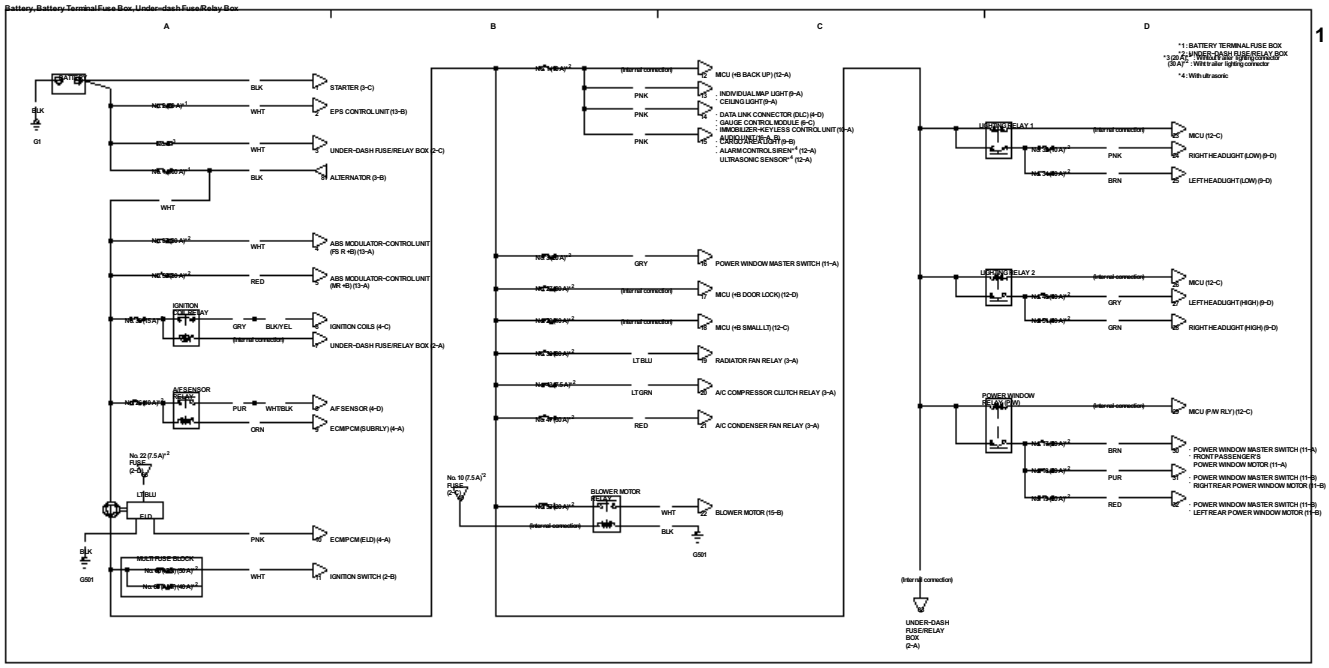
10	BLK/RED	IG1 (IGNITION SIGNAL)	Detects ignition signal	With ignition switch ON (II): battery voltage
11	GRN/RED	MAP (MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR)	Detects MAP sensor signal	With ignition switch ON (II): about 3.0 V At idle: about 1.0 V (depending on engine speed)
12	BLU	VCC3 (SENSOR VOLTAGE)	Provides sensor reference voltage	With ignition switch ON (II): about 5.0 V
13	YEL/RED	VCC1 (SENSOR VOLTAGE)	Provides sensor reference voltage	With ignition switch ON (II): about 5.0 V
14	GRN/WHT	SG1 (SENSOR GROUND)	Sensor ground	Less than 0.5 V at all times
15	WHT	IGPLS1 (No. 1 IGNITION COIL PULSE)	Drives No. 1 ignition coil	With ignition switch ON (II): about 0 V With engine running: pulses
16	WHT/GRN	IGPLS2 (No. 2 IGNITION COIL PULSE)	Drives No. 2 ignition coil	
17	WHT/BLK	IGPLS3 (No. 3 IGNITION COIL PULSE)	Drives No. 3 ignition coil	
18	WHT/BLU	IGPLS4 (No. 4 IGNITION COIL PULSE)	Drives No. 4 ignition coil	
19	BLK/RED	SINJ (SUBFUEL SOLENOID)	Drives subfuel solenoid	With ignition switch ON (II): battery voltage
20	RED/BLK	TPSA (THROTTLE POSITION (TP) SENSOR A)	Detects TP sensor A signal	With throttle fully closed: about 0.8 V
21	RED	TPSB (THROTTLE POSITION (TP) SENSOR B)	Detects TP sensor B signal	With throttle fully closed: about 1.7 V

ECM/PCM Inputs and Outputs at Connector C (○) (49P)



Terminal side of female terminals

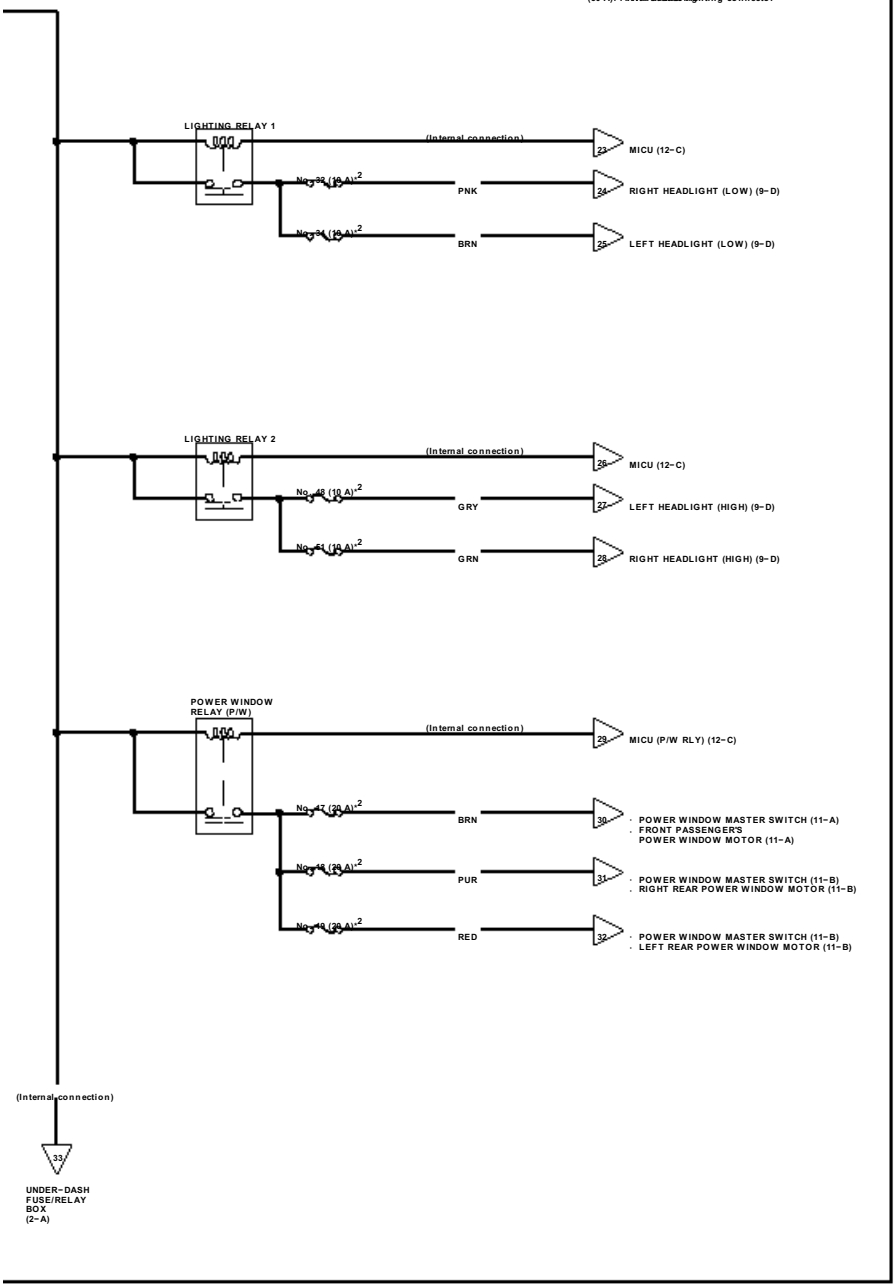
Wiring Diagram



D

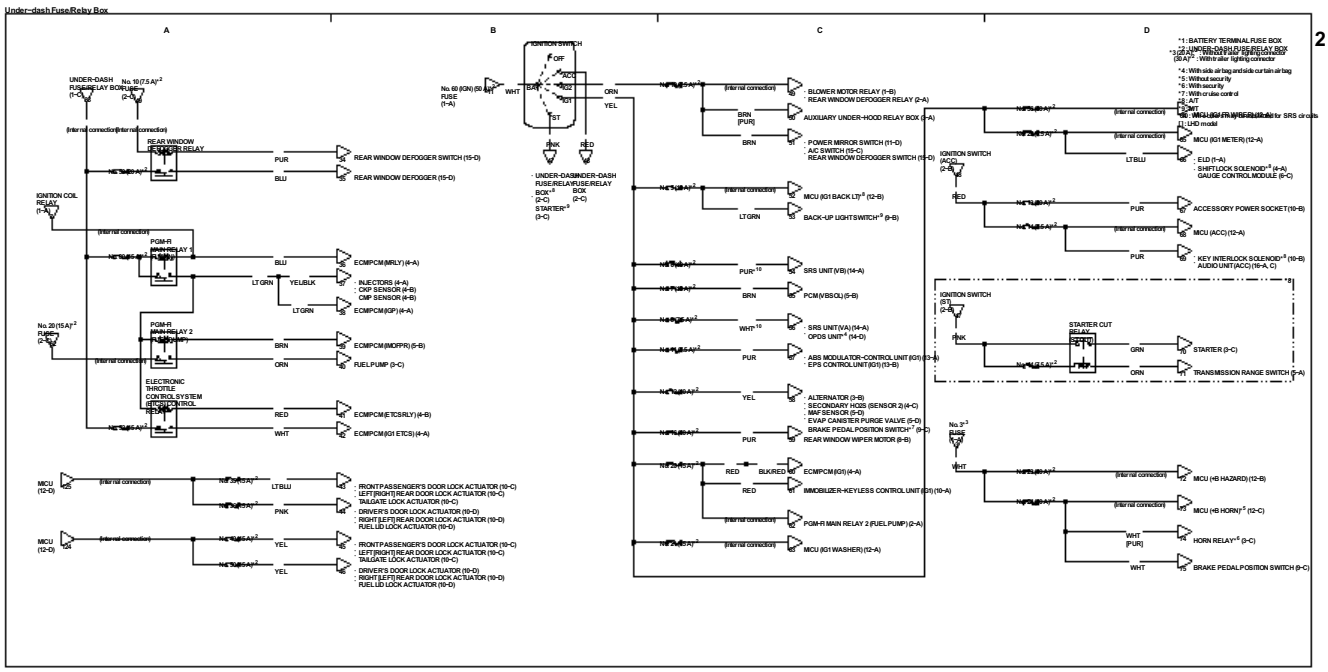
1

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER−DASH FUSE/RELAY BOX
*3 (20 A)*2 : Without trailer lighting connector
(30 A)*1 : With trailer lighting connector



Internal connection)

Wiring Diagram



D

2

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 (20 A)*2 : Without trailer lighting connector
(30A)*2 : With trailer lighting connector
*5 : Without security
*6 : With security
*7 : With cruise control
*8 : A/T
*9 : M/T
*10 : Wire colors may be substituted for SRS circuits
[ ] : LHD model

No. 55 (30 A)*2 — (Internal connection) — 64 — MICU (IG1 FR WIPER) (12-A)

No. 23 (7.5 A)*2 — (Internal connection) — 65 — MICU (IG1 METER) (12-A)

LT BLU — 66 — ELD (1-A)
SHIFT LOCK SOLENOID*8 (4-A)
GAUGE CONTROL MODULE (6-C)

IGNITION SWITCH (ACC) (2-B) — 48 — RED

No. 13 (20 A)*2 — PUR — 67 — ACCESSORY POWER SOCKET (10-B)

No. 14 (7.5 A)*2 — (Internal connection) — 68 — MICU (ACC) (12-A)

PUR — 69 — KEY INTERLOCK SOLENOID*8 (10-B)
AUDIO UNIT (ACC) (16-A, C)

*8

IGNITION SWITCH (ST) (2-B) — 47 — PNK

STARTER CUT RELAY (ST CUT)

GRN — 70 — STARTER (3-C)

No. 44 (7.5 A)*2 — ORN — 71 — TRANSMISSION RANGE SWITCH (5-A)

No. 3*3 FUSE (1-A) — 3 — WHT

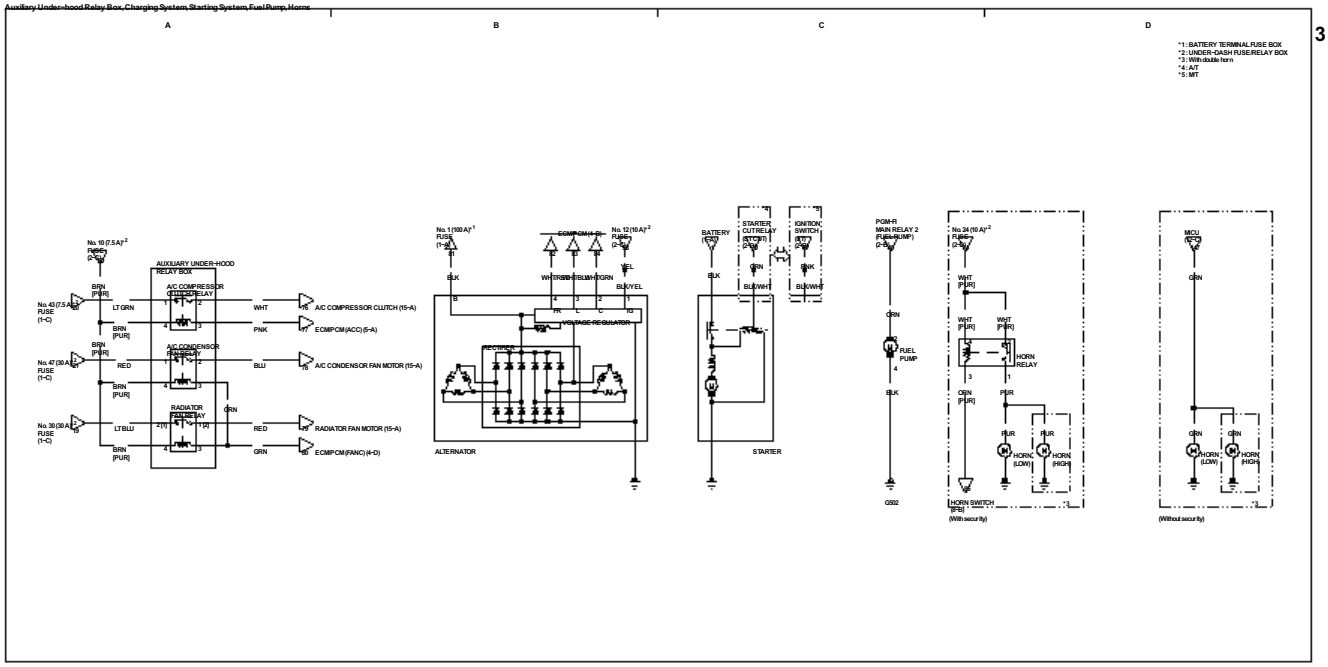
No. 23 (10 A)*2 — (Internal connection) — 72 — MICU (+B HAZARD) (12-B)

No. 24 (10 A)*2 — (Internal connection) — 73 — MICU (+B HORN)*5 (12-C)

WHT [PUR] — 74 — HORN RELAY*6 (3-C)

WHT — 75 — BRAKE PEDAL POSITION SWITCH (9-C)

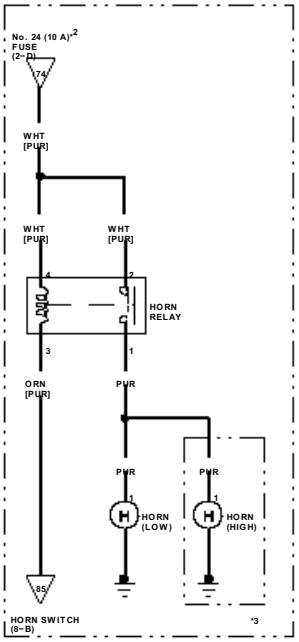
Wiring Diagram



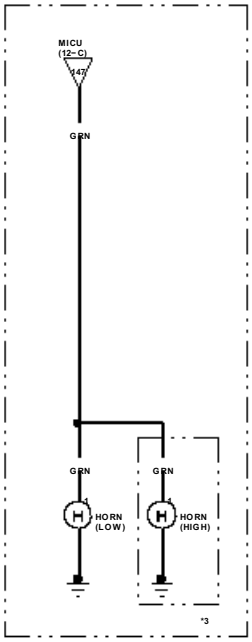
D

3

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : With double horn
*4 : A/T
*5 : M/T

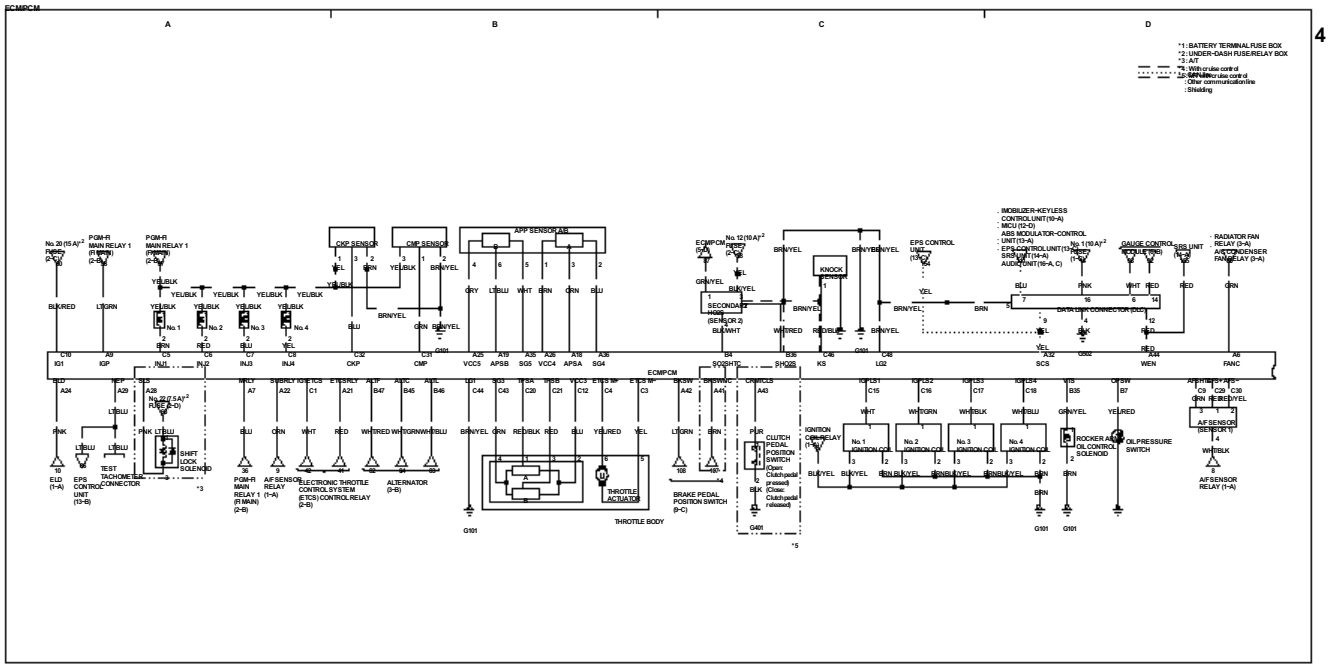


(With security)



(Without security)

Wiring Diagram

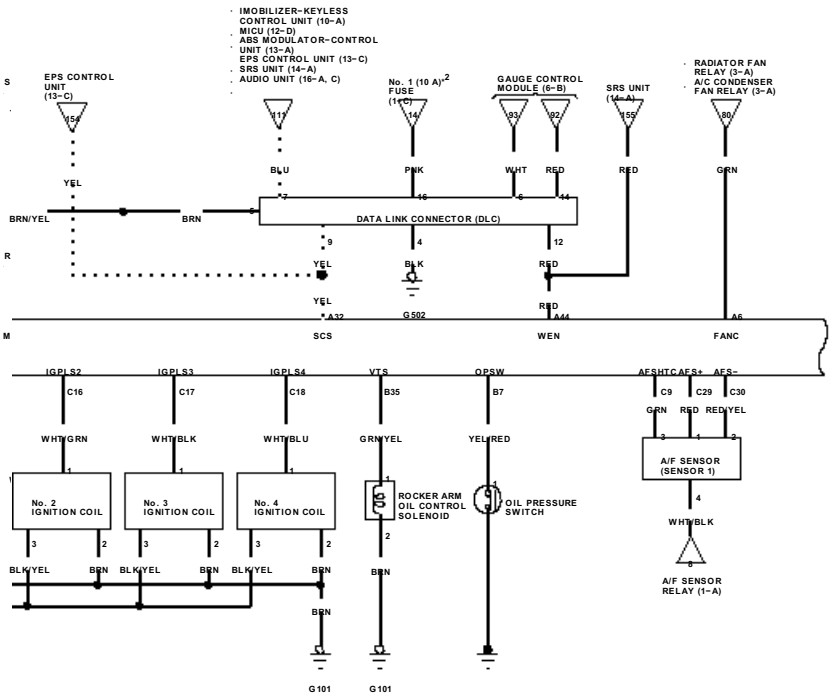


D

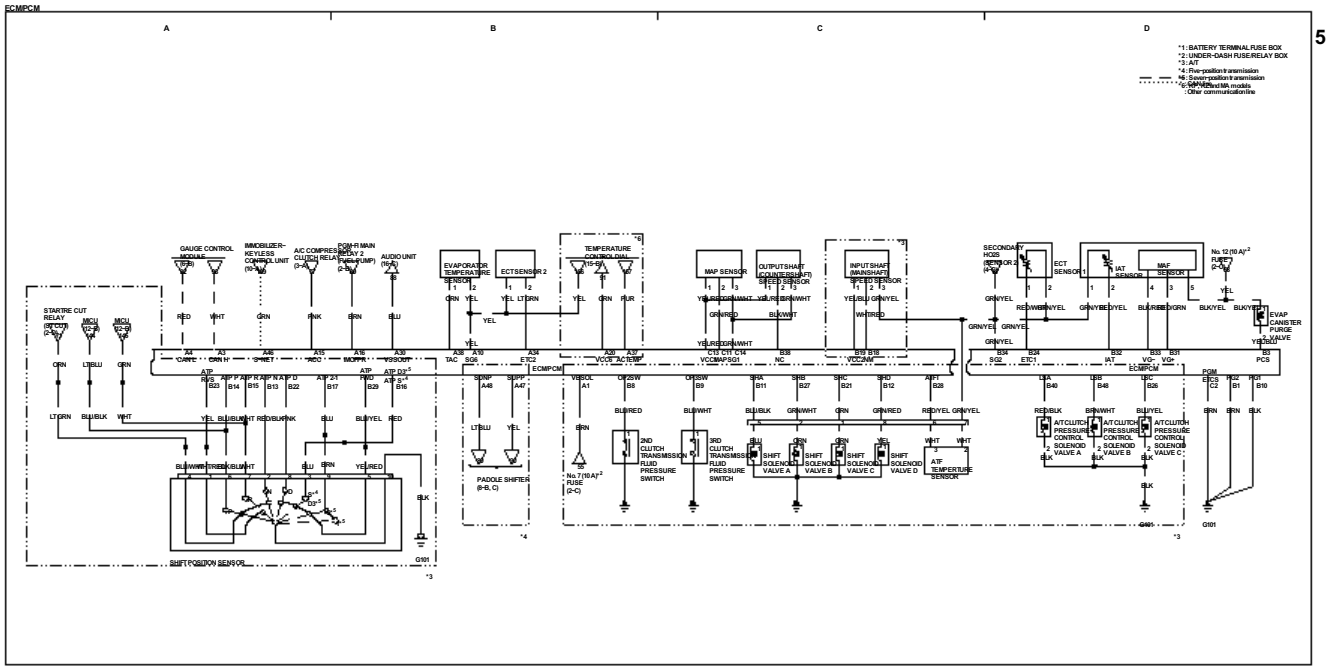
4

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : A/T
*4 : With cruise control
*5 : M/T with cruise control

: CAN line
: Other communication line
: Shielding



Wiring Diagram

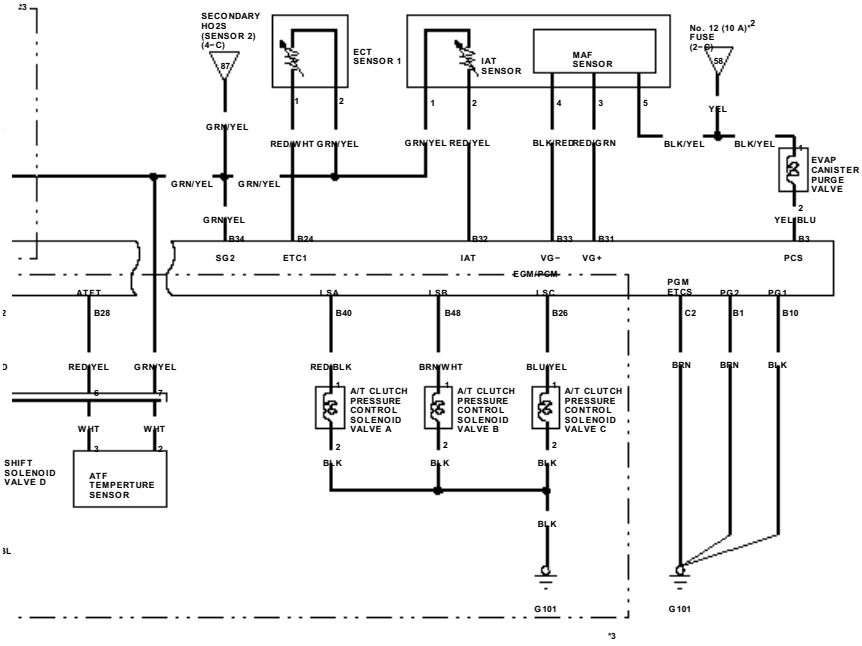


D

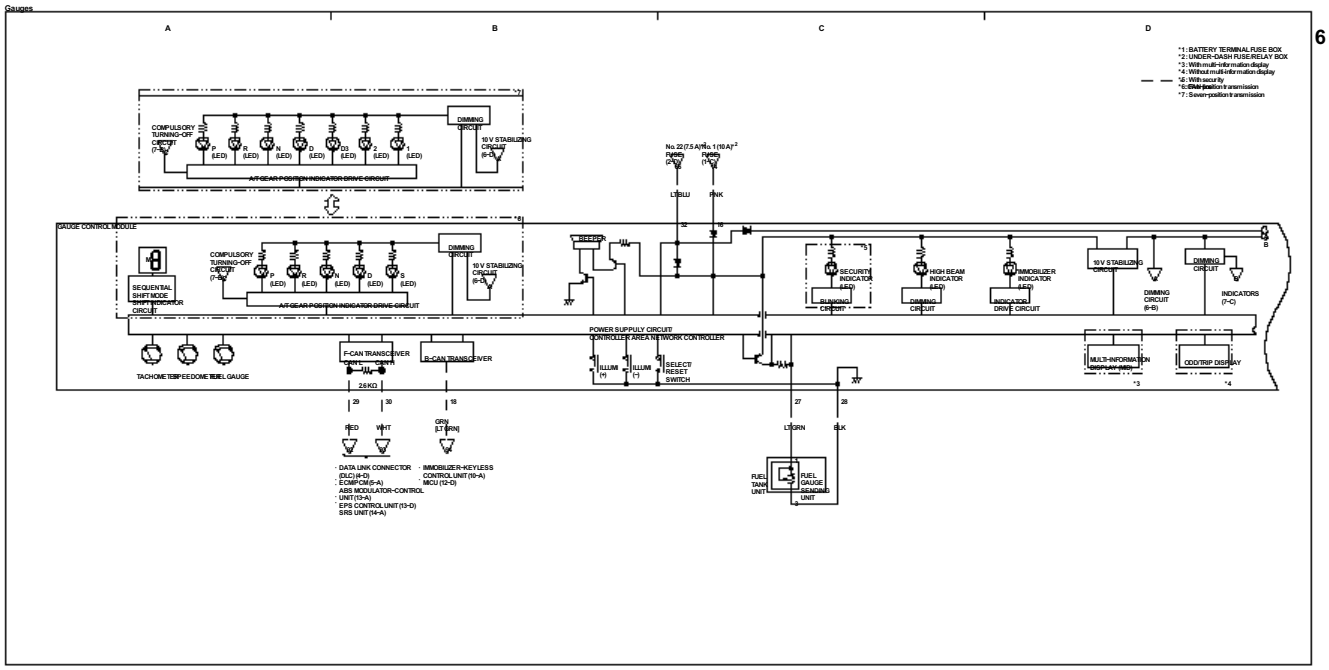
5

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER−DASH FUSE/RELAY BOX
*3 : A/T
*4 : Five−position transmission
*5 : Seven−position transmission
*6 : KP, KZ and MA models

: CAN line
*: Other communication line



Wiring Diagram

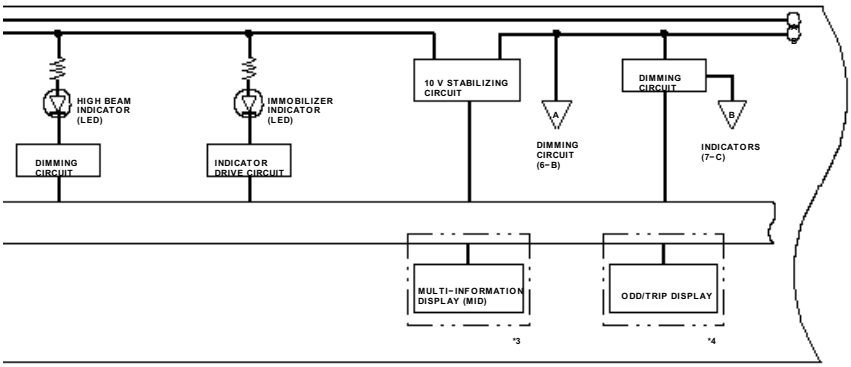


D

6

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : With multi-information display
*4 : Without multi-information display
*5 : With security
*6 : Five-position transmission
*7 : Seven-position transmission

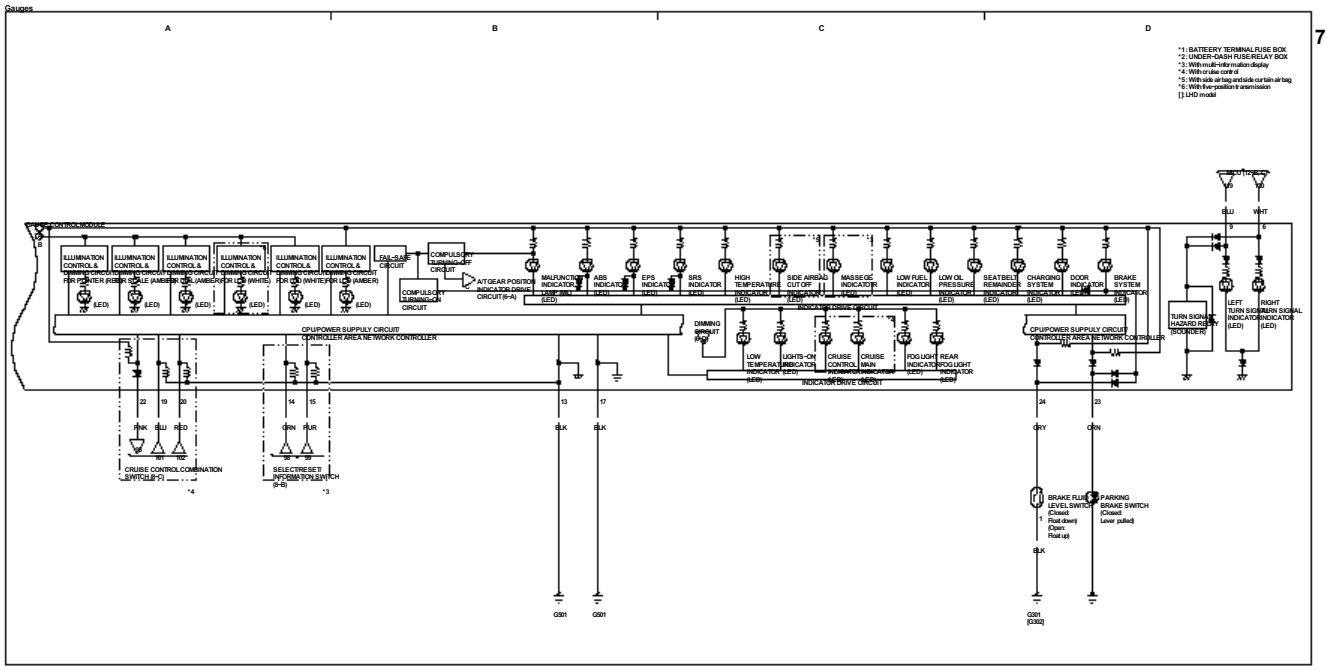
: CAN line



CAN TRANSCEIVER

OBILIZER-KEYLESS
ITROL UNIT (10-A)
U (12-D)

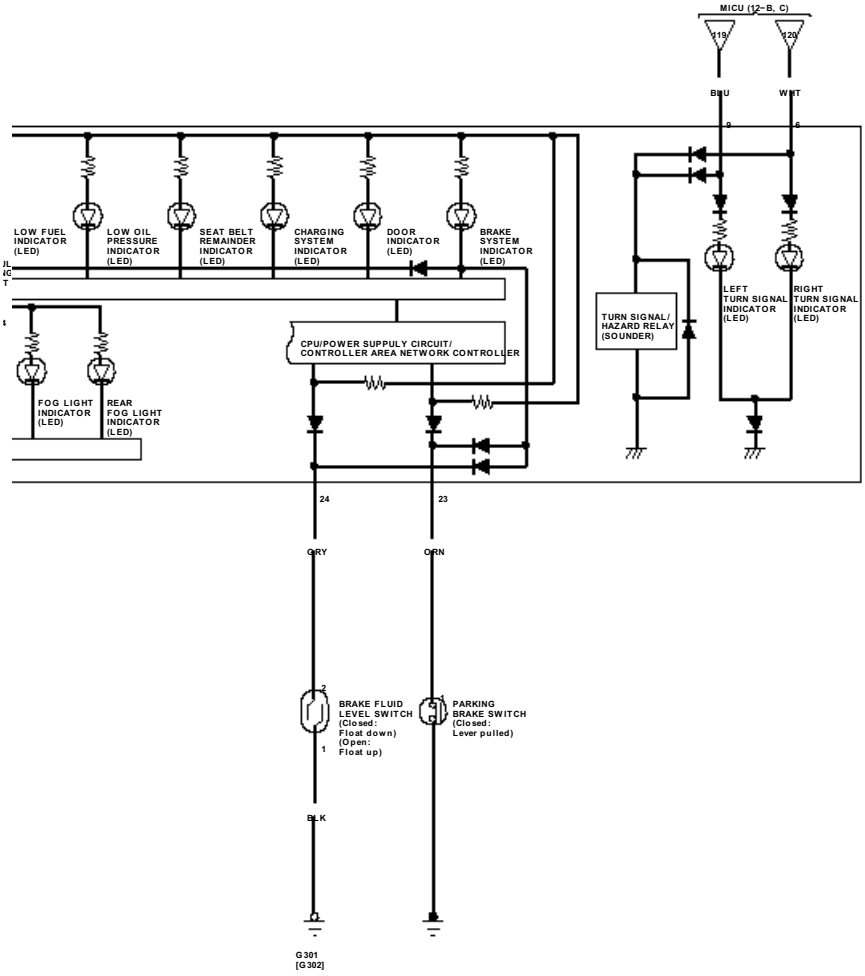
Wiring Diagram



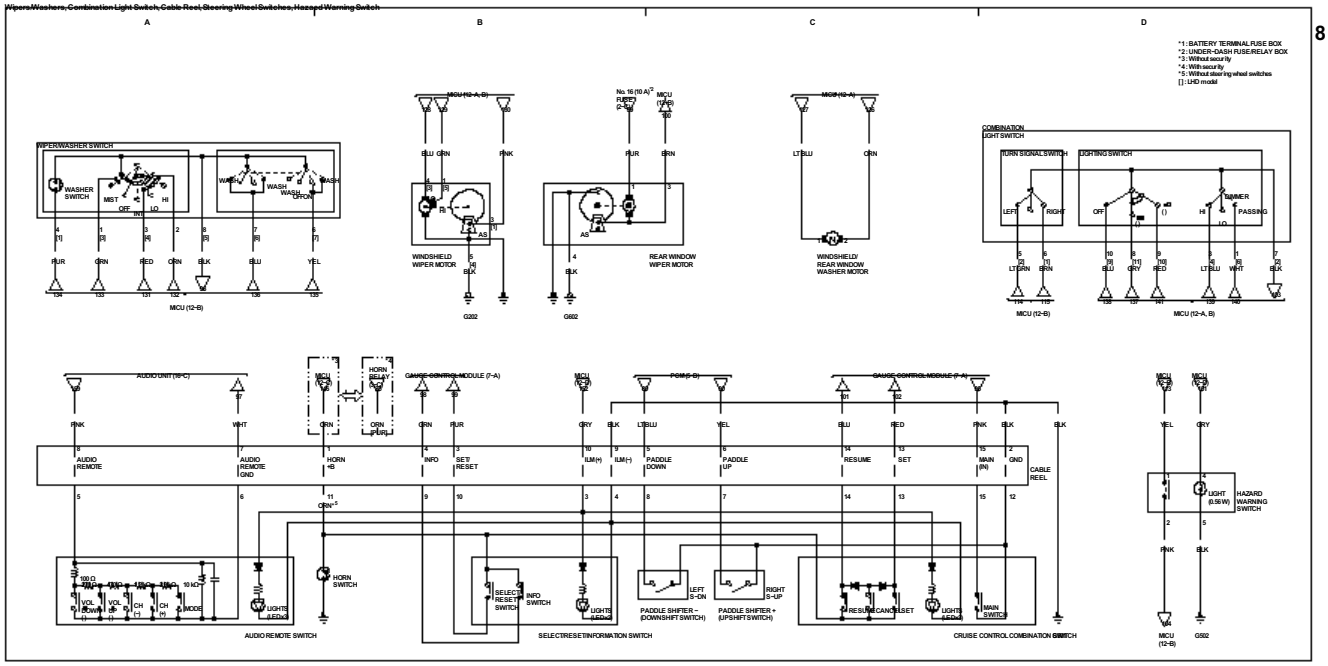
D

7

*1 : BATTEERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : With multi-information display
*4 : With cruise control
*5 : With side airbag and side curtain airbag
*6 : With five-position transmission
[ ]: LHD model



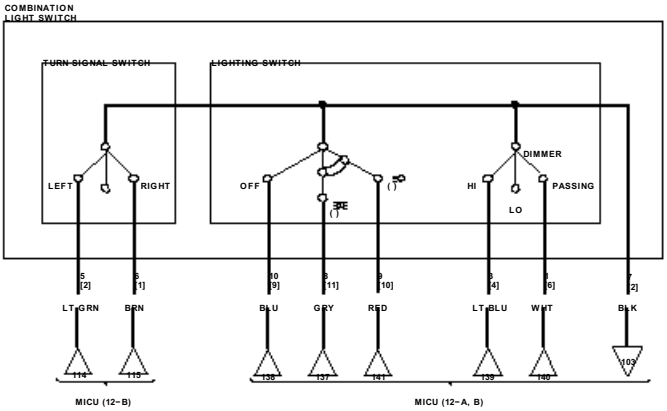
Wiring Diagram

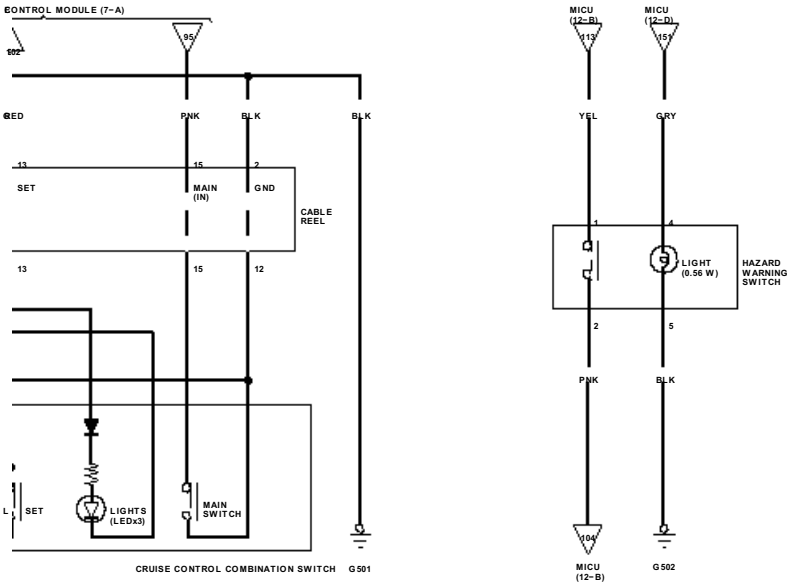


D

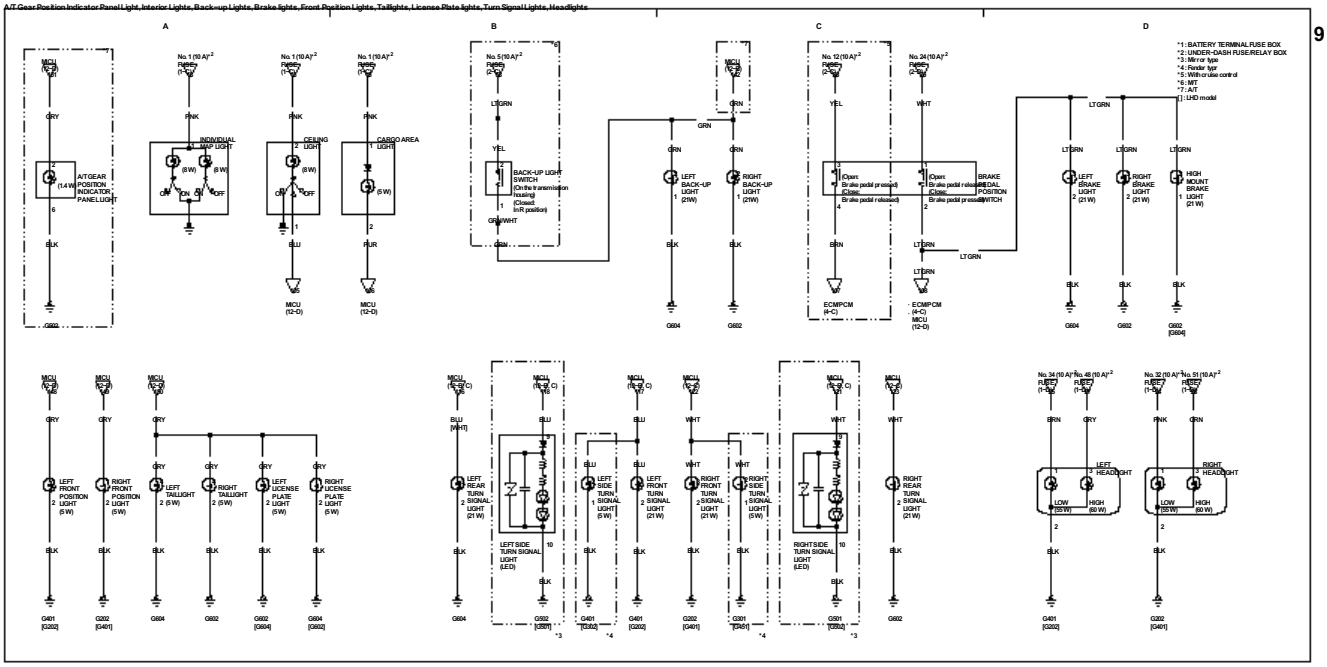
8

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : Without security
*4 : With security
*5 : Without steering wheel switches
[ ] : LHD model





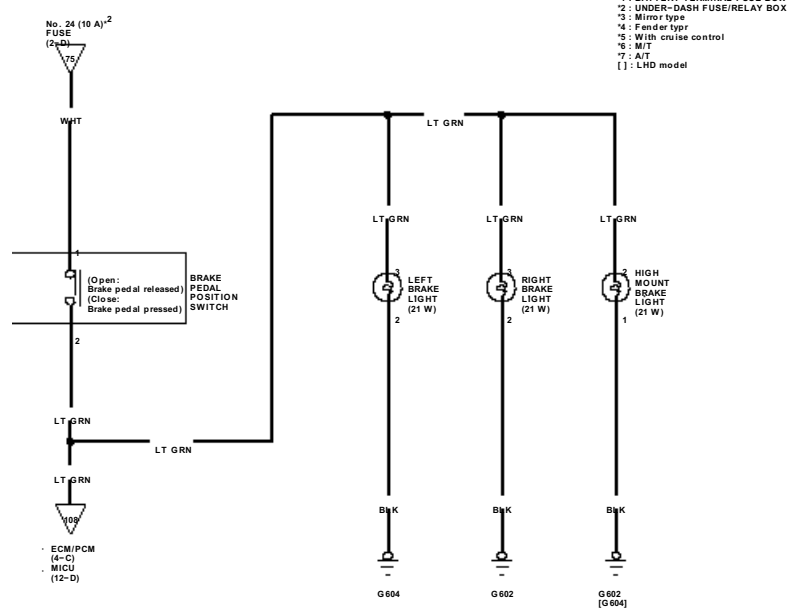
Wiring Diagram

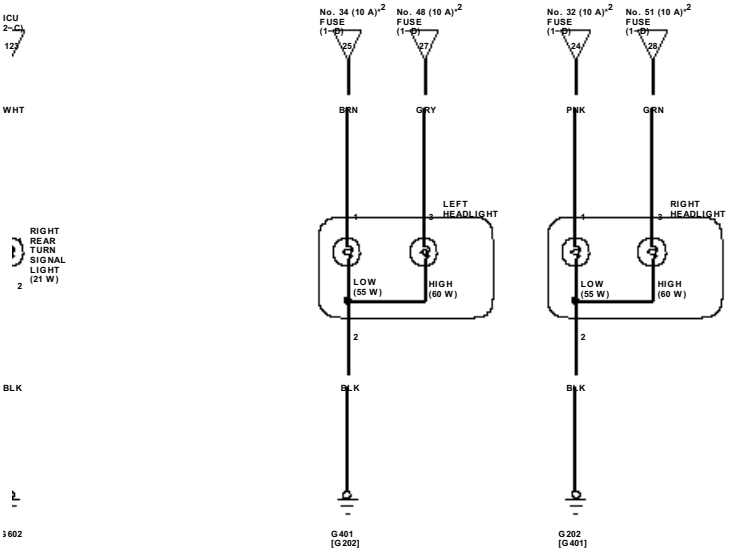


D

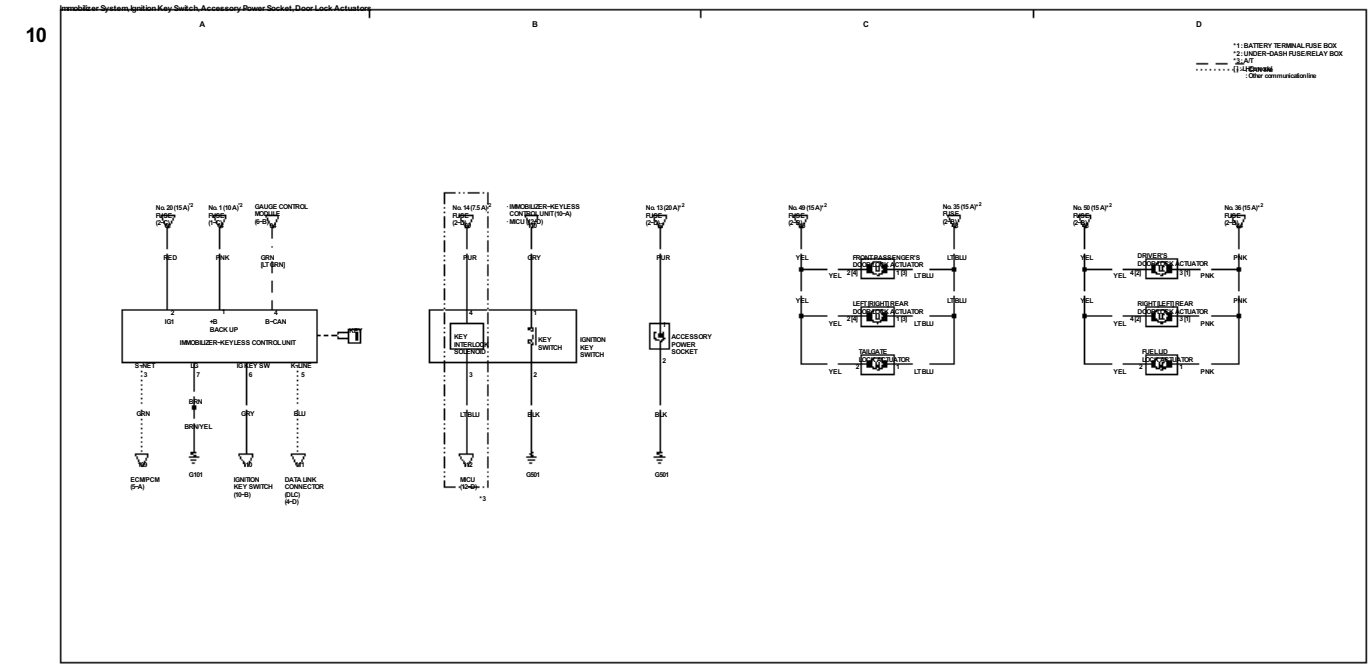
9

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : Mirror type
*4 : Fender type
*5 : With cruise control
*6 : M/T
*7 : A/T
[ ] : LHD model





Wiring Diagram

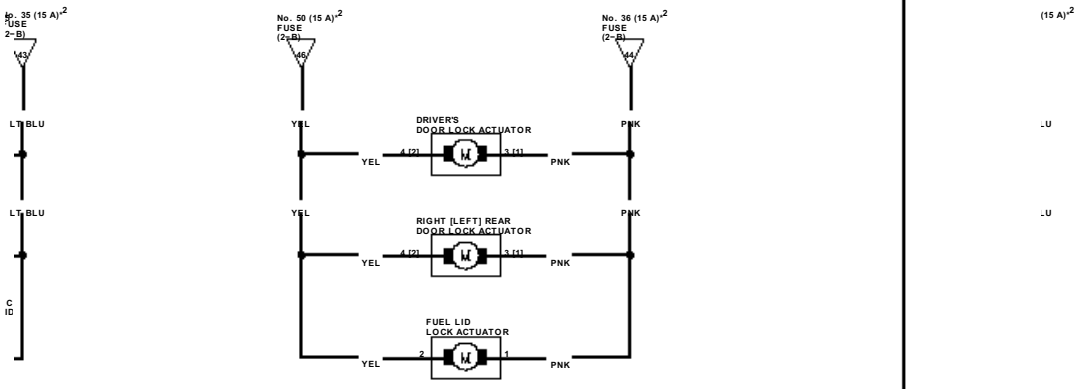


D

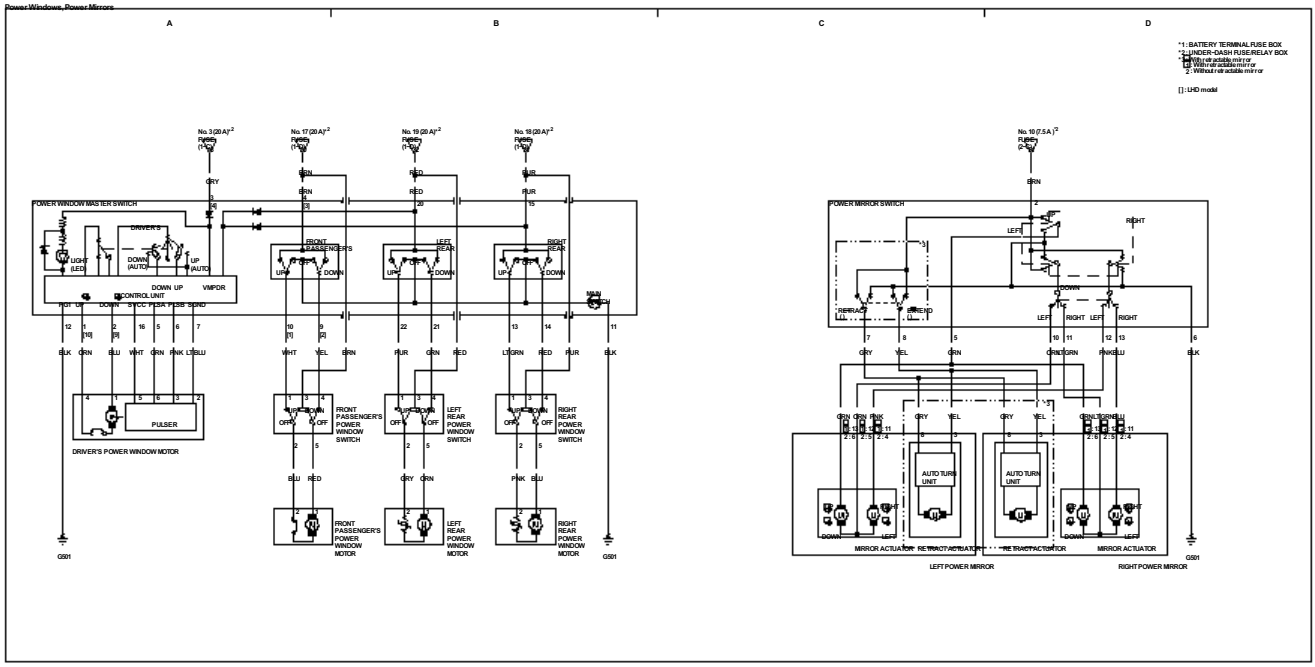
10

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : A/T
[ ] : LHD model

: CAN line
: Other communication line



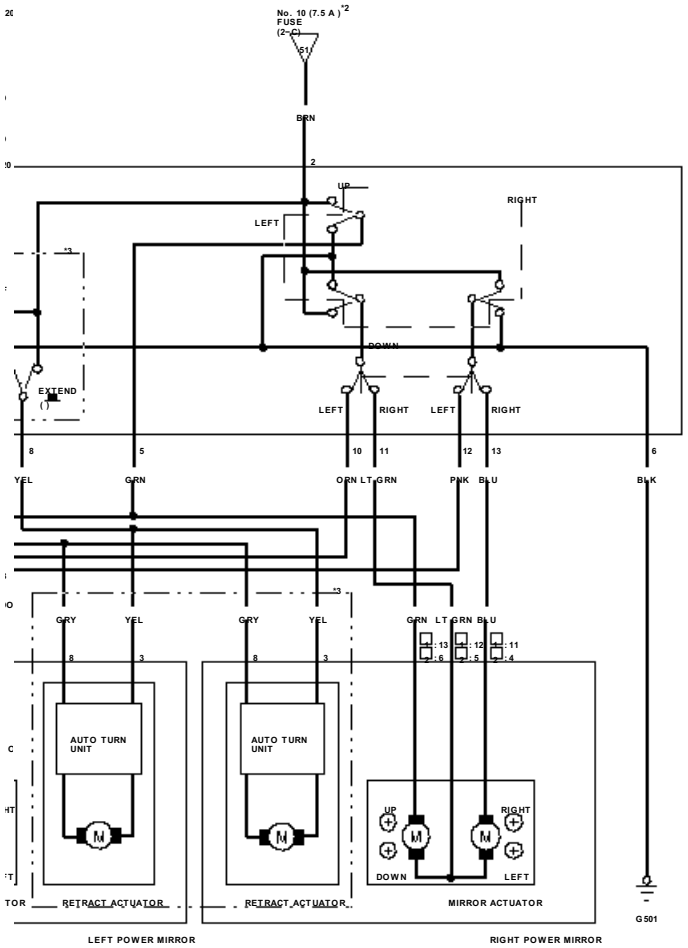
Wiring Diagram



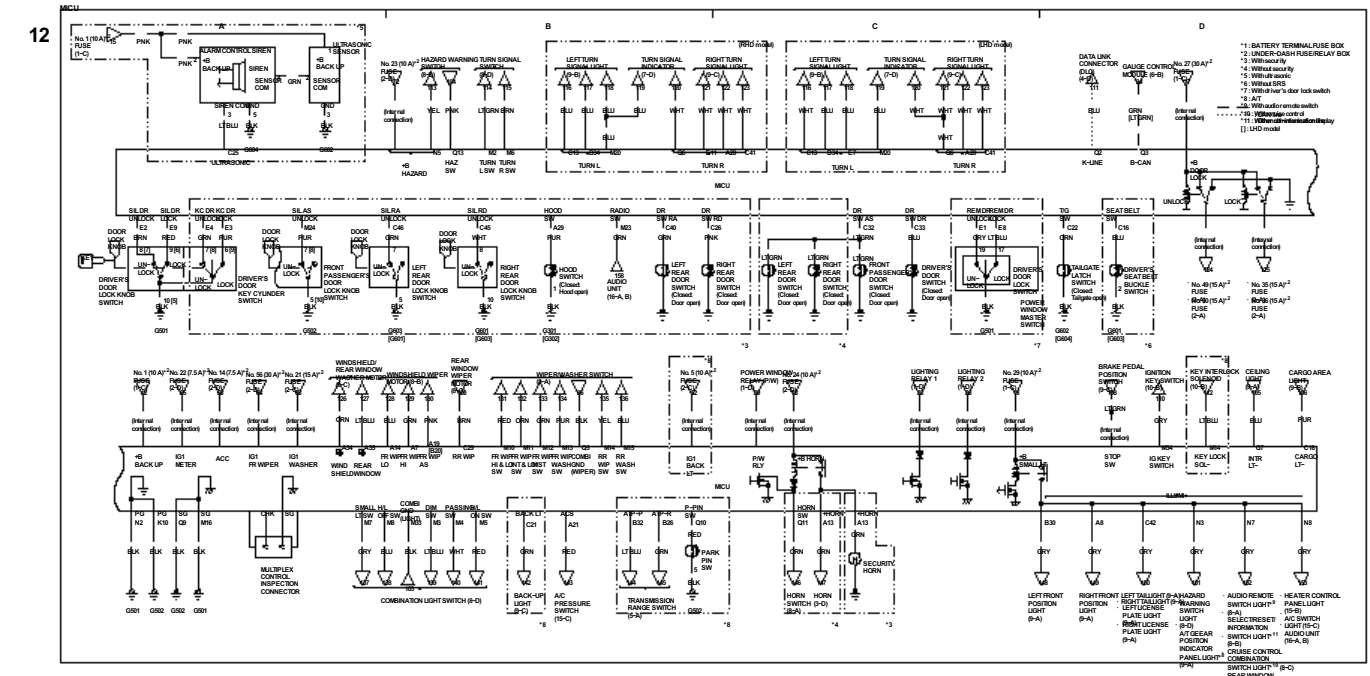
D

11

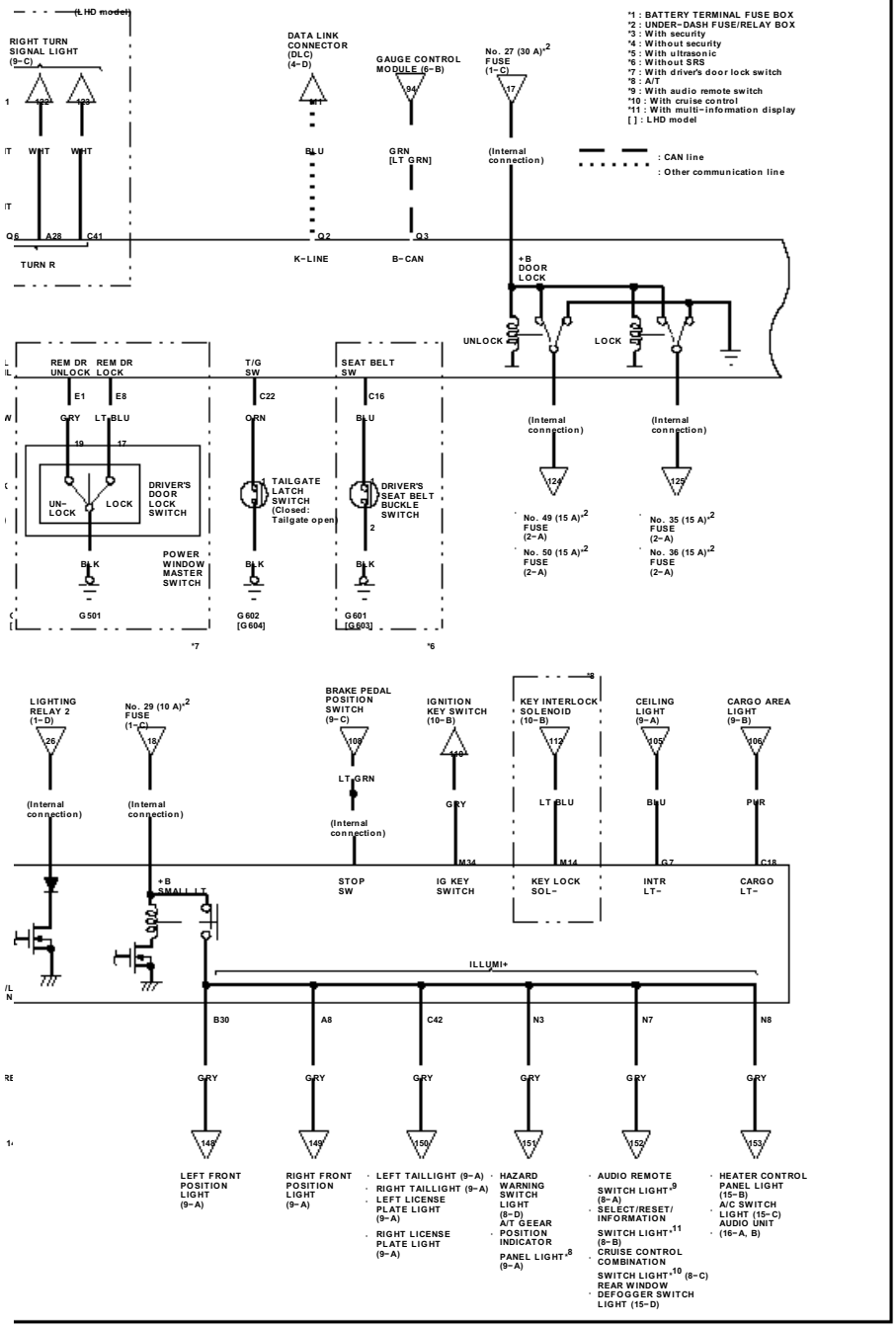
*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : With retractable mirror
: With retractable mirror
: Without retractable mirror
[ ] : LHD model



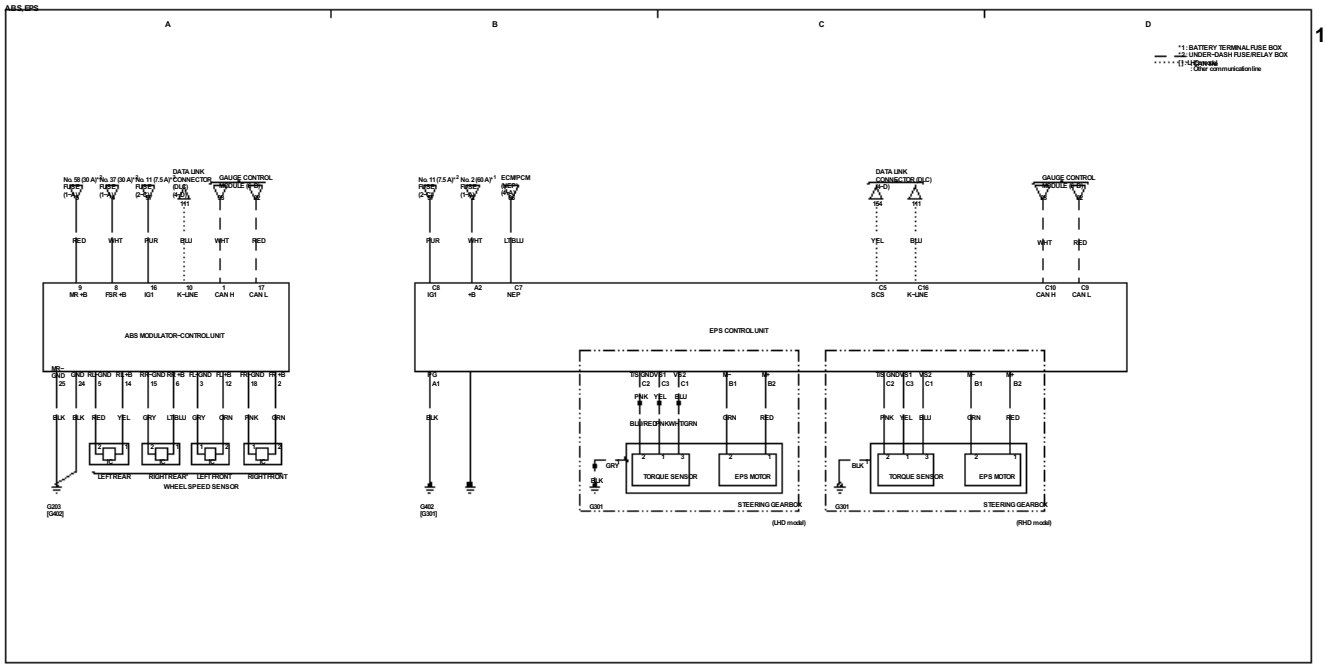
Wiring Diagram



D


(LHD model)
RIGHT TURN SIGNAL LIGHT (9-C)
DATA LINK CONNECTOR (DLC) (4-D)
GAUGE CONTROL MODULE (6-B)
No. 27 (30 A)*2 FUSE (1-C)
*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : With security
*4 : Without security
*5 : With ultrasonic
*6 : Without SRS
*7 : With driver's door lock switch
*8 : A/T
*9 : With audio remote switch
*10 : With cruise control
*11 : With multi-information display
[ ] : LHD model
: CAN line
: Other communication line
WHT
BLU
GRN [LT GRN]
(Internal connection)
K-LINE
B-CAN
TURN R
+B DOOR LOCK
UNLOCK
LOCK
REM DR UNLOCK
REM DR LOCK
T/G SW
SEAT BELT SW
GRY
LT BLU
ORN
BLU
DRIVER'S DOOR LOCK SWITCH
TAILGATE LATCH SWITCH (Closed: Tailgate open)
DRIVER'S SEAT BELT BUCKLE SWITCH
POWER WINDOW MASTER SWITCH
BLK
G501
G602 [G604]
G601 [G603]
No. 49 (15 A)*2 FUSE (2-A)
No. 50 (15 A)*2 FUSE (2-A)
No. 35 (15 A)*2 FUSE (2-A)
No. 36 (15 A)*2 FUSE (2-A)
LIGHTING RELAY 2 (1-D)
No. 29 (10 A)*2 FUSE (1-C)
BRAKE PEDAL POSITION SWITCH (9-C)
IGNITION KEY SWITCH (10-B)
KEY INTERLOCK SOLENOID (10-B)
CEILING LIGHT (9-A)
CARGO AREA LIGHT (9-B)
LT GRN
PNK
STOP SW
IG KEY SWITCH
KEY LOCK SOL-
INTR LT-
CARGO LT-
+B SMALL LT
ILLUMI+
B30
A8
C42
N3
N7
N8
LEFT FRONT POSITION LIGHT (9-A)
RIGHT FRONT POSITION LIGHT (9-A)
LEFT TAILLIGHT (9-A)
RIGHT TAILLIGHT (9-A)
LEFT LICENSE PLATE LIGHT (9-A)
RIGHT LICENSE PLATE LIGHT (9-A)
HAZARD WARNING SWITCH LIGHT (8-D)
A/T GEEAR POSITION INDICATOR
PANEL LIGHT*8 (9-A)
AUDIO REMOTE SWITCH LIGHT*9 (8-A)
SELECT/RESET/ INFORMATION SWITCH LIGHT*11 (8-B)
CRUISE CONTROL COMBINATION SWITCH LIGHT*10 (8-C)
REAR WINDOW DEFOGGER SWITCH LIGHT (15-D)
HEATER CONTROL PANEL LIGHT (15-B)
A/C SWITCH LIGHT (15-C)
AUDIO UNIT (16-A, B)

Wiring Diagram

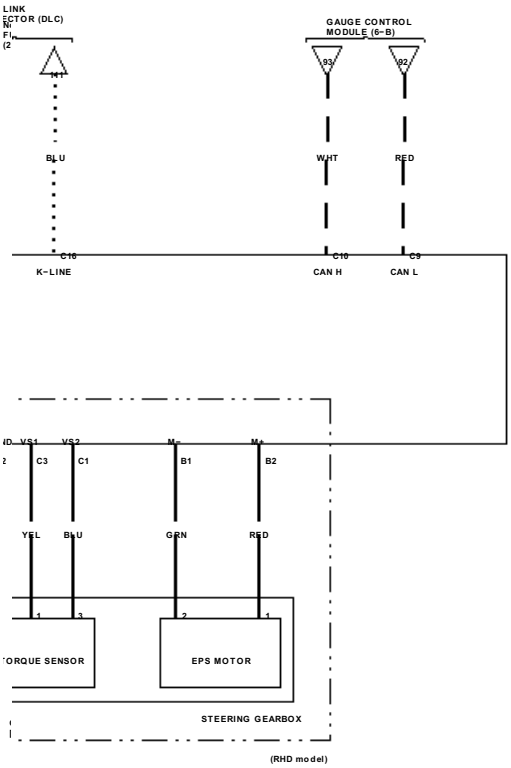


D

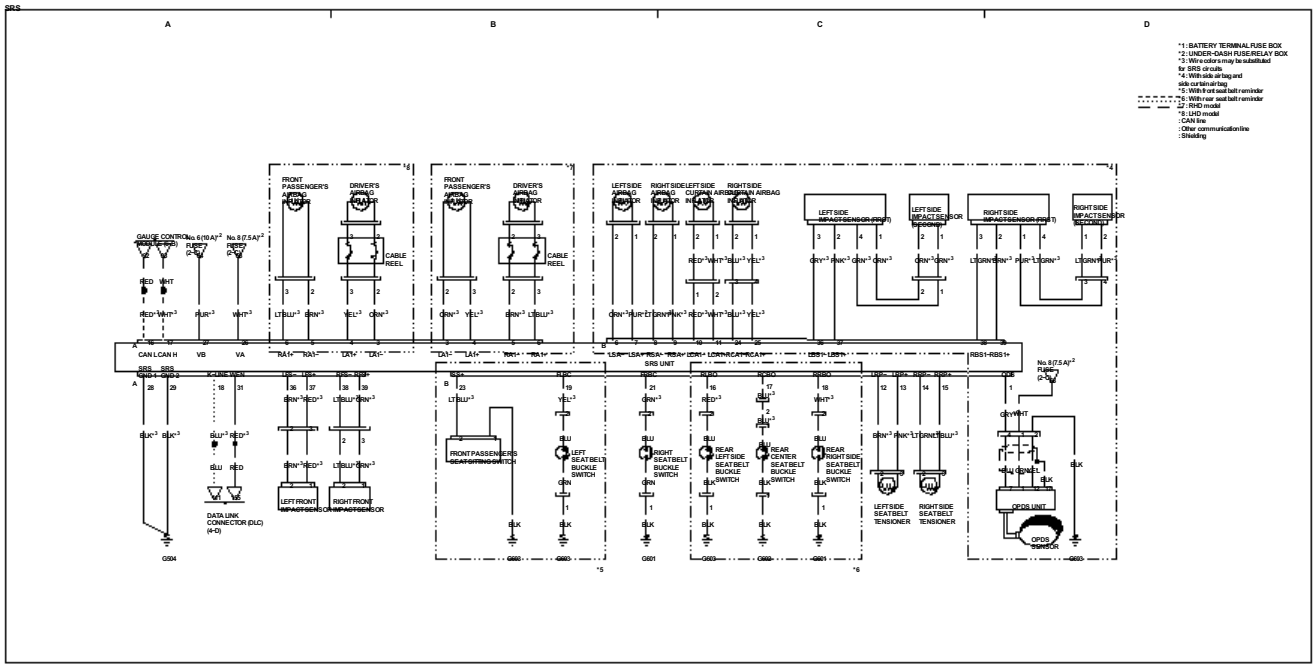
13

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
[ ] : LHD model

: CAN line
: Other communication line

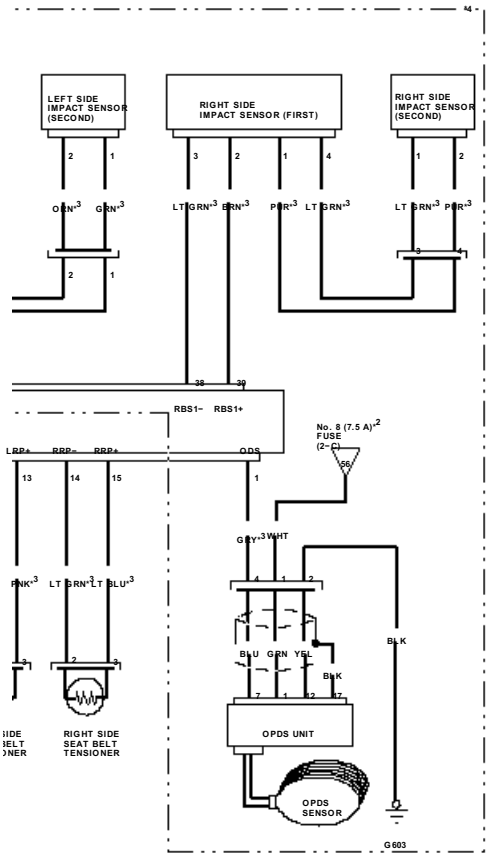


Wiring Diagram

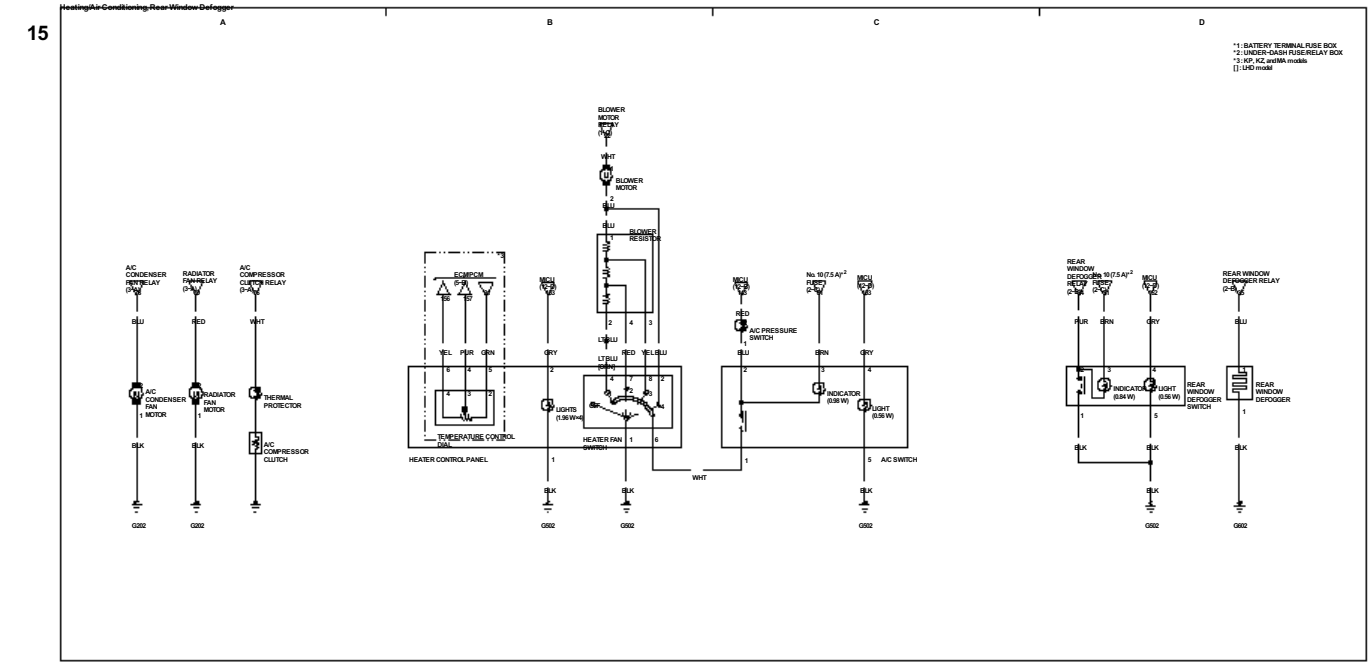


D

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : Wire colors may be substituted for SRS circuits
*4 : With side airbag and side curtain airbag
*5 : With front seat belt reminder
*6 : With rear seat belt reminder
*7 : RHD model
*8 : LHD model
: CAN line
: Other communication line
: Shielding



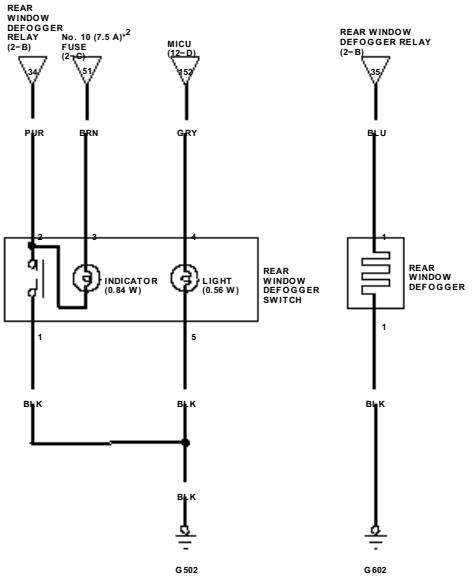
Wiring Diagram



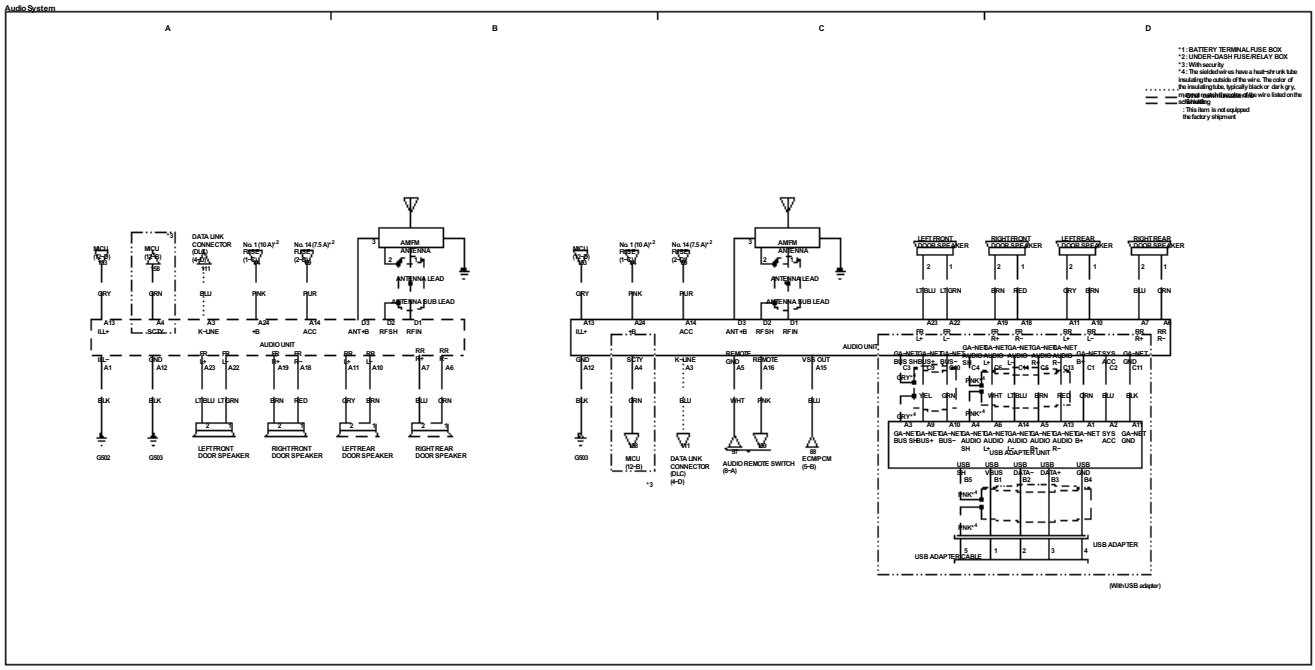
D

15

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : KP, KZ, and MA models
[ ] : LHD model



Wiring Diagram

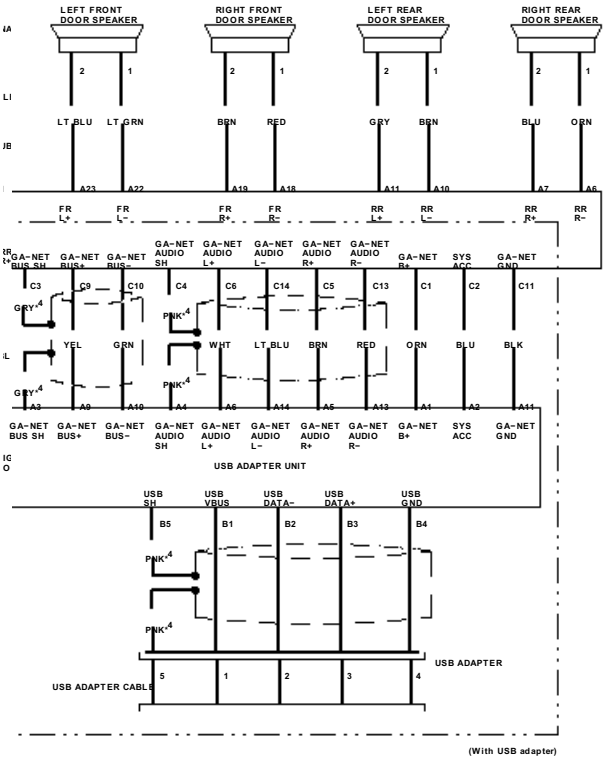


D

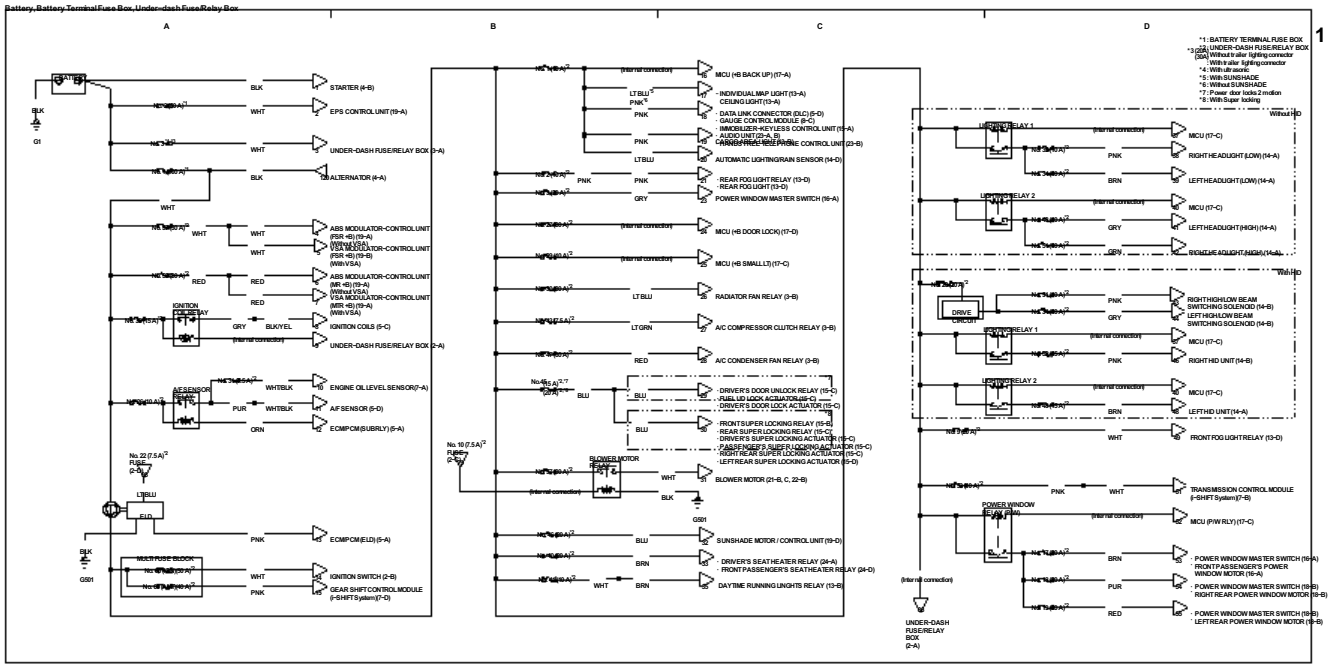
16

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : With security
*4 : The sielded wires have a heat-shrunk tube insulating the outside of the wire. The color of the insulating tube, typically black or dark gry, may not match the color of the wire listed on the schematic

: Other communication line
: Shielding
: This item is not equipped the factory shipment



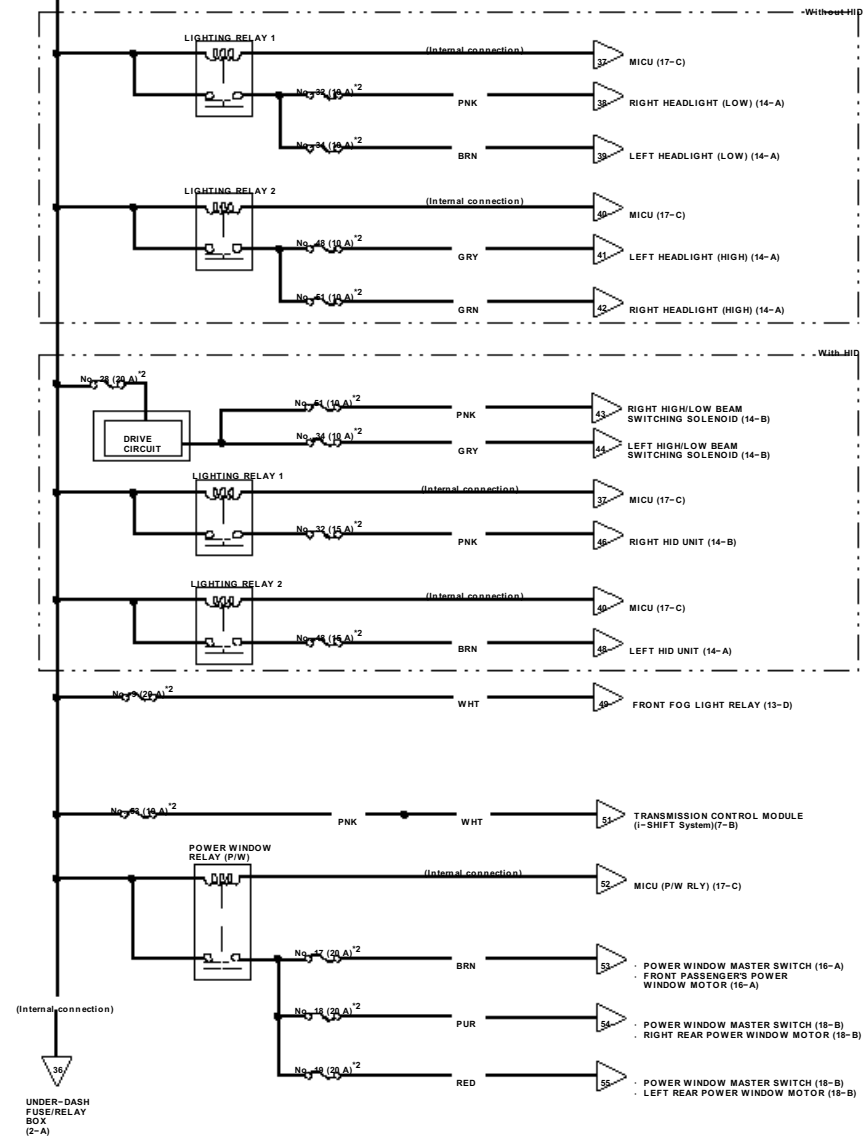
Wiring Diagram



D

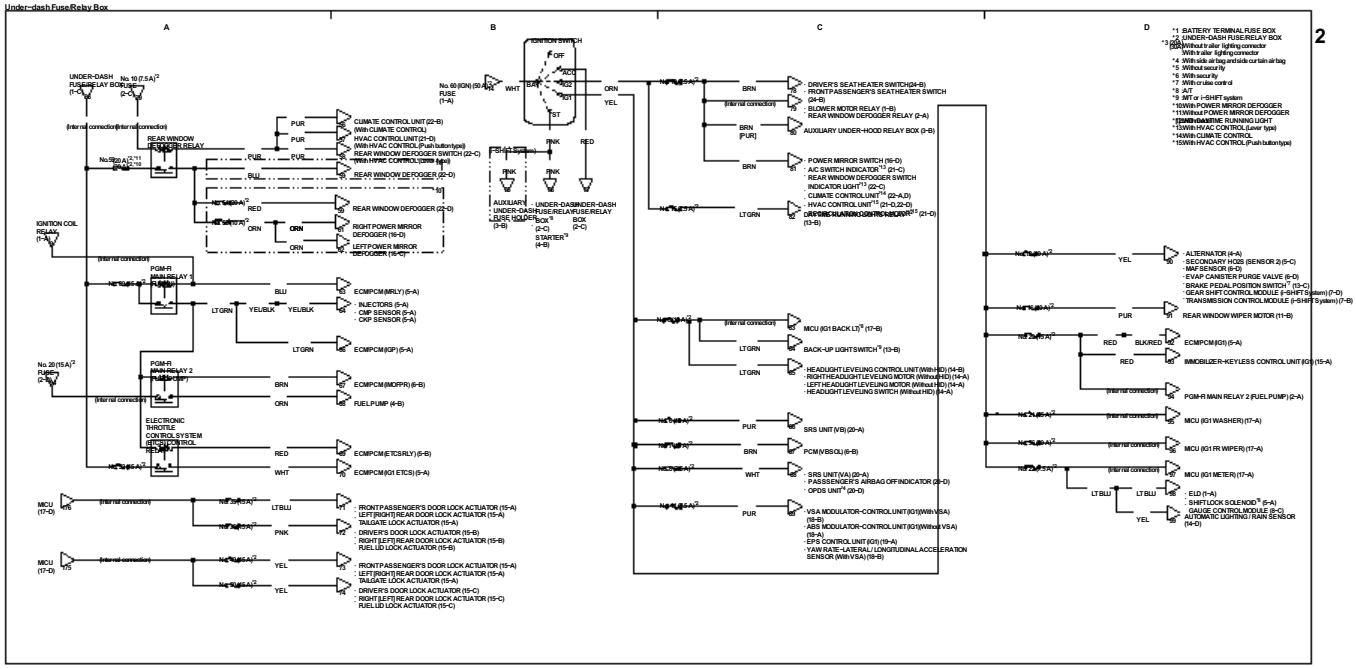
1

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 (20A) : Without trailer lighting connector
(30A) : With trailer lighting connector
*4 : With ultrasonic
*5 : With SUNSHADE
*6 : Without SUNSHADE
*7 : Power door locks 2 motion
*8 : With Super locking



Internal connection)

Wiring Diagram

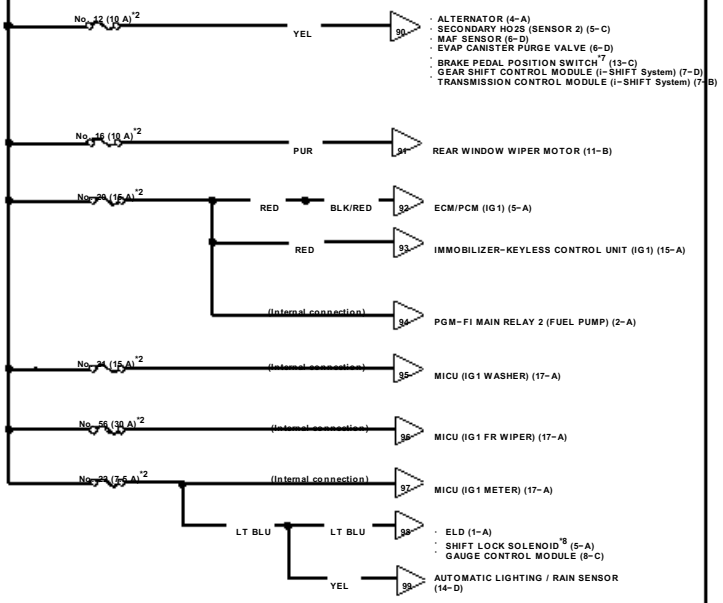


D

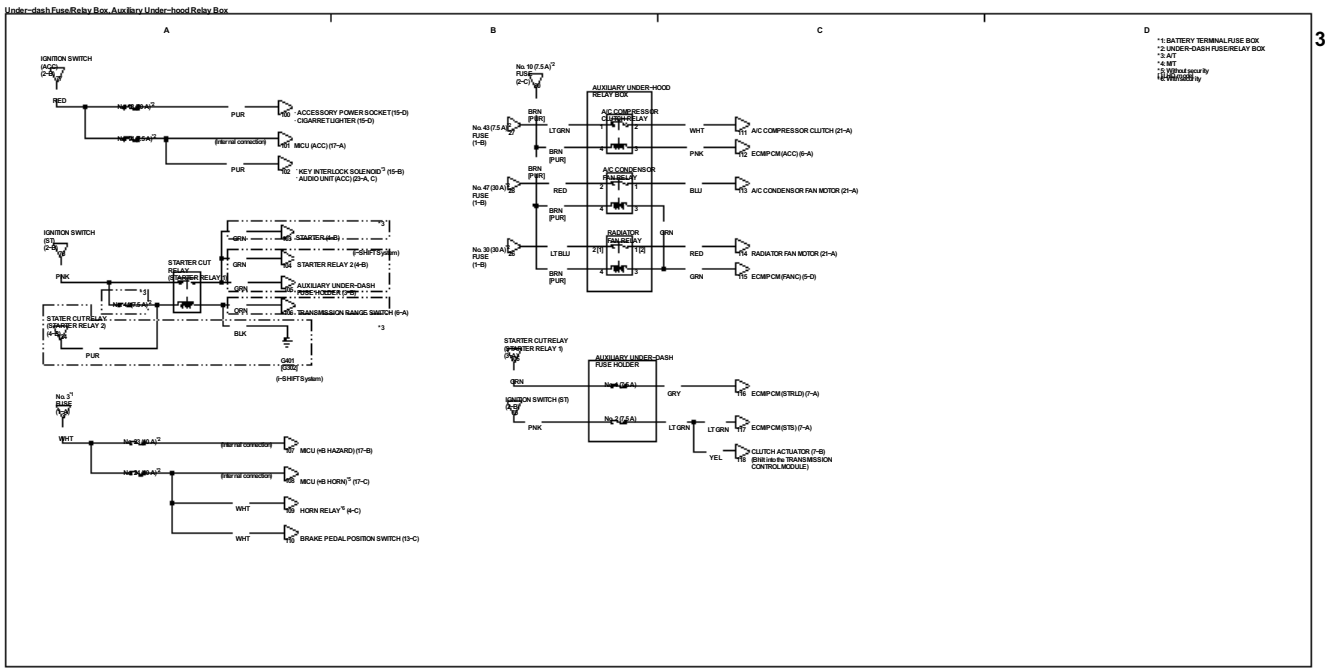
*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 (20A) : Without trailer lighting connector
(30A) : With trailer lighting connector
*4 : With side airbag and side curtain airbag
*5 : Without security
*6 : With security
*7 : With cruise control
*8 : A/T
*9 : M/T or i-SHIFT system
*10 : With POWER MIRROR DEFOGGER
*11 : Without POWER MIRROR DEFOGGER
*12 : With DAYTIME RUNNING LIGHT
*13 : With HVAC CONTROL (Lever type)
*14 : With CLIMATE CONTROL
*15 : With HVAC CONTROL (Push button type)

[ ]:LHD model

2



Wiring Diagram



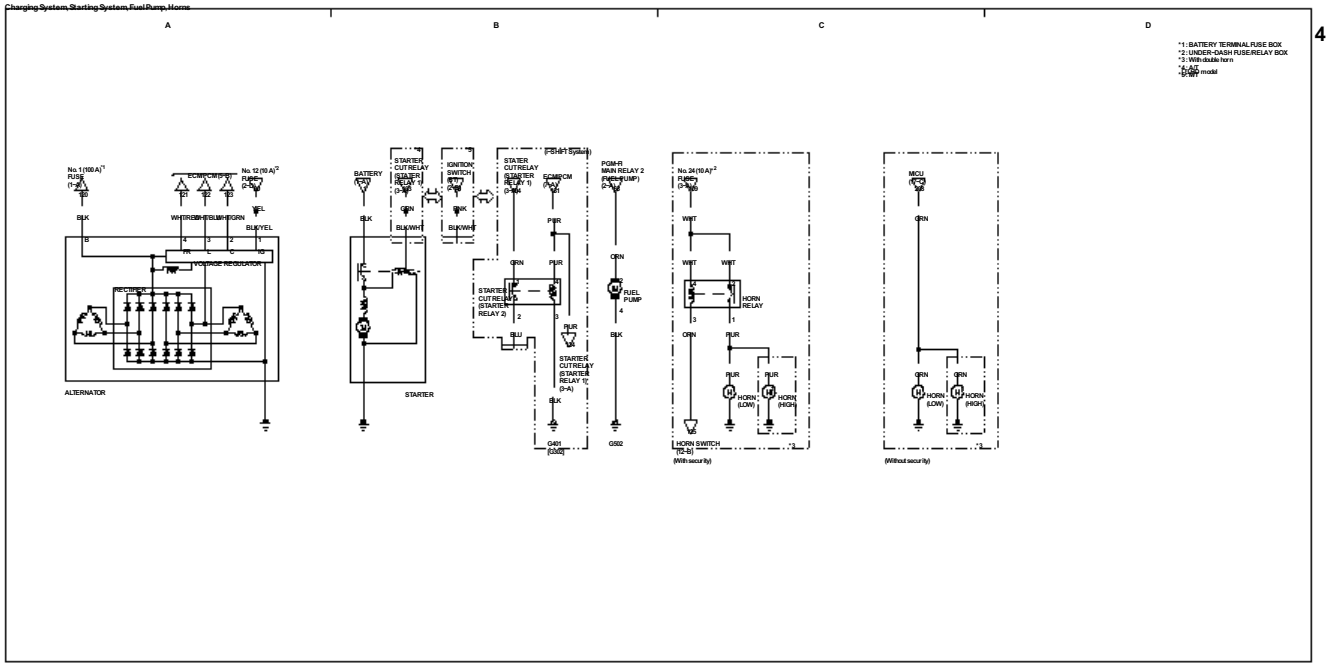
D

*1: BATTERY TERMINAL FUSE BOX
*2: UNDER-DASH FUSE/RELAY BOX
*3: A/T
*4: M/T
*5: Without security
*6: With security

[ ]:LHD model

3

Wiring Diagram

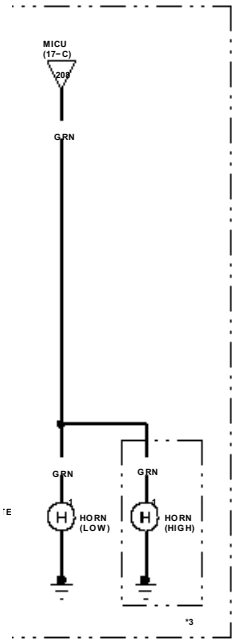


D

4

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER−DASH FUSE/RELAY BOX
*3 : With double horn
*4 : A/T
*5 : M/T

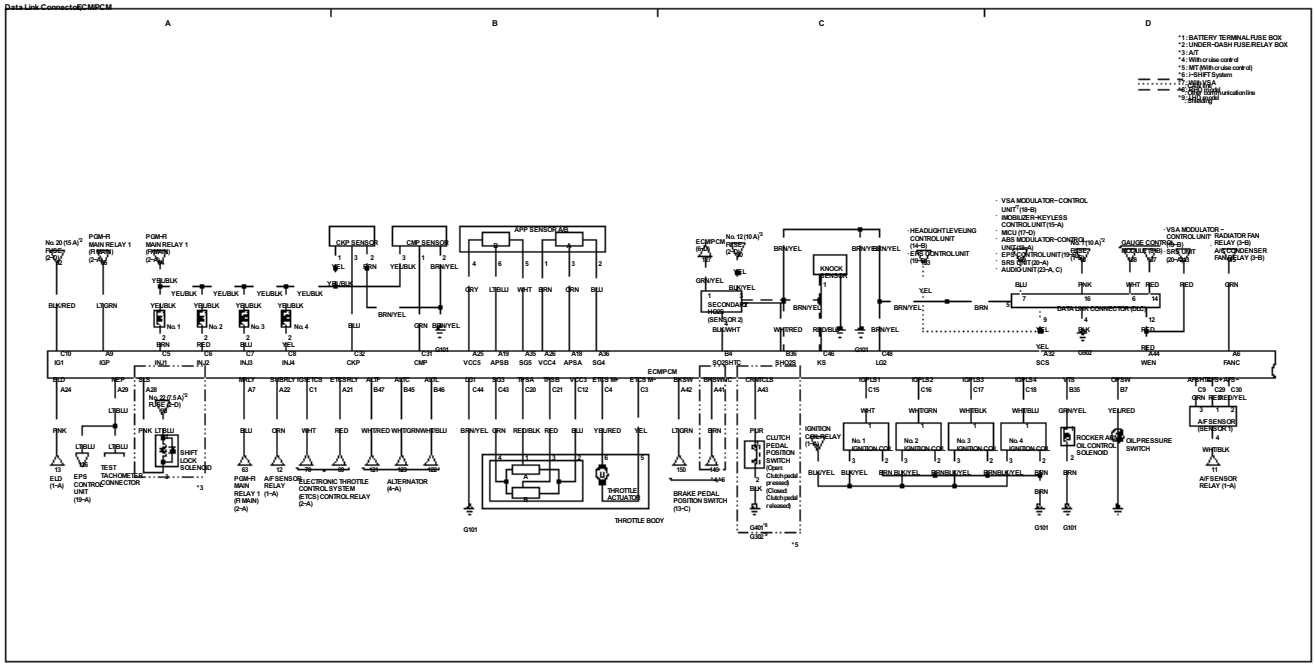
[ ]:LHD model



ithout security)

: security)

Wiring Diagram

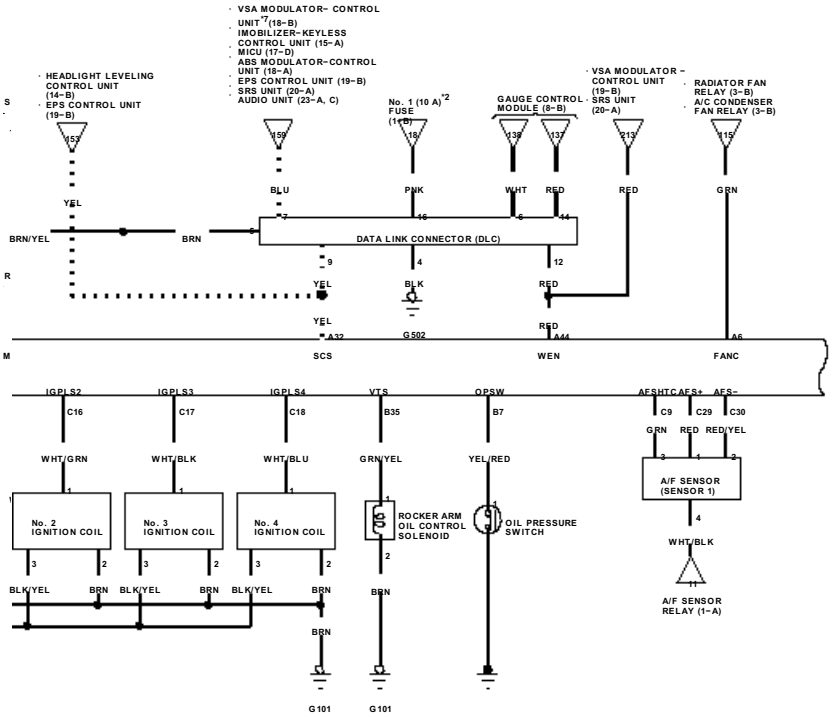


D

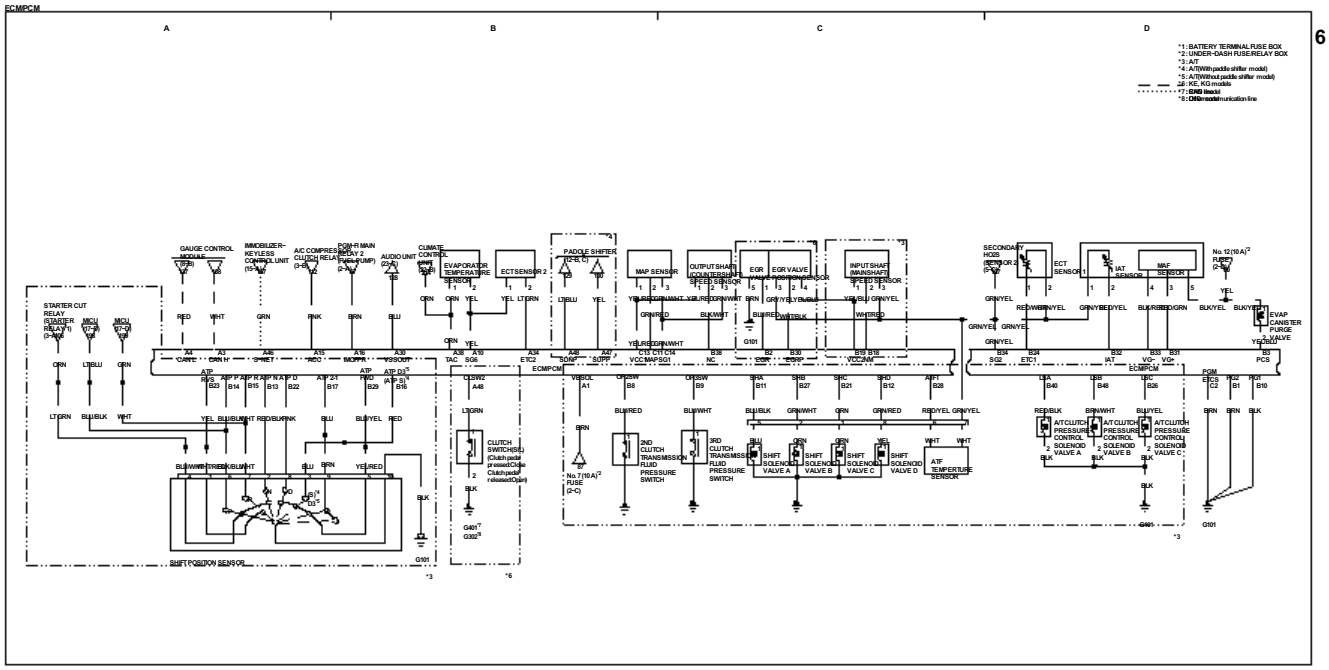
5

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : A/T
*4 : With cruise control
*5 : M/T (With cruise control)
*6 : i-SHIFT System
*7 : With VSA
*8 : RHD model
*9 : LHD model

: CAN line
: Other communication line
: Shielding



Wiring Diagram

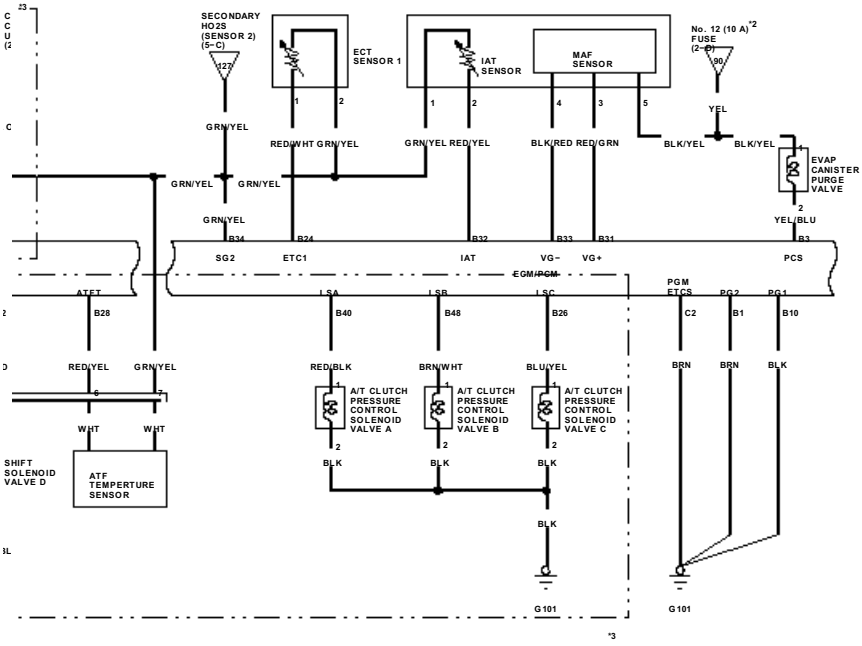


D

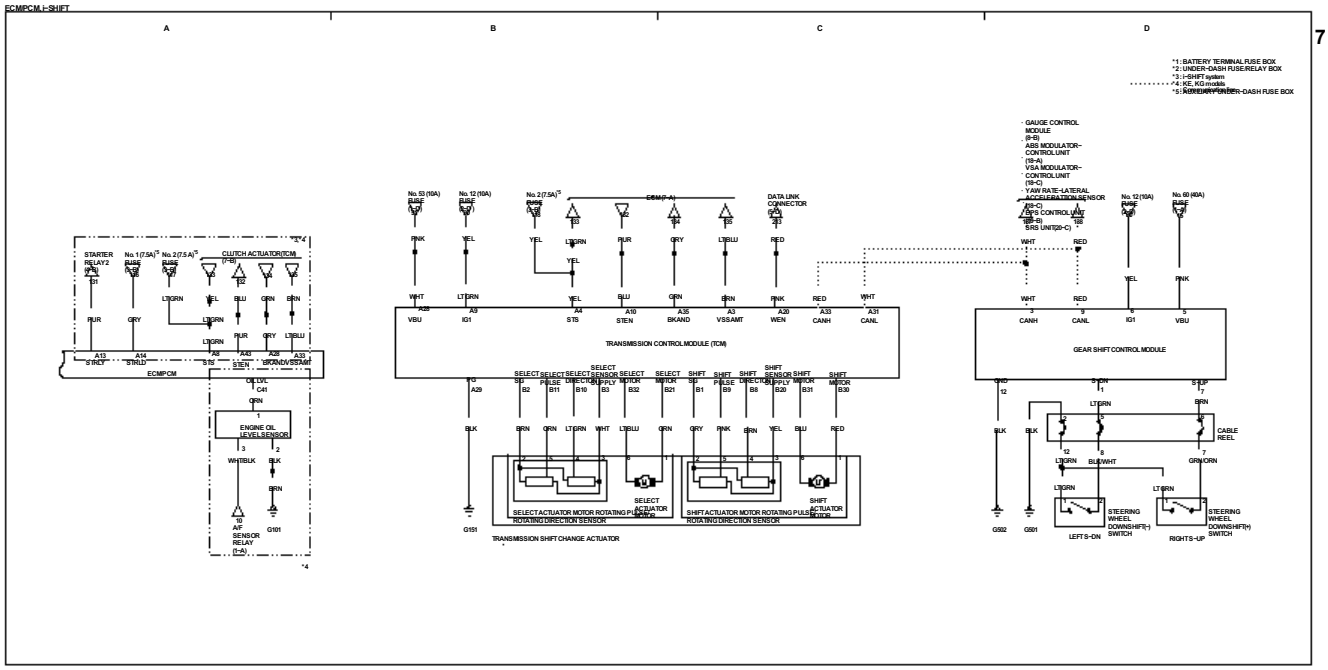
6

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : A/T
*4 : A/T (With paddle shifter model)
*5 : A/T (Without paddle shifter model)
*6 : KE, KG models
*7 : RHD model
*8 : LHD model

: CAN line
: Other communication line



Wiring Diagram



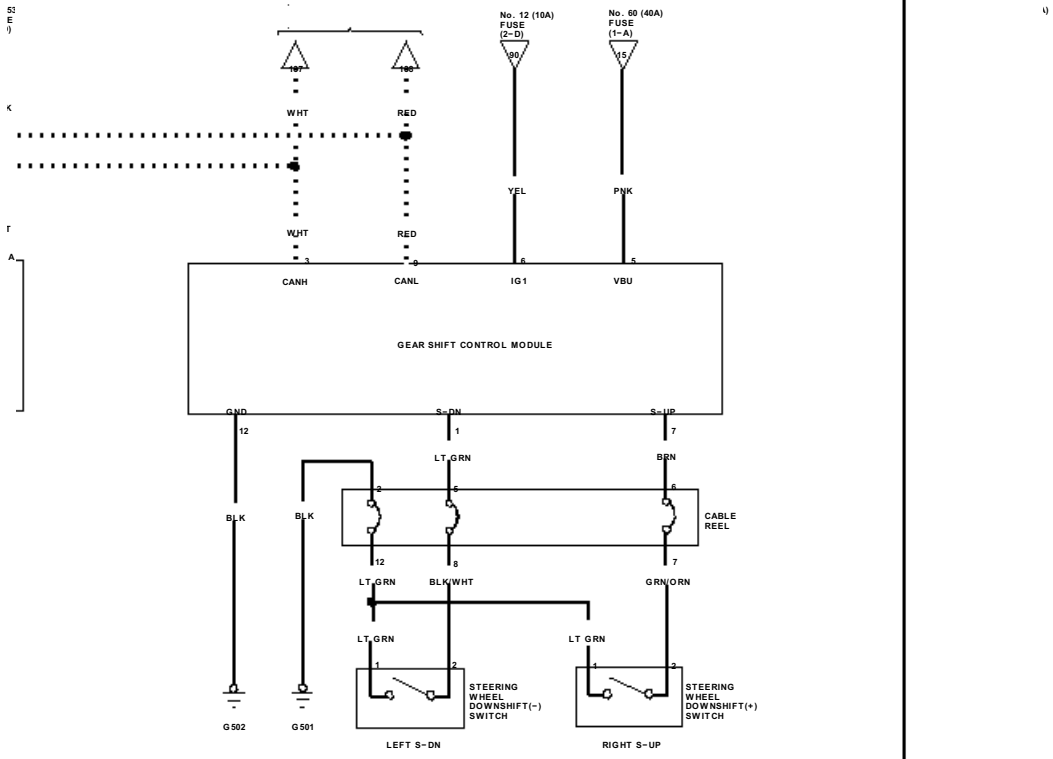
D

7

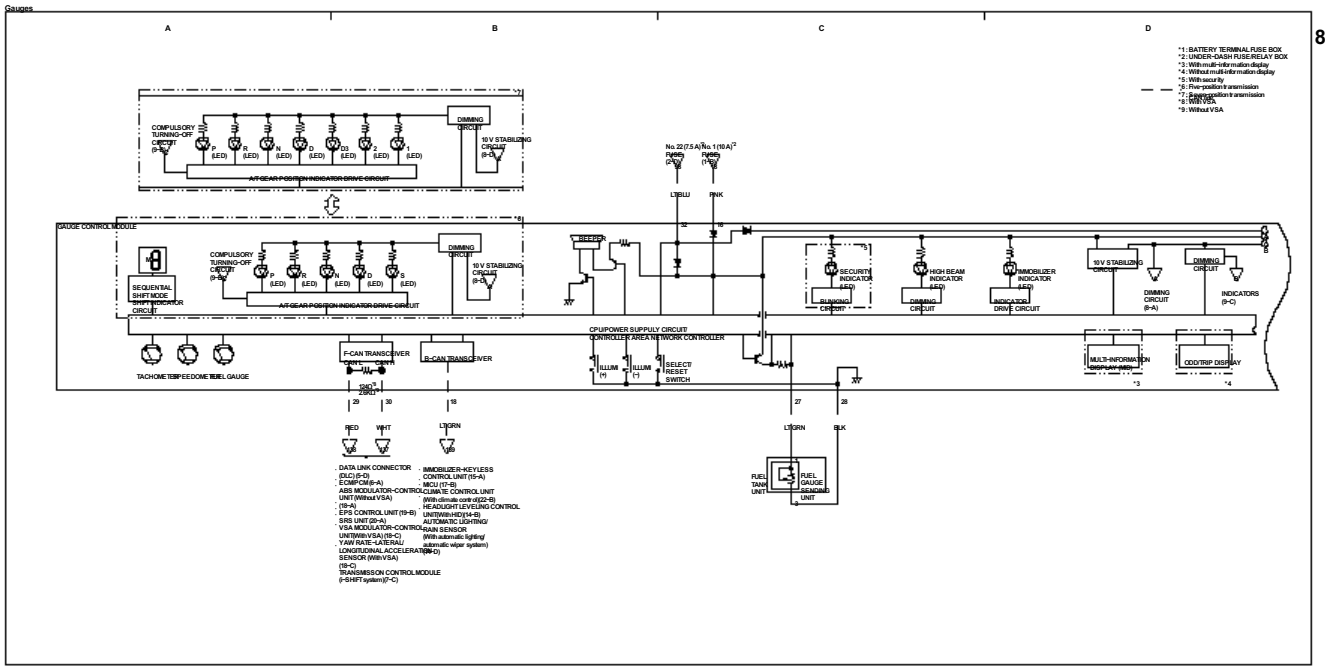
*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : i-SHIFT system
*4 : KE, KG models
*5 : AUXILIARY UNDER-DASH FUSE BOX

: Communication line

GAUGE CONTROL MODULE (8-B)
ABS MODULATOR-CONTROL UNIT (18-A)
VSA MODULATOR-CONTROL UNIT (18-C)
YAW RATE-LATERAL ACCELERATTION SENSOR (18-C)
EPS CONTROL UNIT (19-B)
SRS UNIT(20-C)



Wiring Diagram

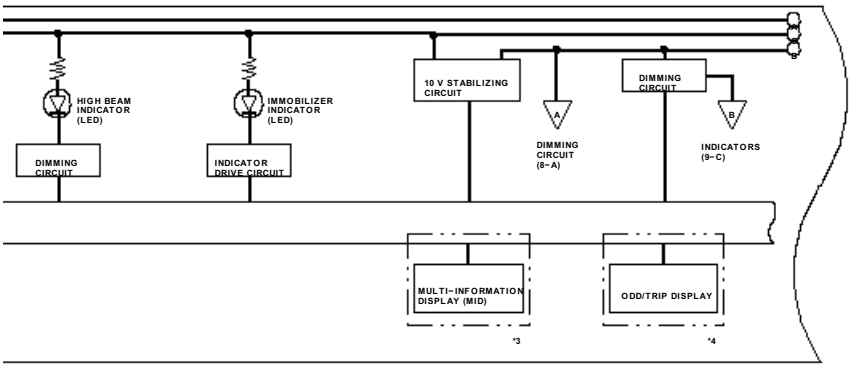


D

8

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : With multi-information display
*4 : Without multi-information display
*5 : With security
*6 : Five-position transmission
*7 : Seven-position transmission
*8 : With VSA
*9 : Without VSA

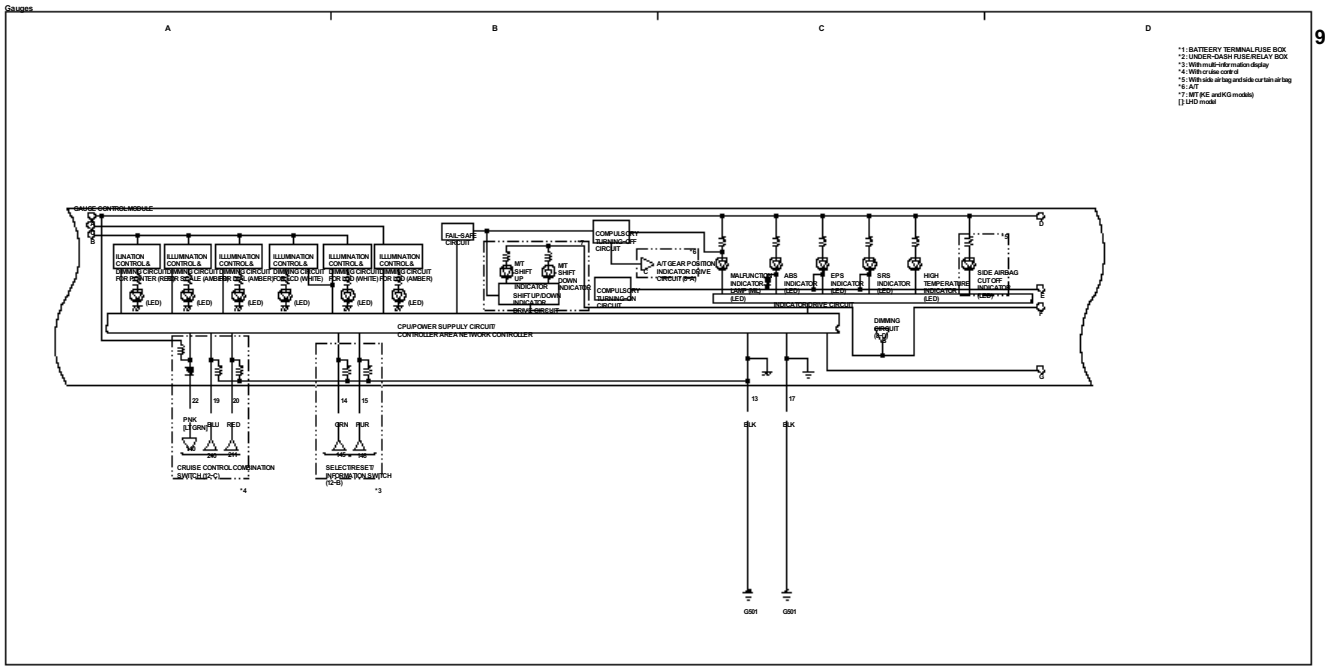
: CAN line



CAN TRANSCEIVER

OBILIZER-KEYLESS
ITROL UNIT (15-A)
U (17-B)
MATE CONTROL UNIT
h climate control)(22-B)
DLIGHT LEVELING CONTROL
T (With HID)(14-B)
OMATIC LIGHTING/
N SENSOR
h automatic lighting/
matic wiper system)
D)

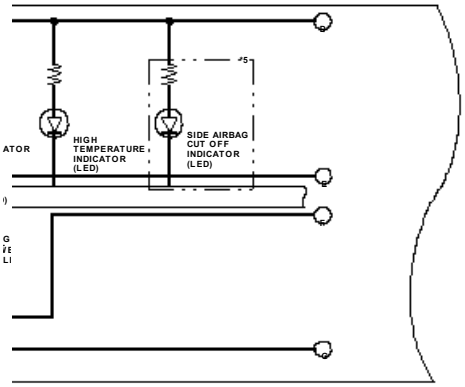
Wiring Diagram



D

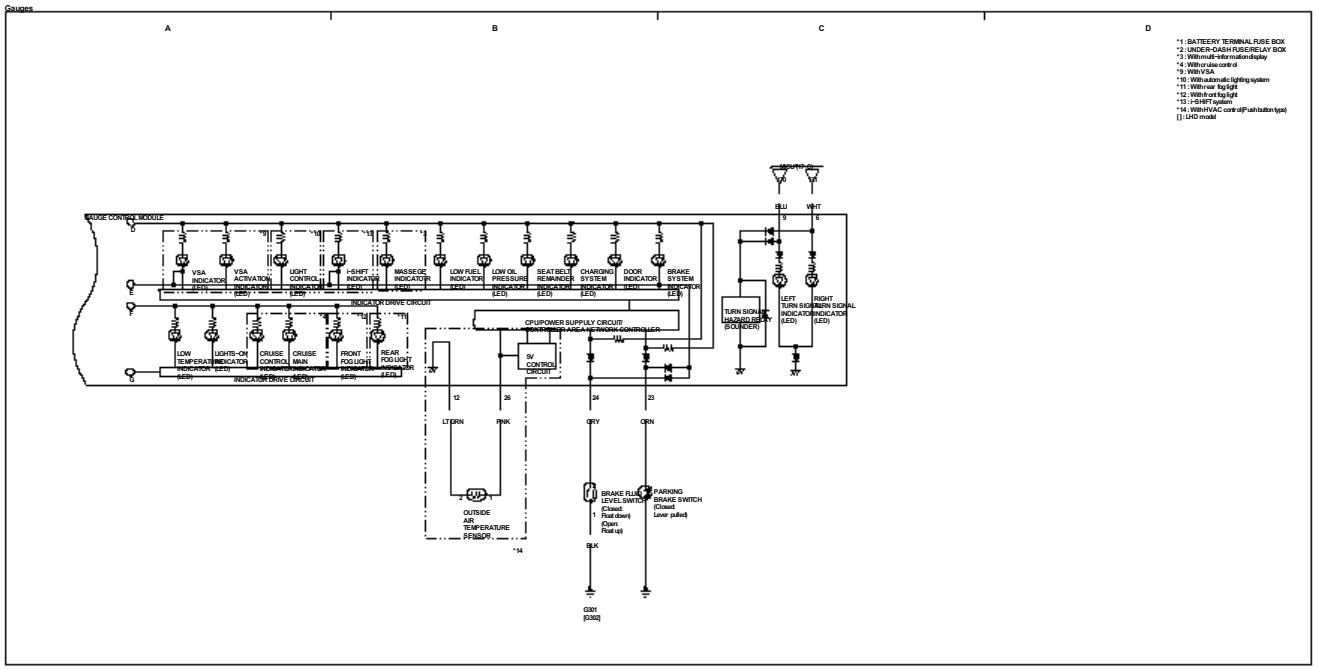
9

*1 : BATTEERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : With multi-information display
*4 : With cruise control
*5 : With side airbag and side curtain airbag
*6 : A/T
*7 : M/T (KE and KG models)
[ ]: LHD model



JPPULY CIRCUIT/
AREA NETWORK CONTROLLER

Wiring Diagram

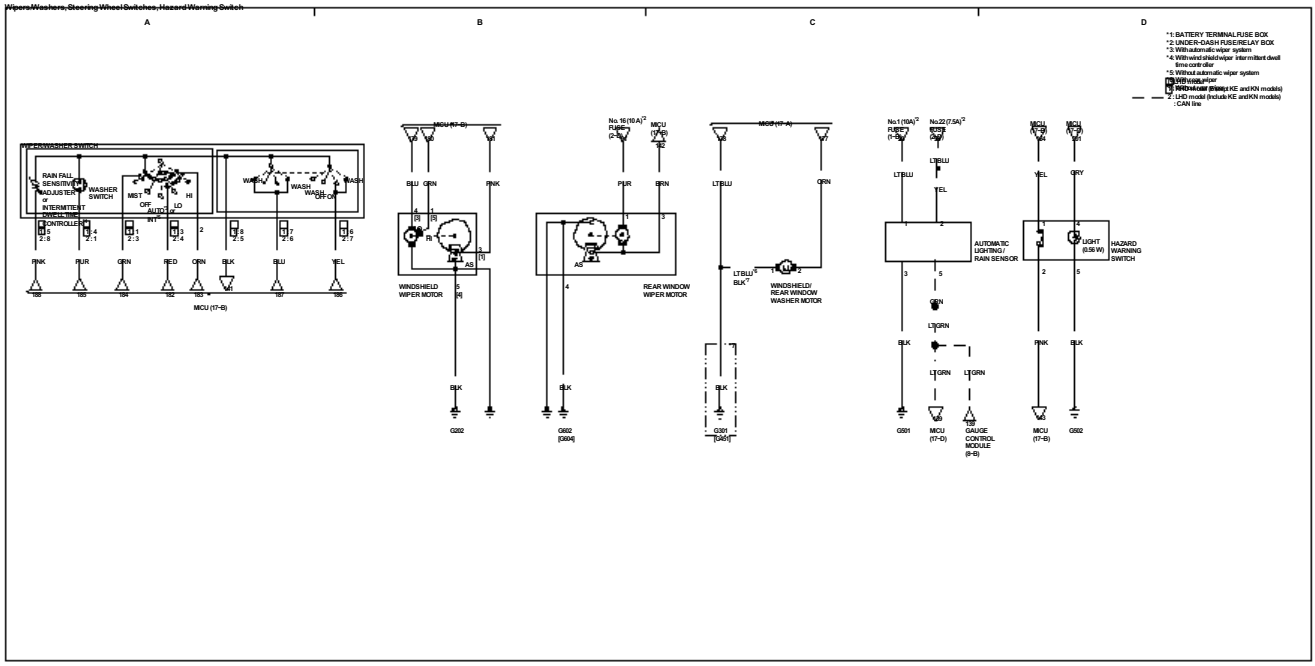


D

*1 : BATTEERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : With multi-information display
*4 : With cruise control
*9 : With VSA
*10 : With automatic lighting system
*11 : With rear fog light
*12 : With front fog light
*13 : i-SHIFT system
*14 : With HVAC control(Push button type)
[ ] : LHD model

10

Wiring Diagram

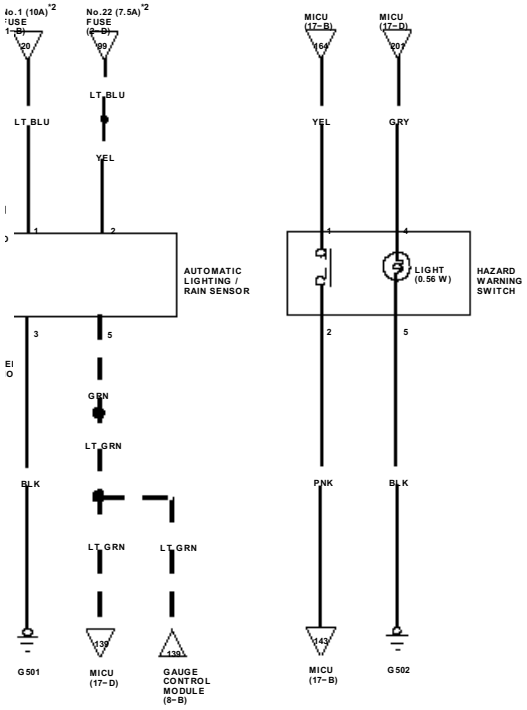


D

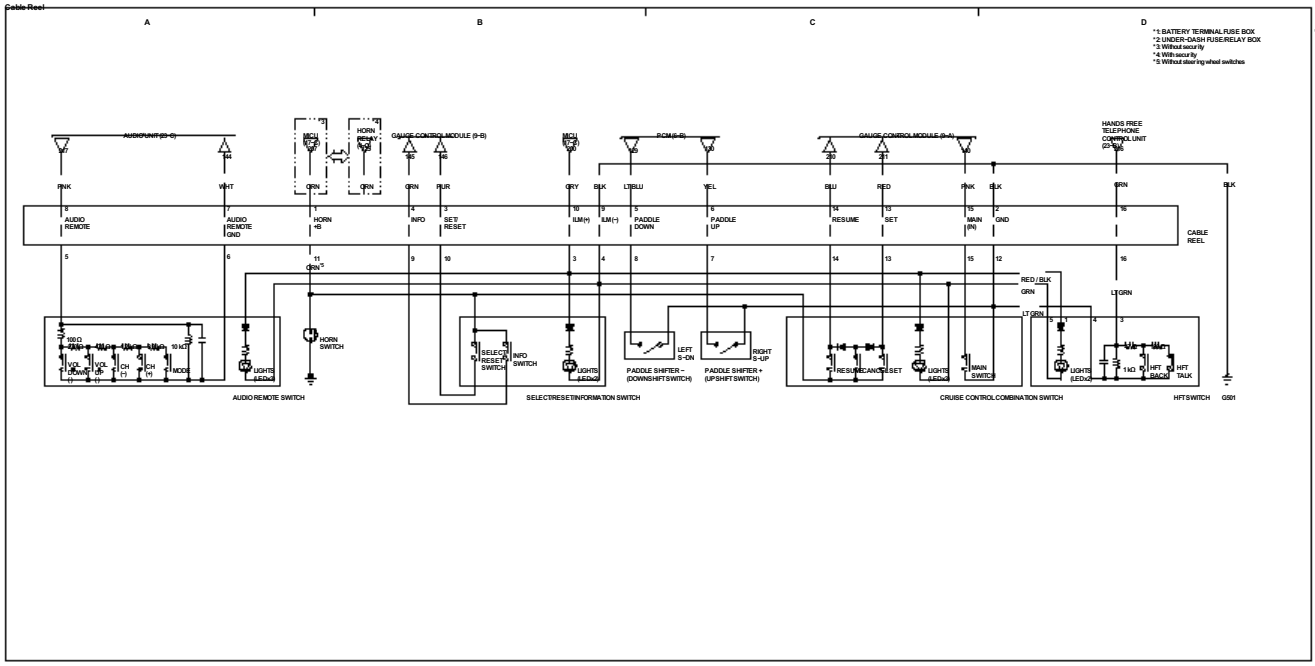
11

*1: BATTERY TERMINAL FUSE BOX
*2: UNDER-DASH FUSE/RELAY BOX
*3: With automatic wiper system
*4: With wind shield wiper intermittent dwell time controller
*5: Without automatic wiper system
*6: With rear wiper
*7: Without rear wiper

LHD model
RHD model (Except KE and KN models)
LHD model (Include KE and KN models)
: CAN line

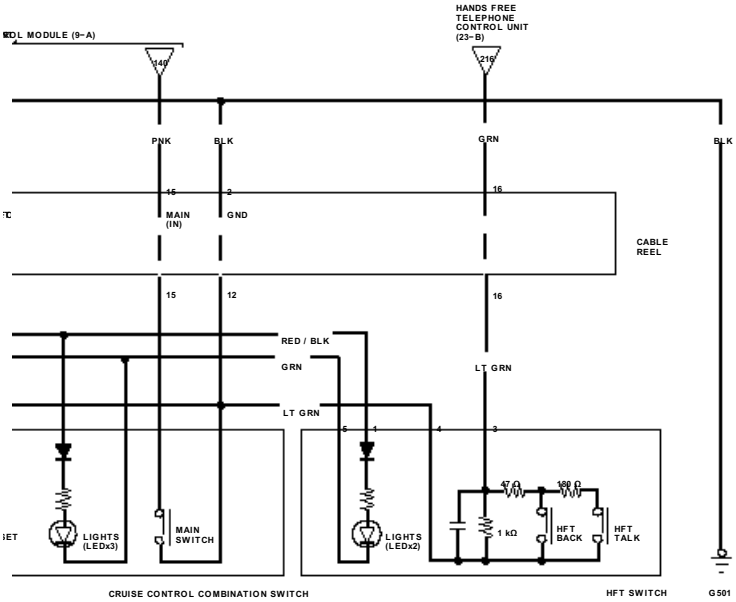


Wiring Diagram

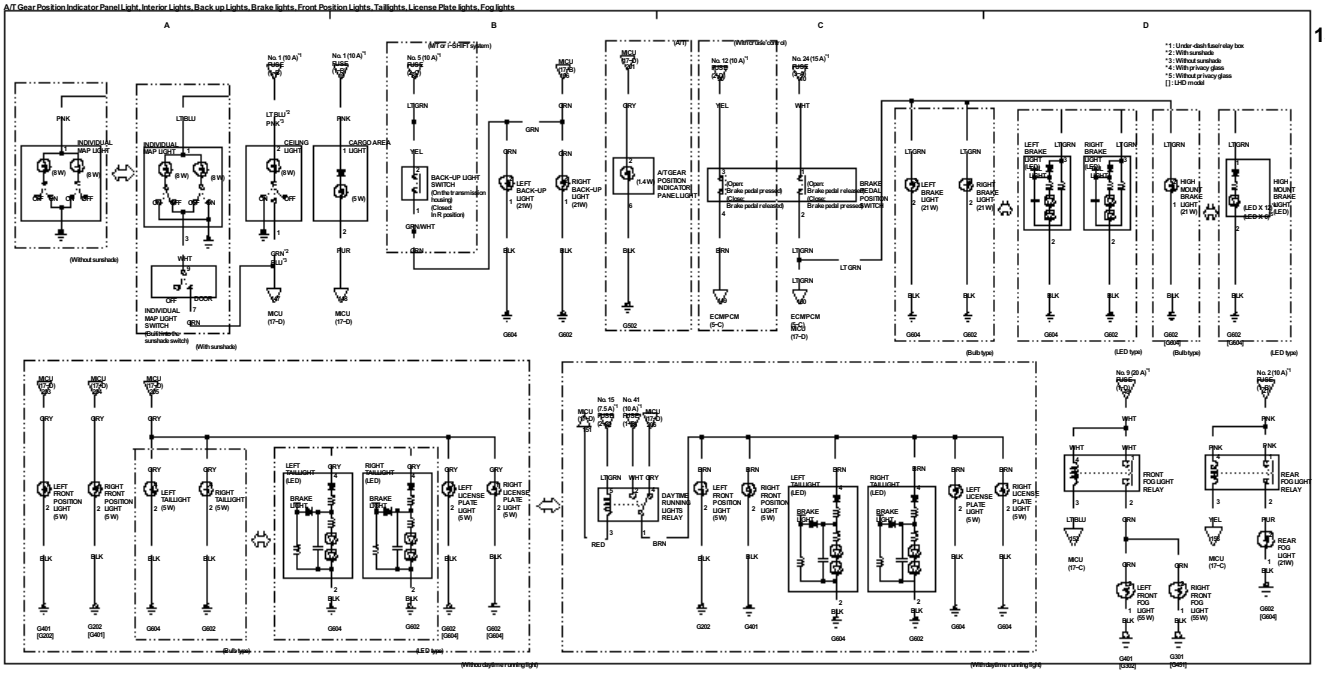


D

*1: BATTERY TERMINAL FUSE BOX
*2: UNDER-DASH FUSE/RELAY BOX
*3: Without security
*4: With security
*5: Without steering wheel switches



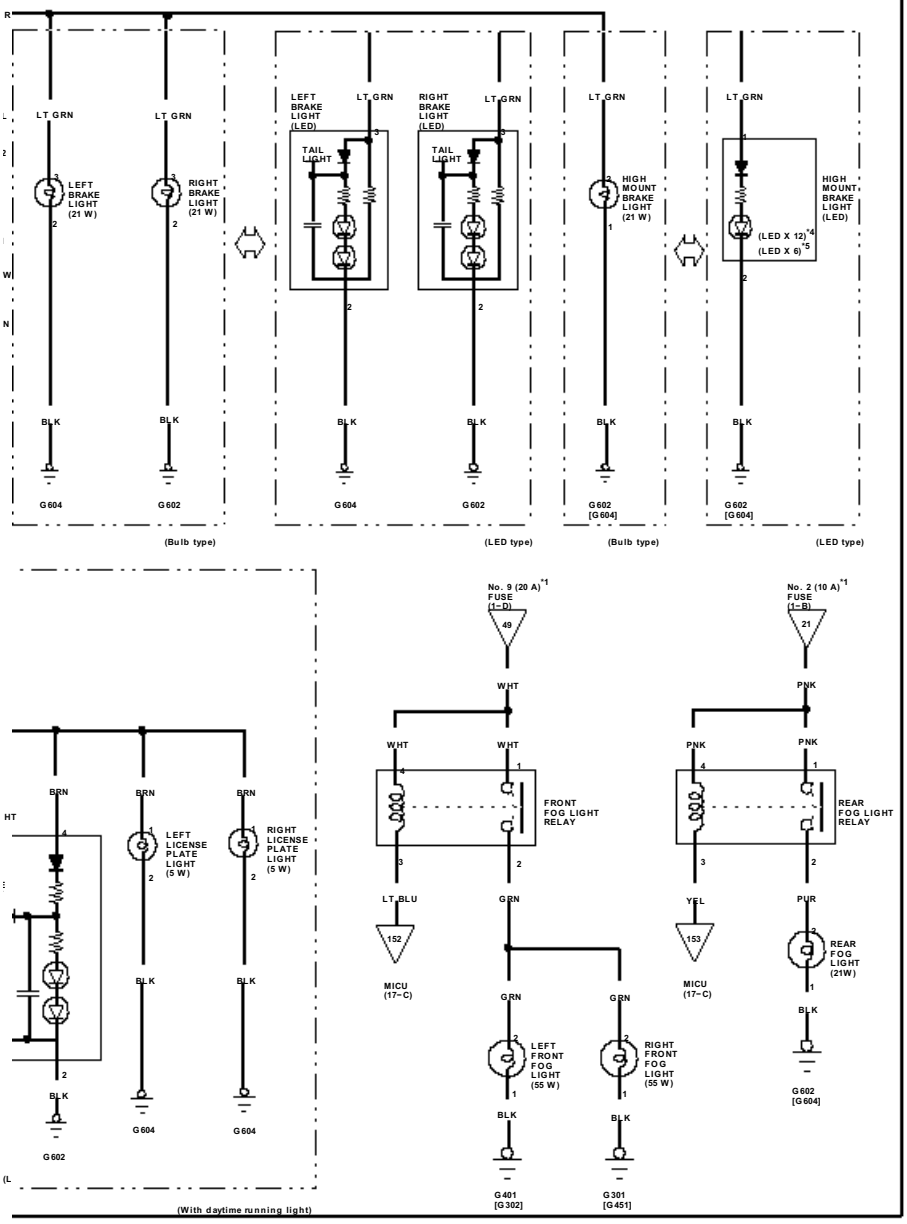
Wiring Diagram



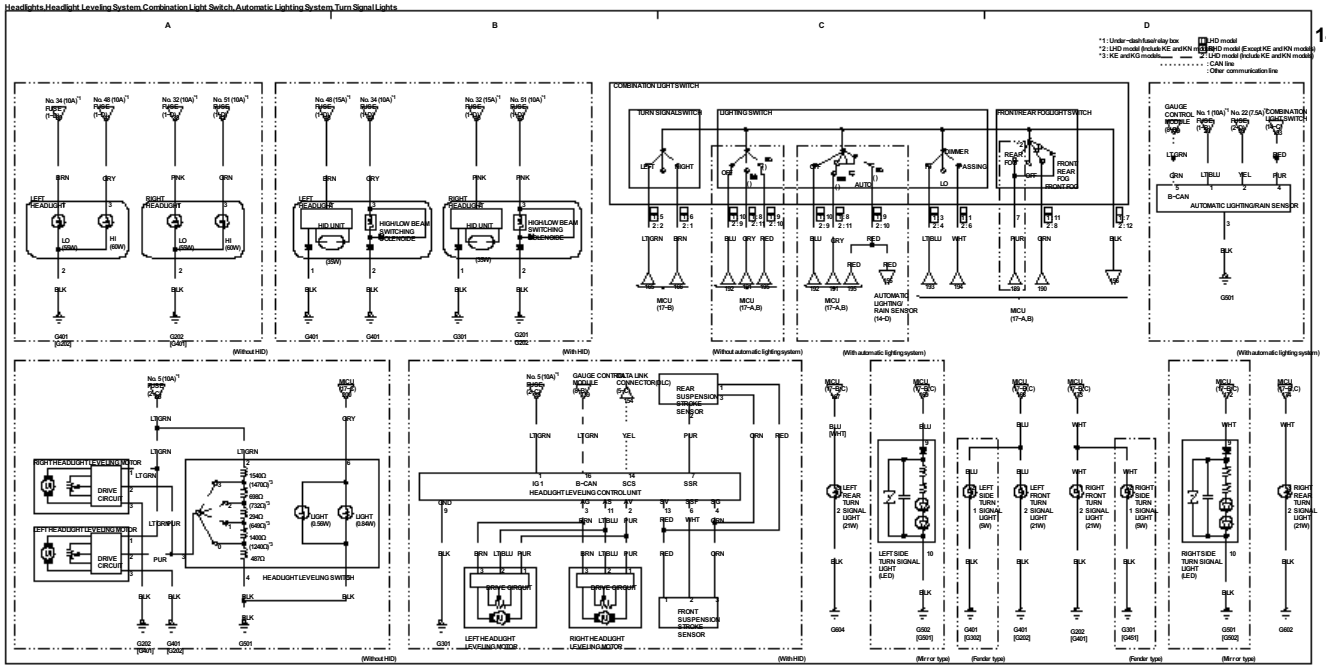
D

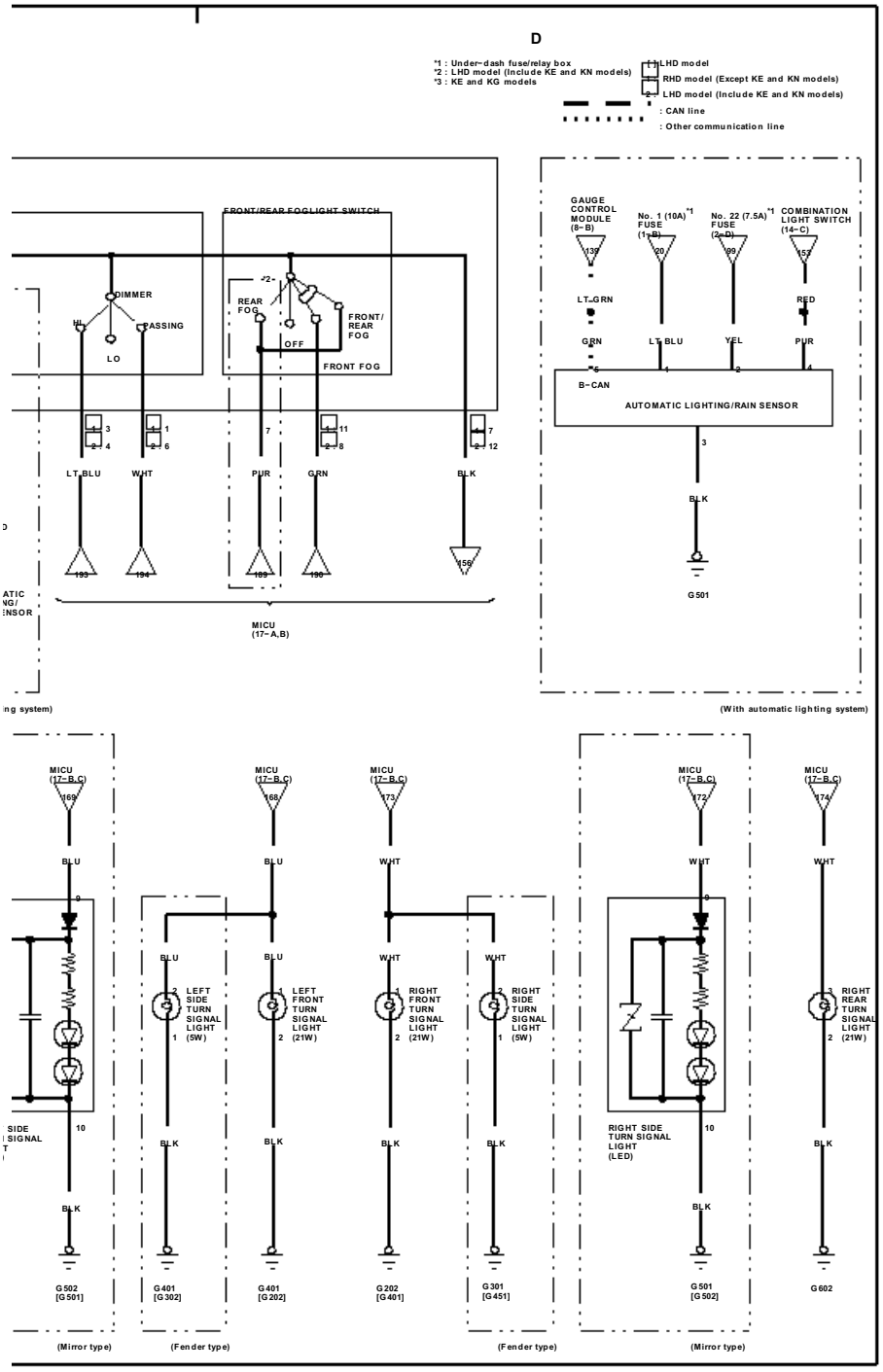
13

*1 : Under-dash fuse/relay box
*2 : With sunshade
*3 : Without sunshade
*4 : With privacy glass
*5 : Without privacy glass
[ ] : LHD model

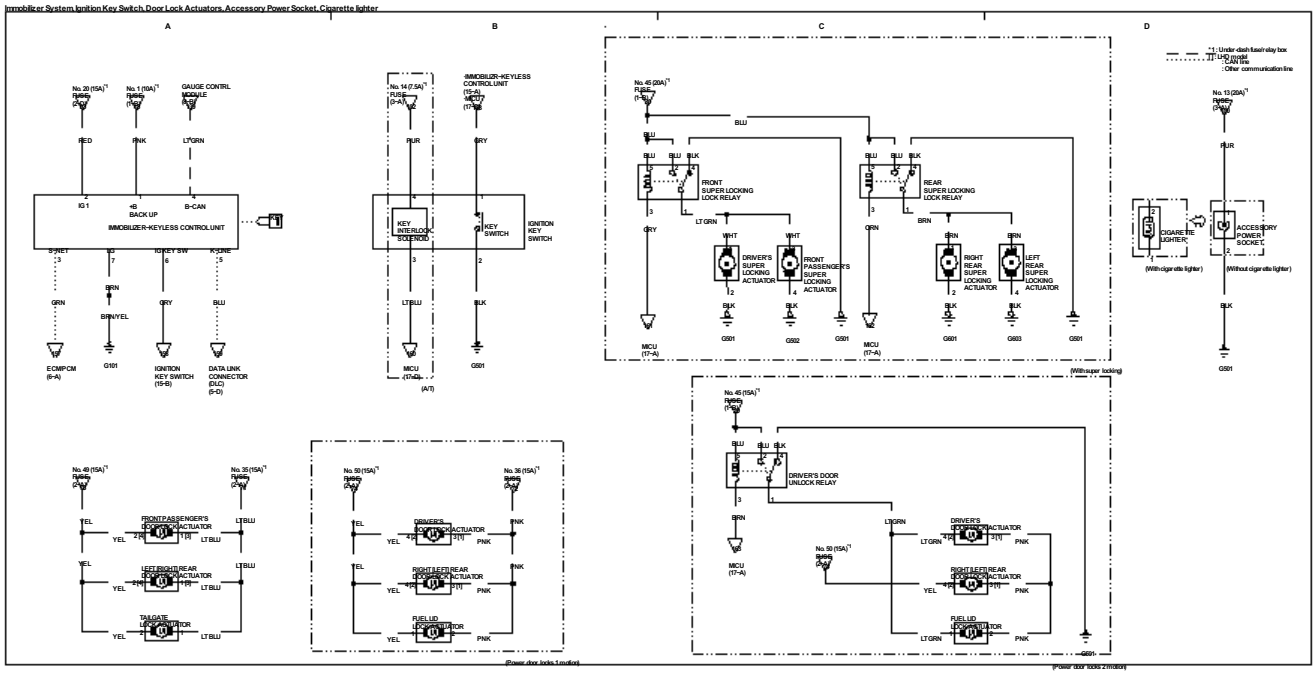


Wiring Diagram



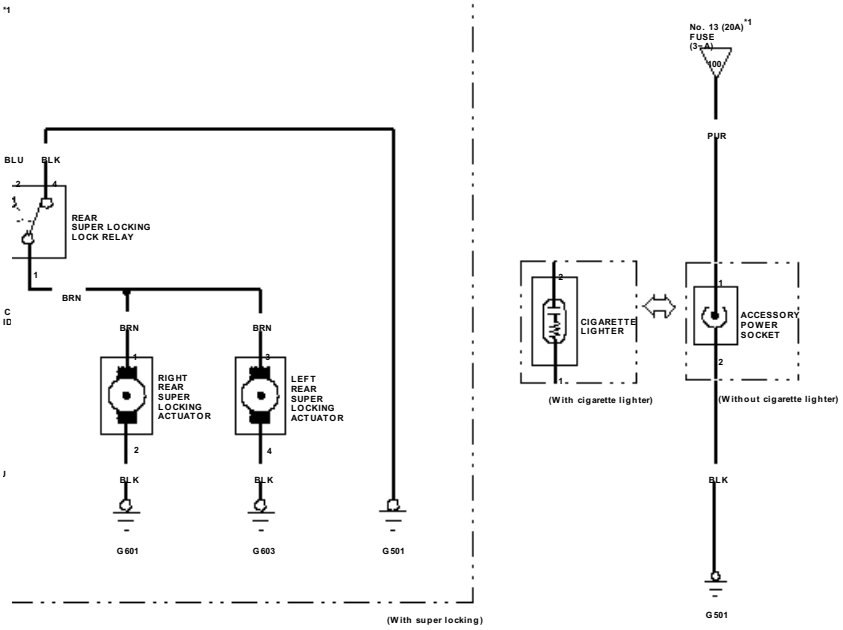

D
*1 : Under-dash fuse/relay box
*2 : LHD model (Include KE and KN models)
*3 : KE and KG models
1 : LHD model
2 : RHD model (Except KE and KN models)
3 : LHD model (Include KE and KN models)
: CAN line
: Other communication line
FRONT/REAR FOG LIGHT SWITCH
DIMMER
HI
LO
PASSING
REAR FOG
FRONT/ REAR FOG
OFF
FRONT FOG
LT BLU
WHT
PUR
GRN
BLK
193
194
189
190
156
MICU (17-A,B)
GAUGE CONTROL MODULE (9-B)
No. 1 (10A) *1 FUSE (1-B)
No. 22 (7.5A) *1 FUSE (2-D)
COMBINATION LIGHT SWITCH (14-C)
139
20
99
152
LT GRN
RED
GRN
LT BLU
YEL
PUR
B-CAN
AUTOMATIC LIGHTING/RAIN SENSOR
G501
(With automatic lighting system)
MICU (17-B,C)
169
168
173
172
174
BLU
WHT
LEFT SIDE TURN SIGNAL LIGHT (5W)
LEFT FRONT TURN SIGNAL LIGHT (21W)
RIGHT FRONT TURN SIGNAL LIGHT (21W)
RIGHT SIDE TURN SIGNAL LIGHT (5W)
RIGHT SIDE TURN SIGNAL LIGHT (LED)
RIGHT REAR TURN SIGNAL LIGHT (21W)
BLK
G502 [G501]
G401 [G302]
G401 [G202]
G202 [G401]
G301 [G451]
G501 [G502]
G602
(Mirror type)
(Fender type)
(Fender type)
(Mirror type)

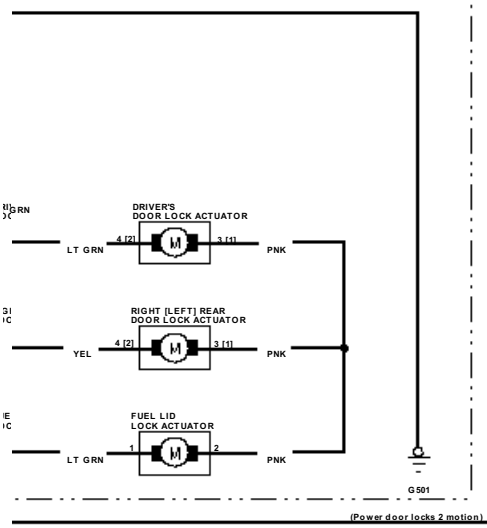
Wiring Diagram



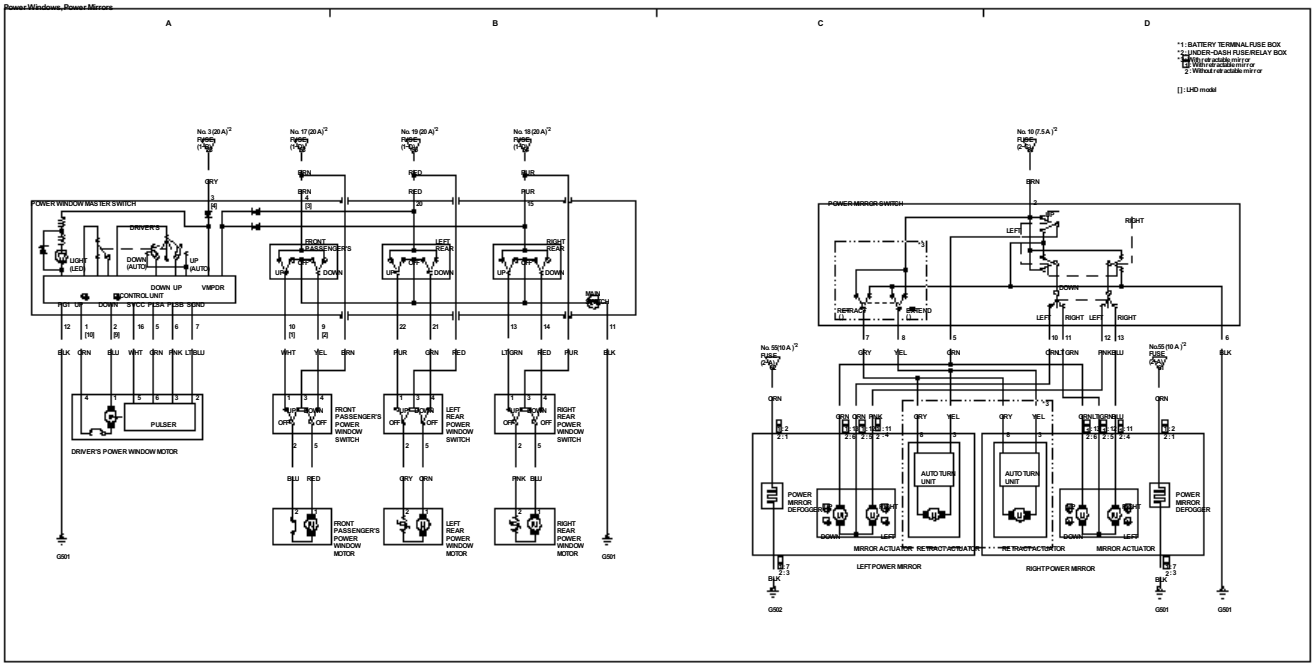
D

*1 : Under-dash fuse/relay box
[ ] : LHD model
: CAN line
: Other communication line





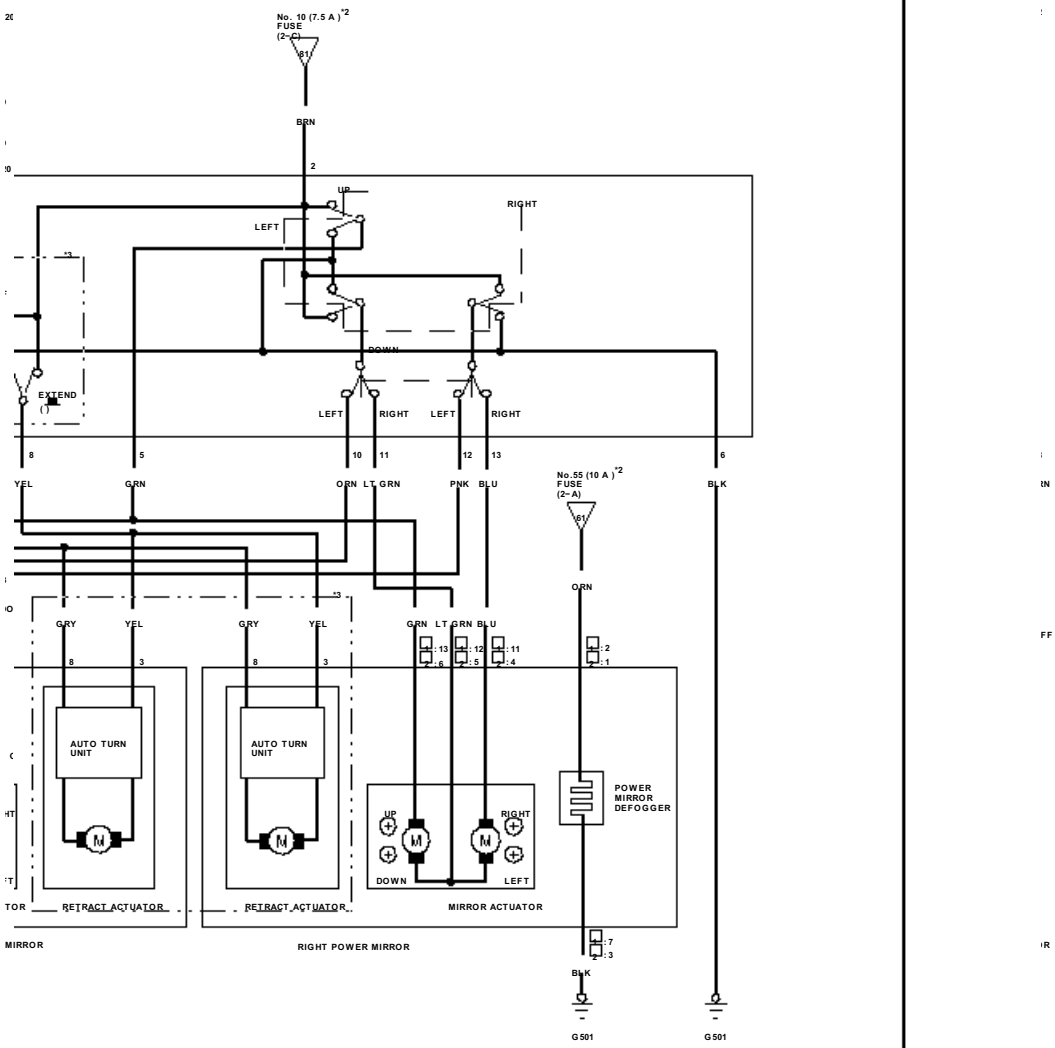
Wiring Diagram



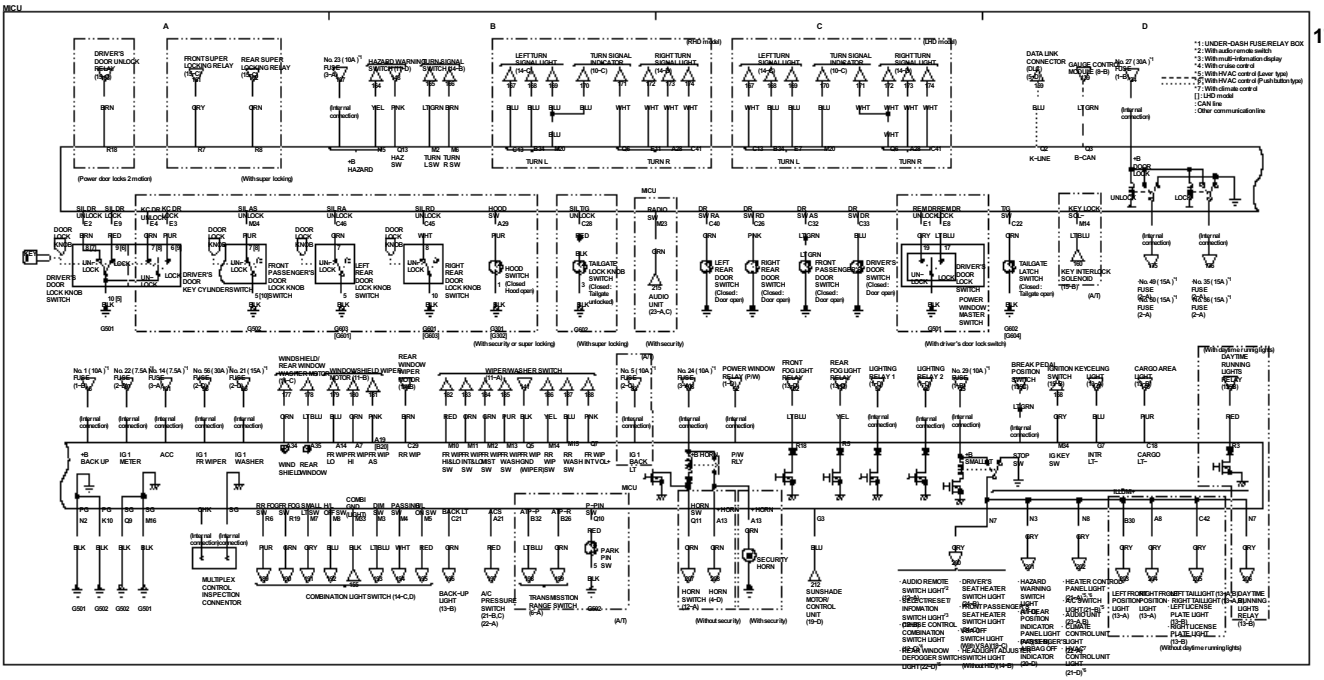
D

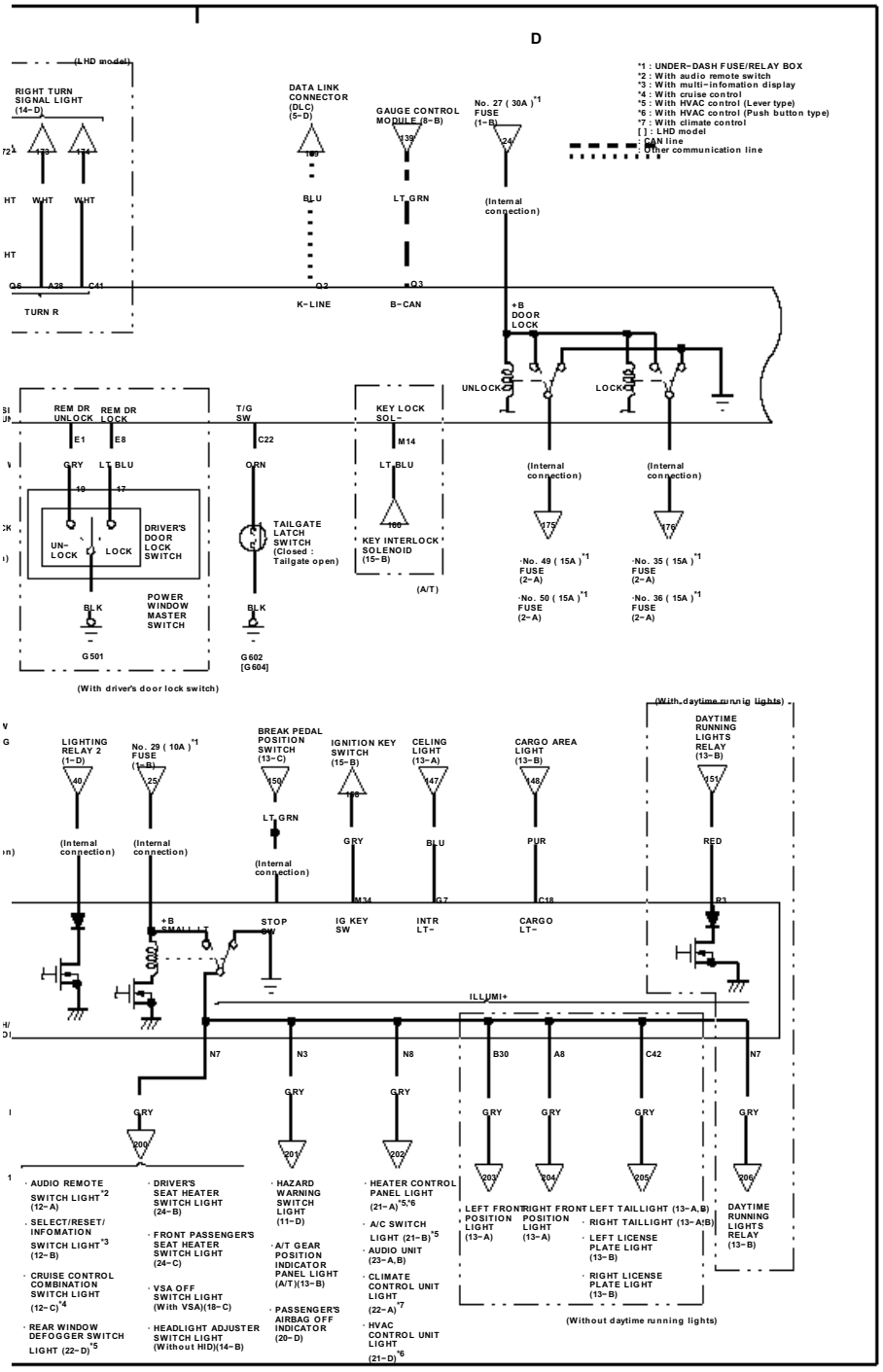
16

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : With retractable mirror
: With retractable mirror
: Without retractable mirror
[ ] : LHD model

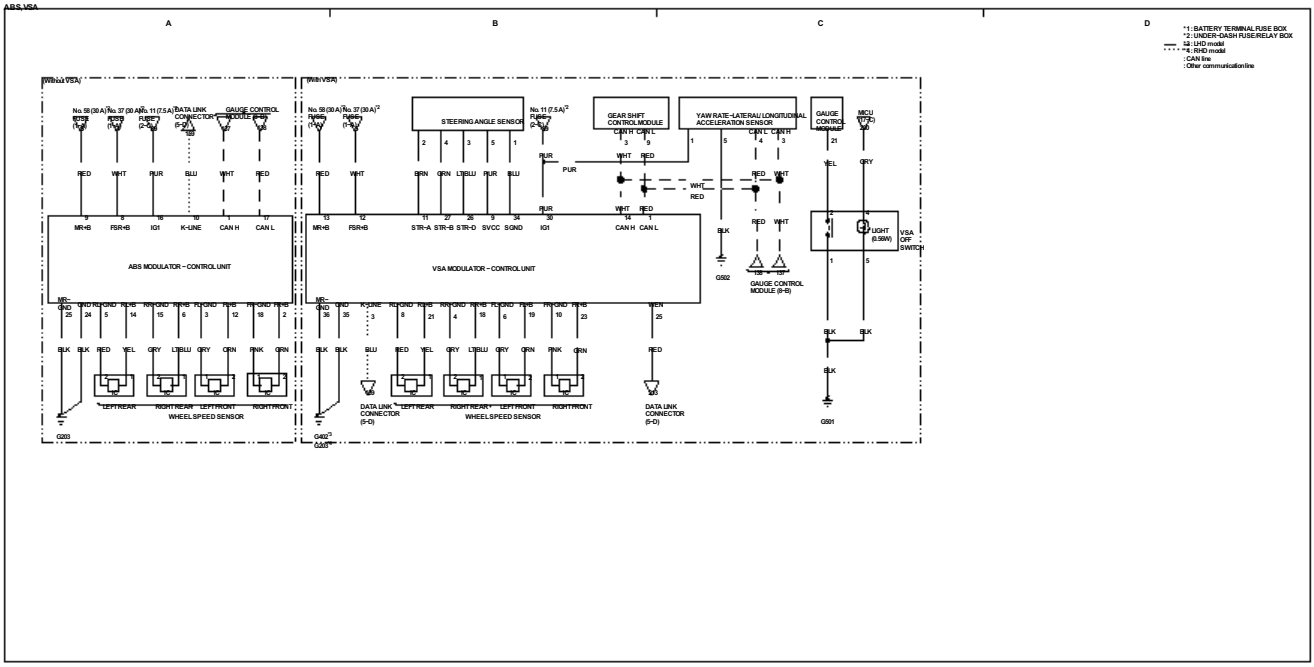


Wiring Diagram




D
(LHD model)
RIGHT TURN SIGNAL LIGHT (14-D)
DATA LINK CONNECTOR (DLC) (5-D)
GAUGE CONTROL MODULE (8-B)
No. 27 (30A)*1 FUSE (1-B)
*1 : UNDER-DASH FUSE/RELAY BOX
*2 : With audio remote switch
*3 : With multi-infomation display
*4 : With cruise control
*5 : With HVAC control (Lever type)
*6 : With HVAC control (Push button type)
*7 : With climate control
[ ] : LHD model
: CAN line
: Other communication line
WHT
BLU
LT GRN
(Internal connection)
TURN R
K-LINE
B-CAN
+B DOOR LOCK
UNLOCK
LOCK
REM DR UNLOCK
REM DR LOCK
T/G SW
KEY LOCK SOL-
GRY
LT BLU
ORN
DRIVER'S DOOR LOCK SWITCH
TAILGATE LATCH SWITCH (Closed : Tailgate open)
KEY INTERLOCK SOLENOID (15-B)
(A/T)
·No. 49 (15A)*1 FUSE (2-A)
·No. 50 (15A)*1 FUSE (2-A)
·No. 35 (15A)*1 FUSE (2-A)
·No. 36 (15A)*1 FUSE (2-A)
POWER WINDOW MASTER SWITCH
BLK
G501
G602 [G604]
(With driver's door lock switch)
(With daytime running lights)
LIGHTING RELAY 2 (1-D)
No. 29 (10A)*1 FUSE (1-B)
BREAK PEDAL POSITION SWITCH (13-C)
IGNITION KEY SWITCH (15-B)
CELING LIGHT (13-A)
CARGO AREA LIGHT (13-B)
DAYTIME RUNNING LIGHTS RELAY (13-B)
(Internal connection)
LT GRN
GRY
BLU
PUR
RED
+B SMALL LT
STOP SW
IG KEY SW
INTR LT-
CARGO LT-
ILLUMI+
N7
N3
N8
B30
A8
C42
N7
· AUDIO REMOTE SWITCH LIGHT*2 (12-A)
· SELECT/RESET/ INFOMATION SWITCH LIGHT*3 (12-B)
· CRUISE CONTROL COMBINATION SWITCH LIGHT (12-C)*4
· REAR WINDOW DEFOGGER SWITCH LIGHT (22-D)*5
· DRIVER'S SEAT HEATER SWITCH LIGHT (24-B)
· FRONT PASSENGER'S SEAT HEATER SWITCH LIGHT (24-C)
· VSA OFF SWITCH LIGHT (With VSA)(18-C)
· HEADLIGHT ADJUSTER SWITCH LIGHT (Without HID)(14-B)
· HAZARD WARNING SWITCH LIGHT (11-D)
· A/T GEAR POSITION INDICATOR PANEL LIGHT (A/T)(13-B)
· PASSENGER'S AIRBAG OFF INDICATOR (20-D)
· HEATER CONTROL PANEL LIGHT (21-A)*5,*6
· A/C SWITCH LIGHT (21-B)*5
· AUDIO UNIT (23-A,B)
· CLIMATE CONTROL UNIT LIGHT (22-A)*7
· HVAC CONTROL UNIT LIGHT (21-D)*6
· LEFT FRONT POSITION LIGHT (13-A)
· RIGHT FRONT POSITION LIGHT (13-A)
· LEFT TAILLIGHT (13-A,B)
· RIGHT TAILLIGHT (13-A,B)
· LEFT LICENSE PLATE LIGHT (13-B)
· RIGHT LICENSE PLATE LIGHT (13-B)
(Without daytime running lights)
DAYTIME RUNNING LIGHTS RELAY (13-B)

Wiring Diagram

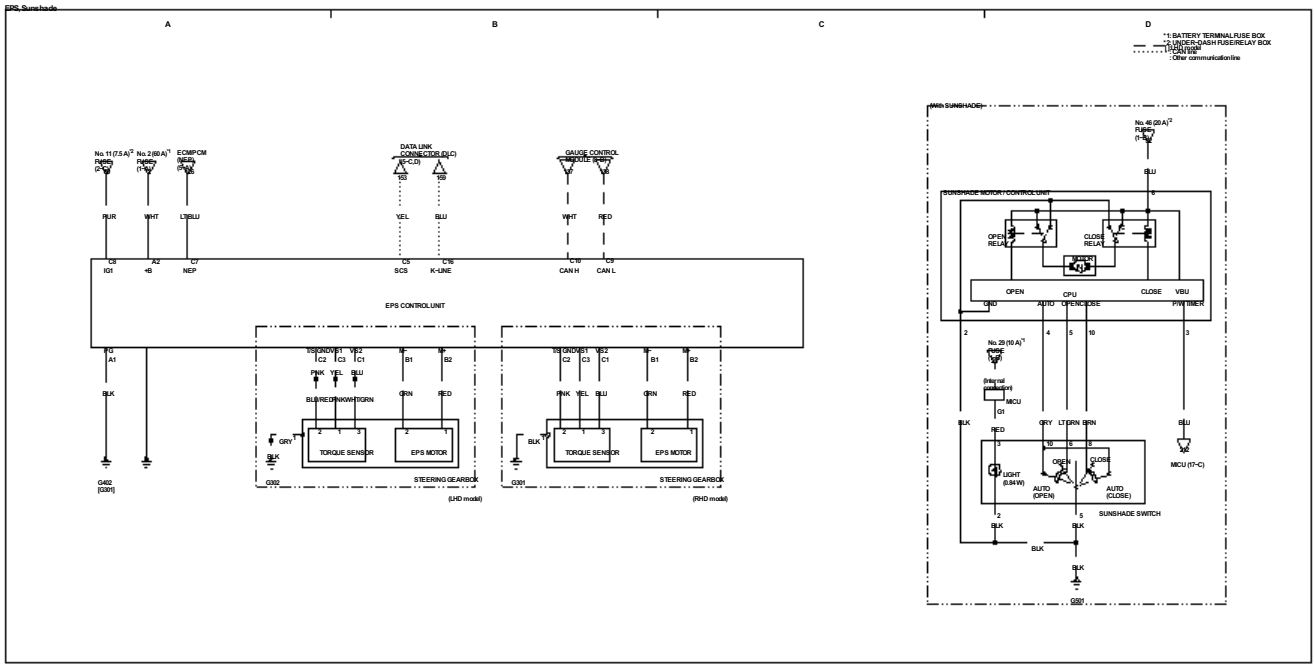


D

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : LHD model
*4 : RHD model
: CAN line
: Other communication line

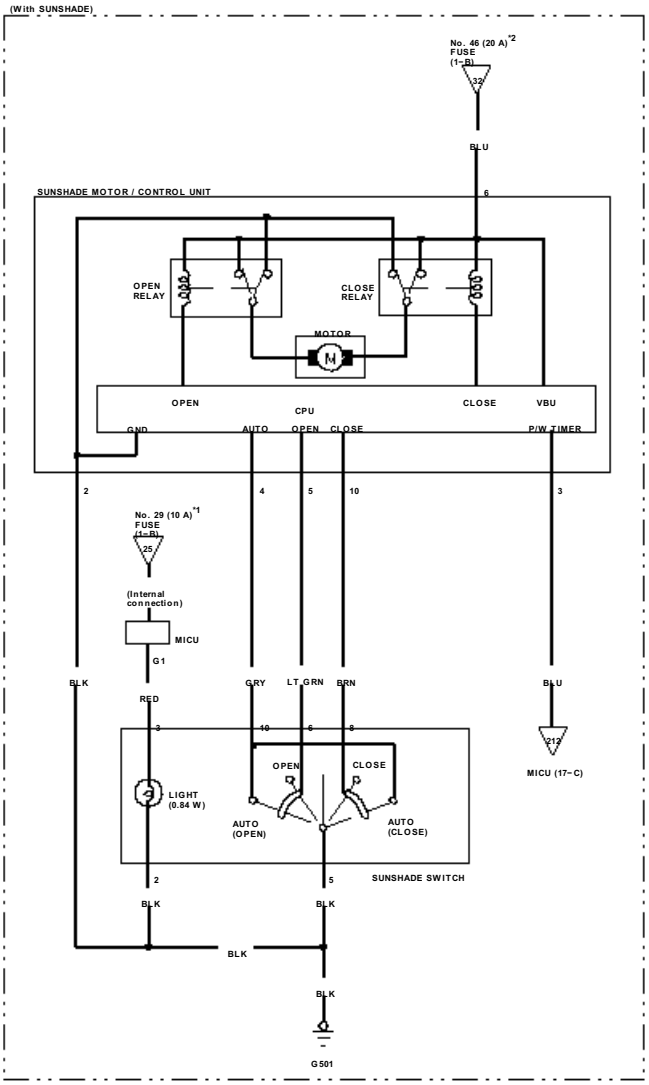
VSA
OFF
SWITCH

Wiring Diagram



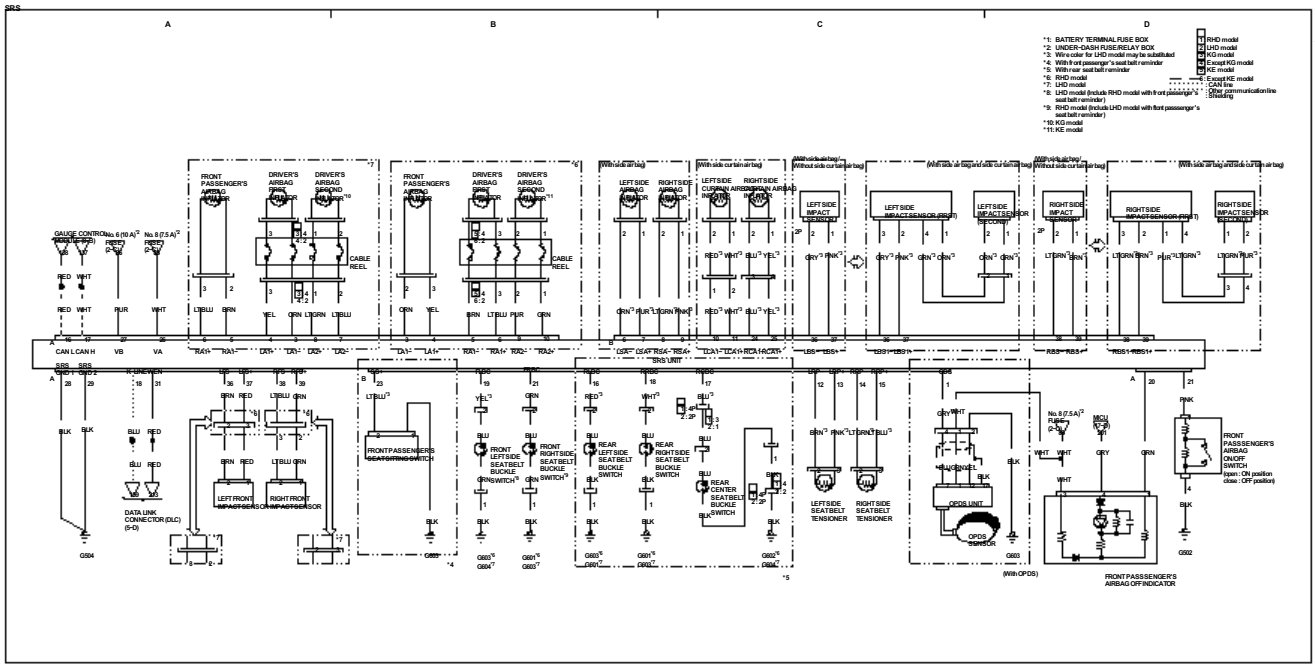
D

*1: BATTERY TERMINAL FUSE BOX
*2: UNDER-DASH FUSE/RELAY BOX
[ ]: LHD model
: CAN line
: Other communication line



19

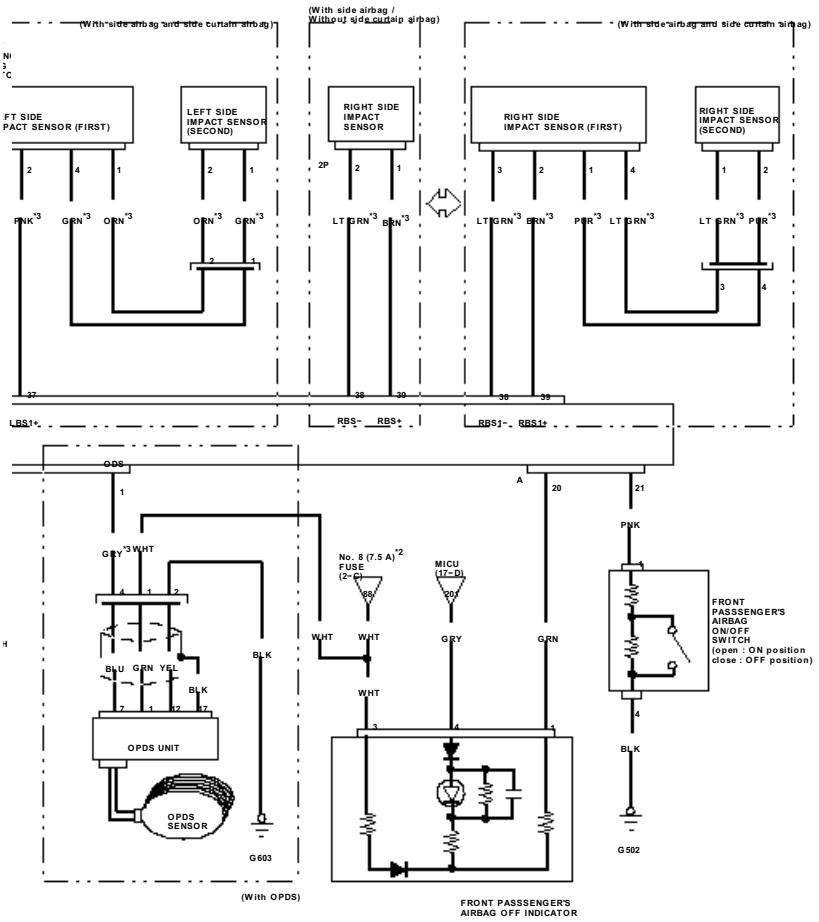
Wiring Diagram



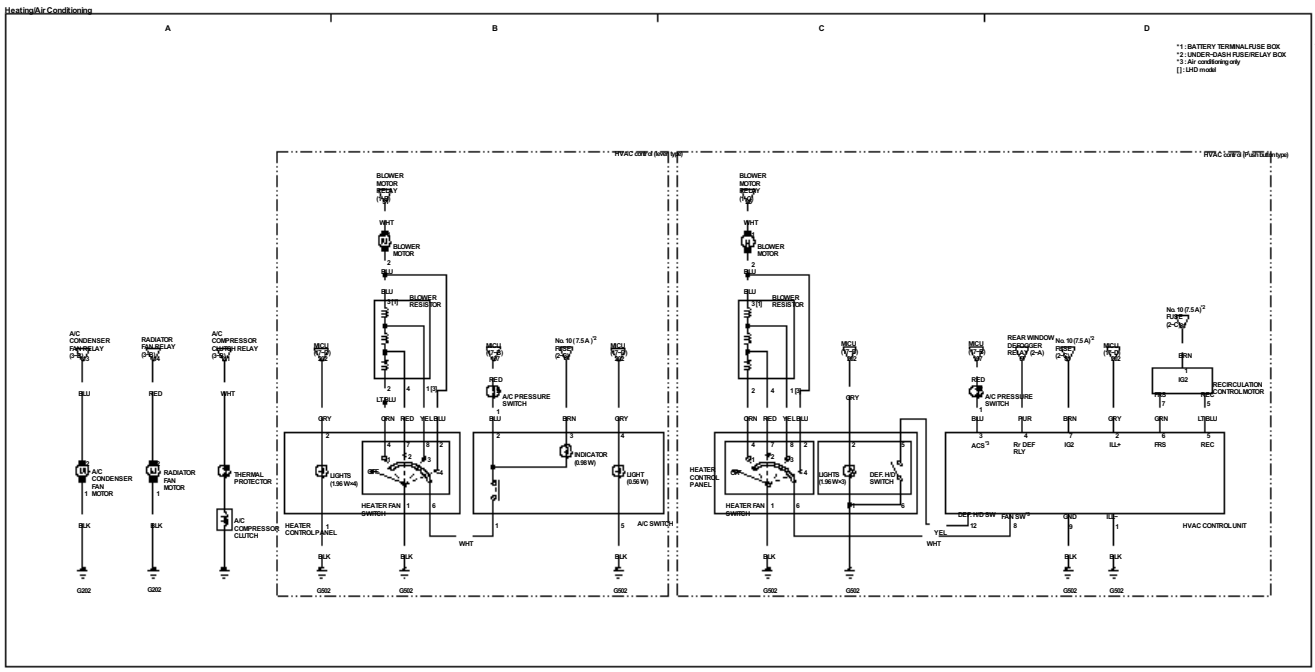
D

*1: BATTERY TERMINAL FUSE BOX
*2: UNDER-DASH FUSE/RELAY BOX
*3: Wire color for LHD model may be substituted
*4: With front passenger's seat belt reminder
*5: With rear seat belt reminder
*6: RHD model
*7: LHD model
*8: LHD model (Include RHD model with front passenger's seat belt reminder)
*9: RHD model (Include LHD model with front passenger's seat belt reminder)
*10: KG model
*11: KE model

4: RHD model
5: LHD model
3: KG model
4: Except KG model
5: KE model
6: Except KE model
: CAN line
: Other communication line
: Shielding



Wiring Diagram

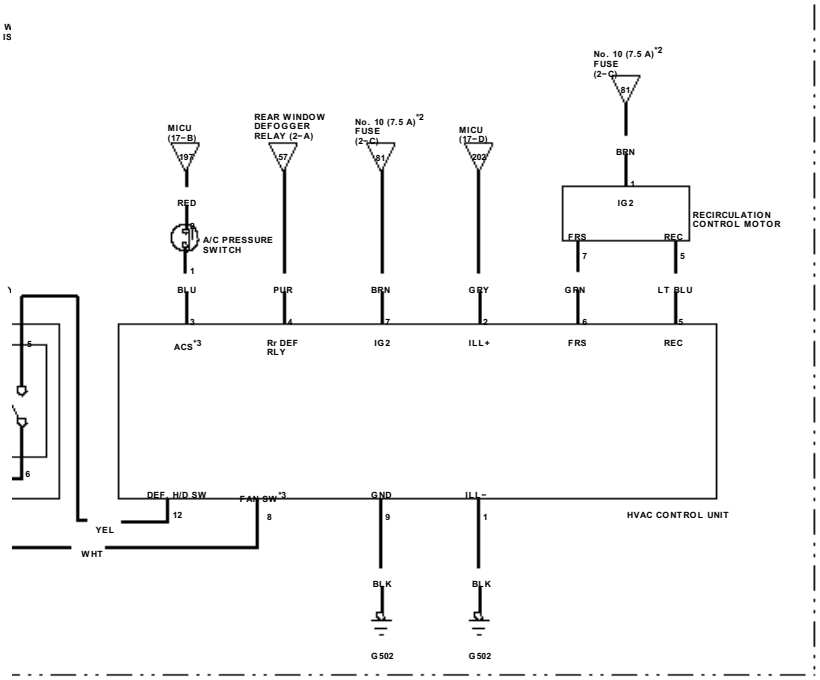


D

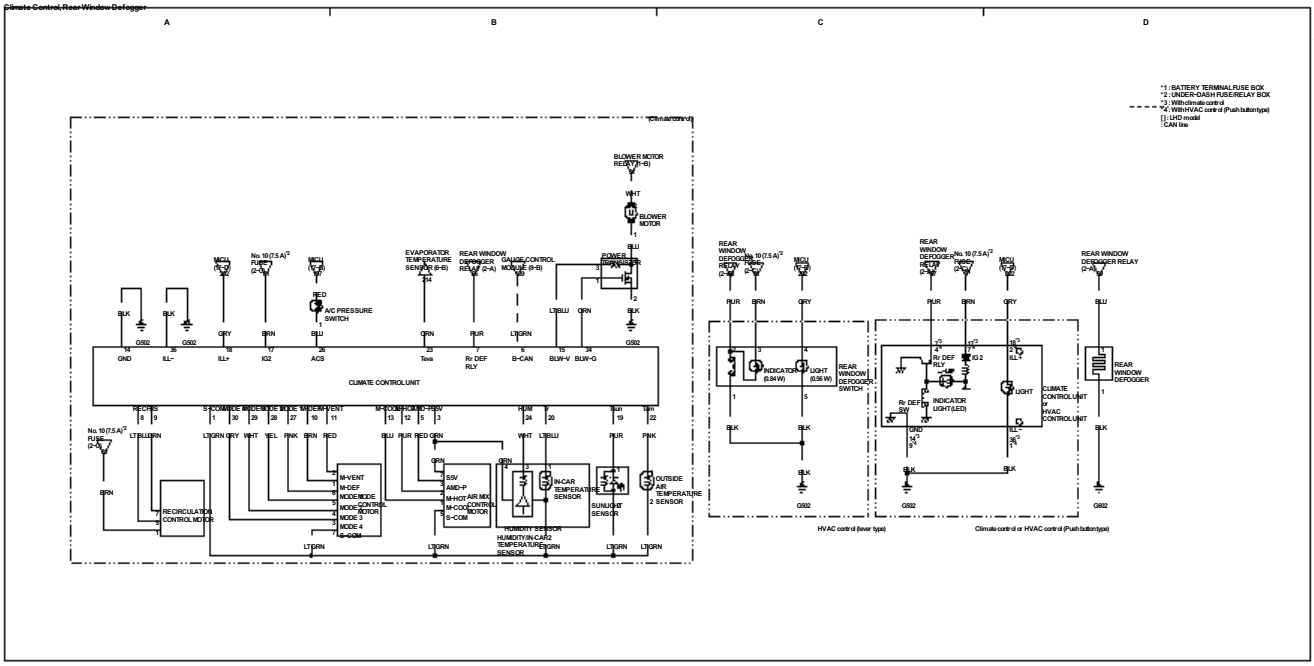
21

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : Air conditioning only
[ ] : LHD model

HVAC control (Push button type)



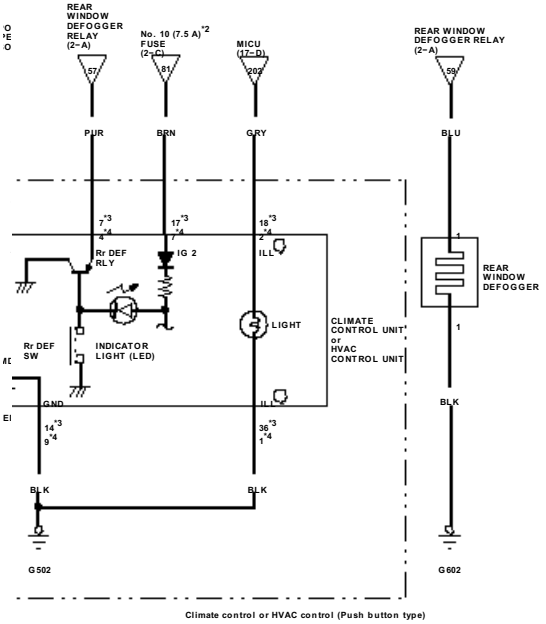
Wiring Diagram



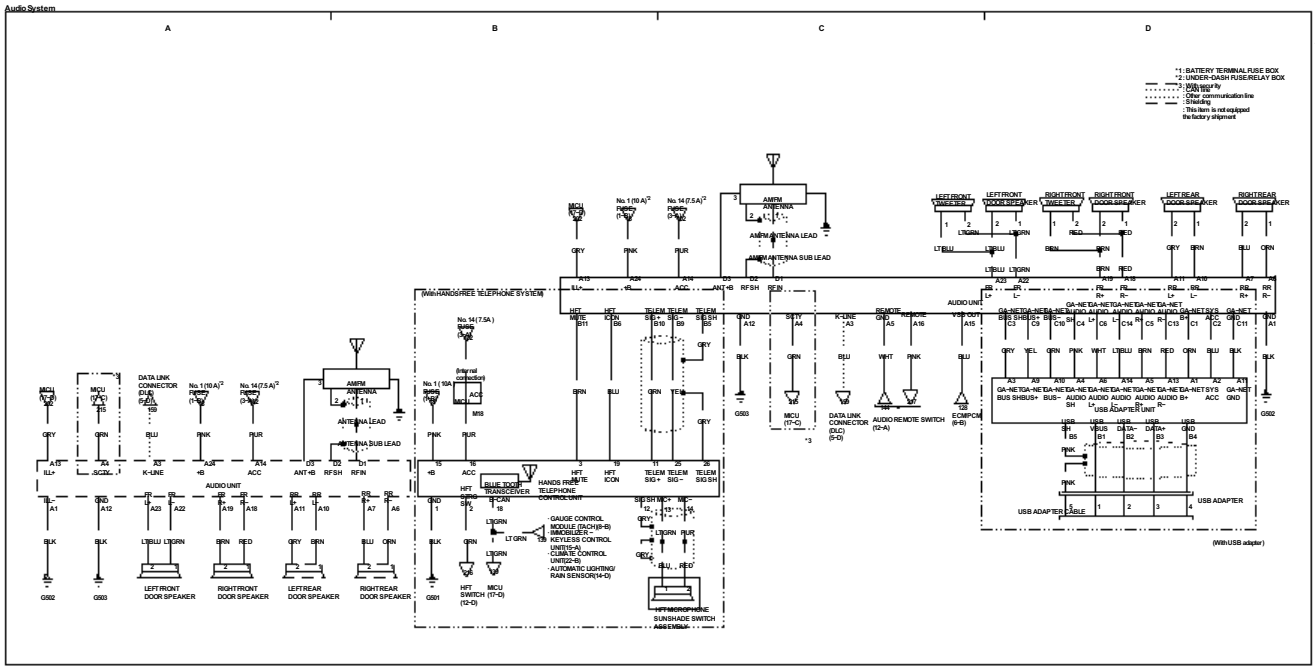
D

22

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : With climate control
*4 : With HVAC control (Push button type)
[ ] : LHD model
: CAN line



Wiring Diagram

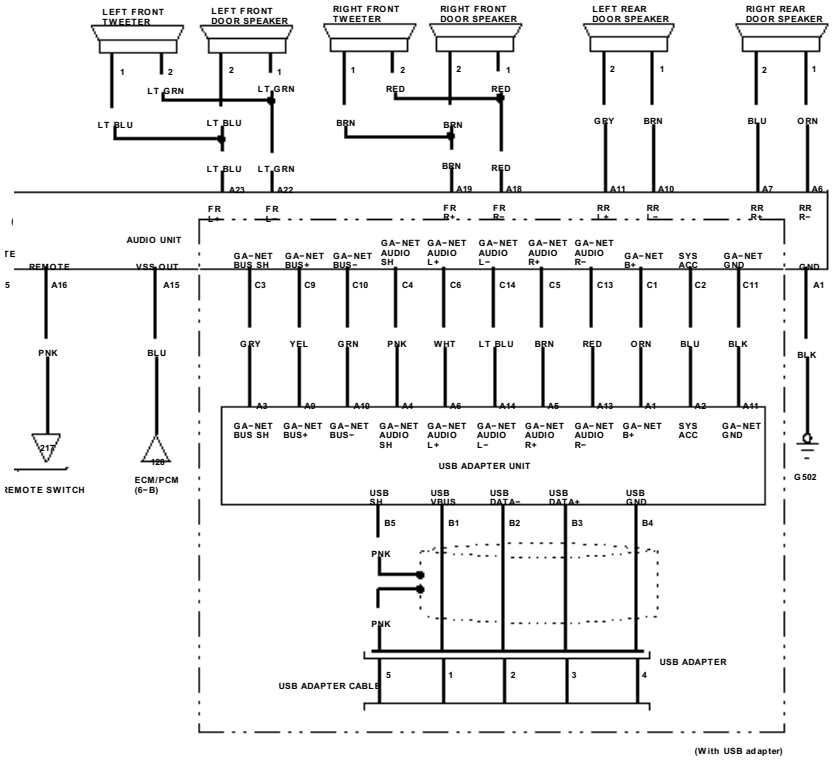


D

23

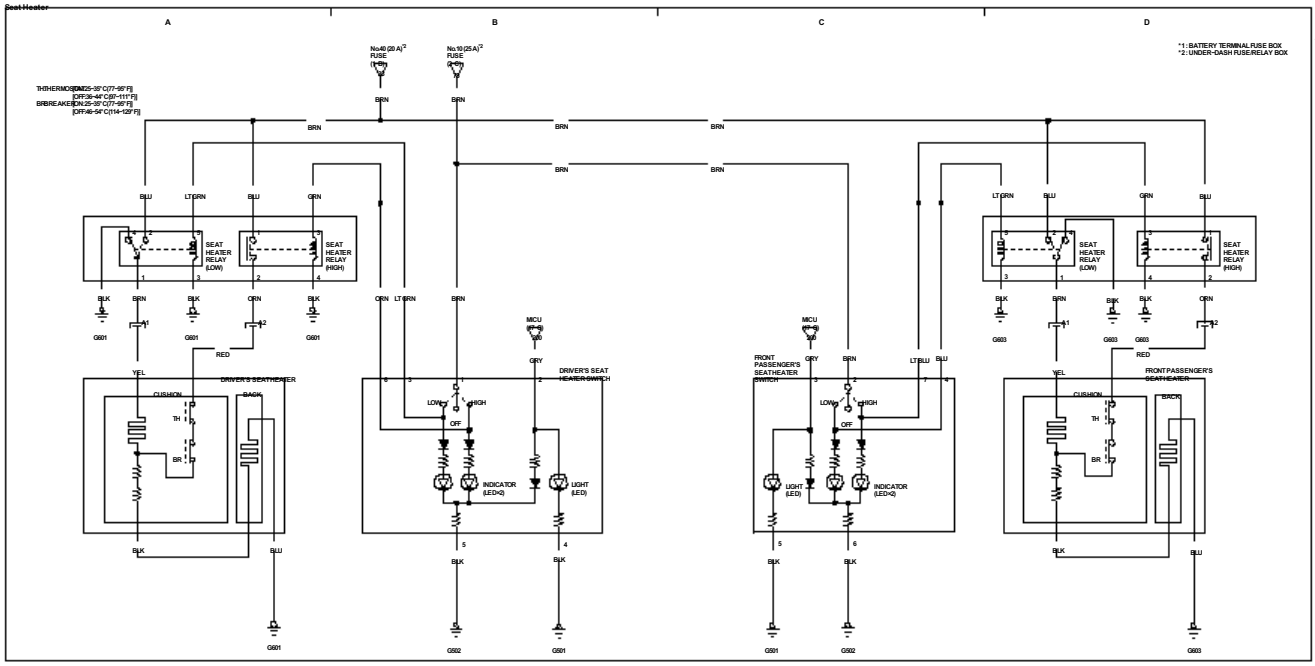
*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : With security

: CAN line
: Other communication line
: Shielding
: This item is not equipped the factory shipment



Wiring Diagram

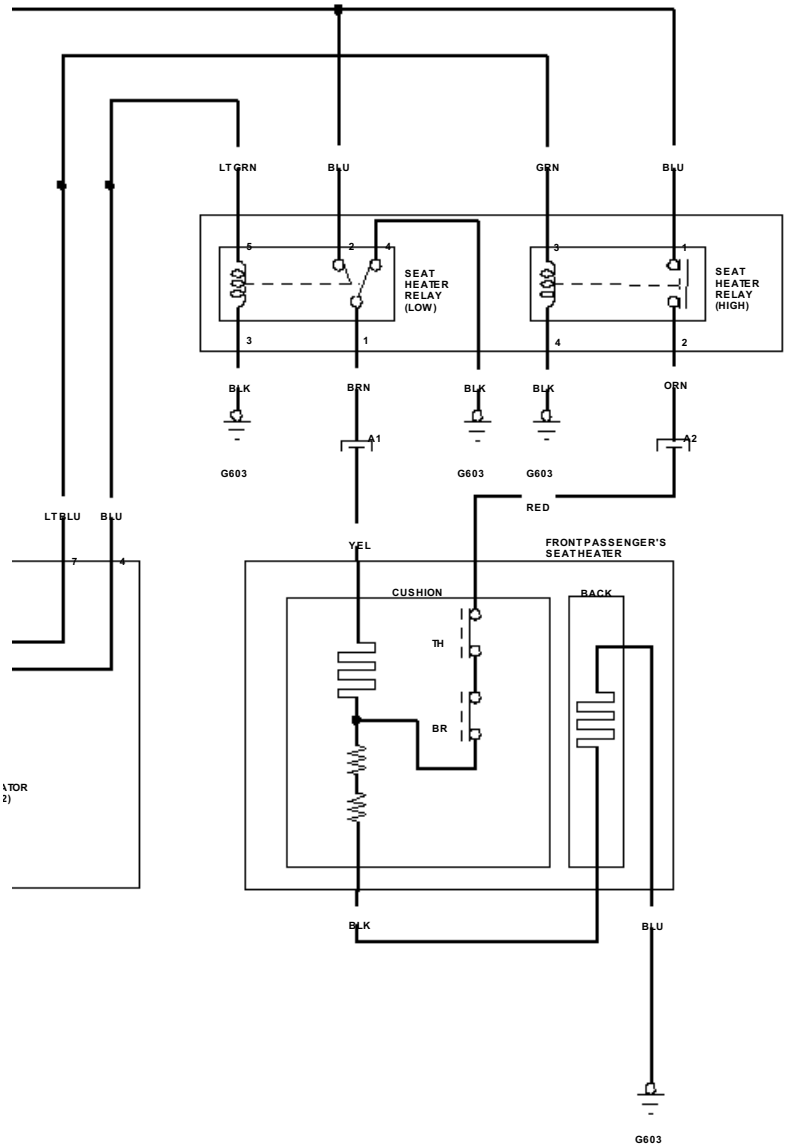
24



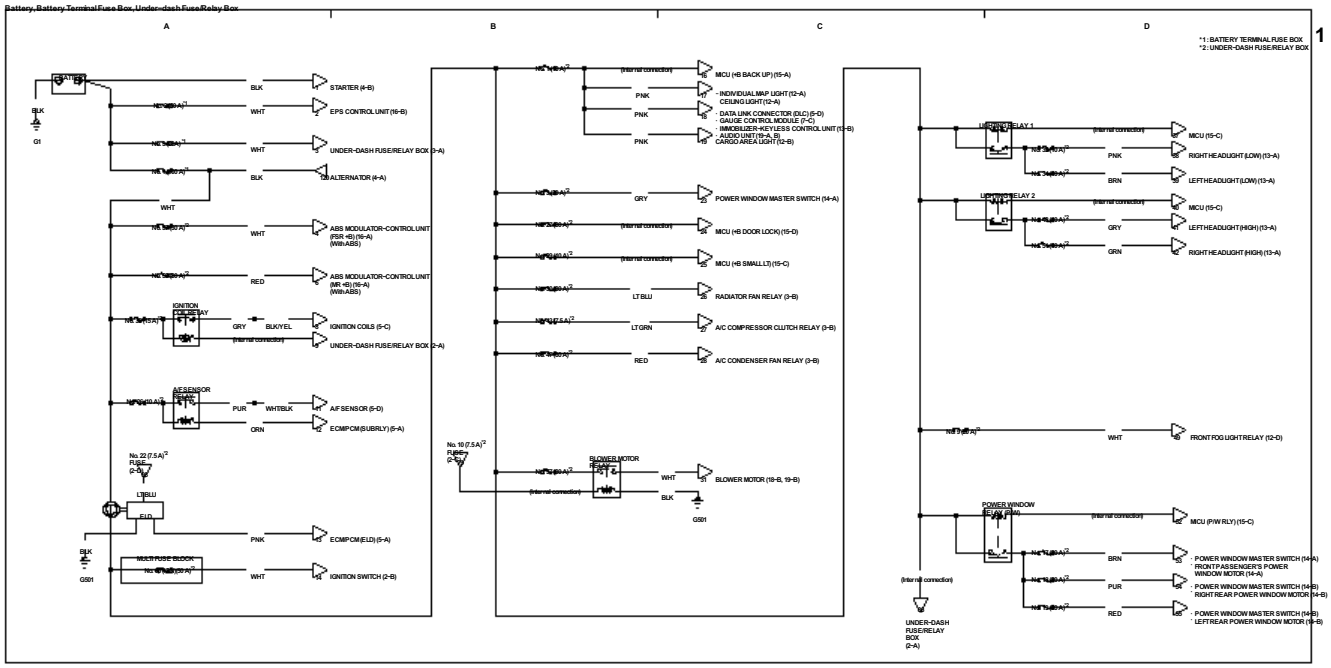
24

D

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX



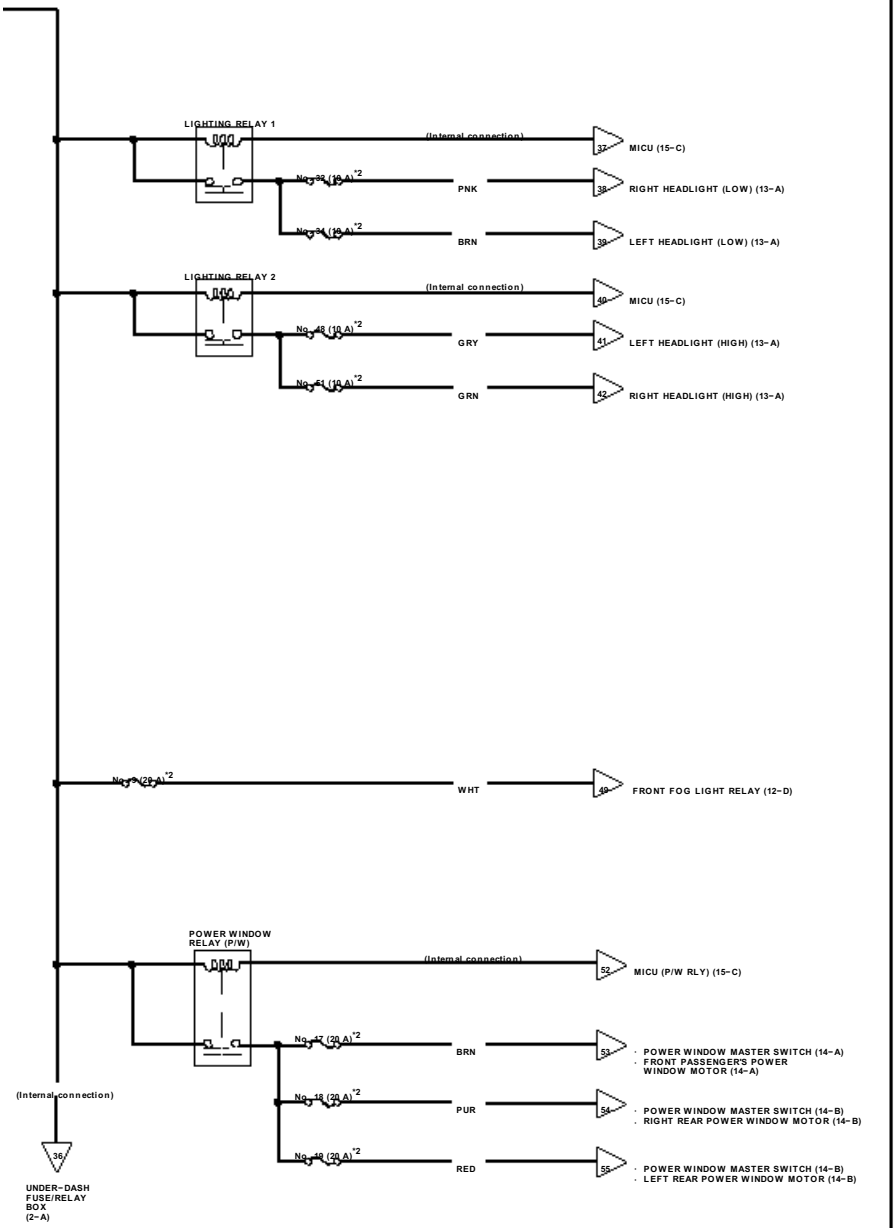
Wiring Diagram



D

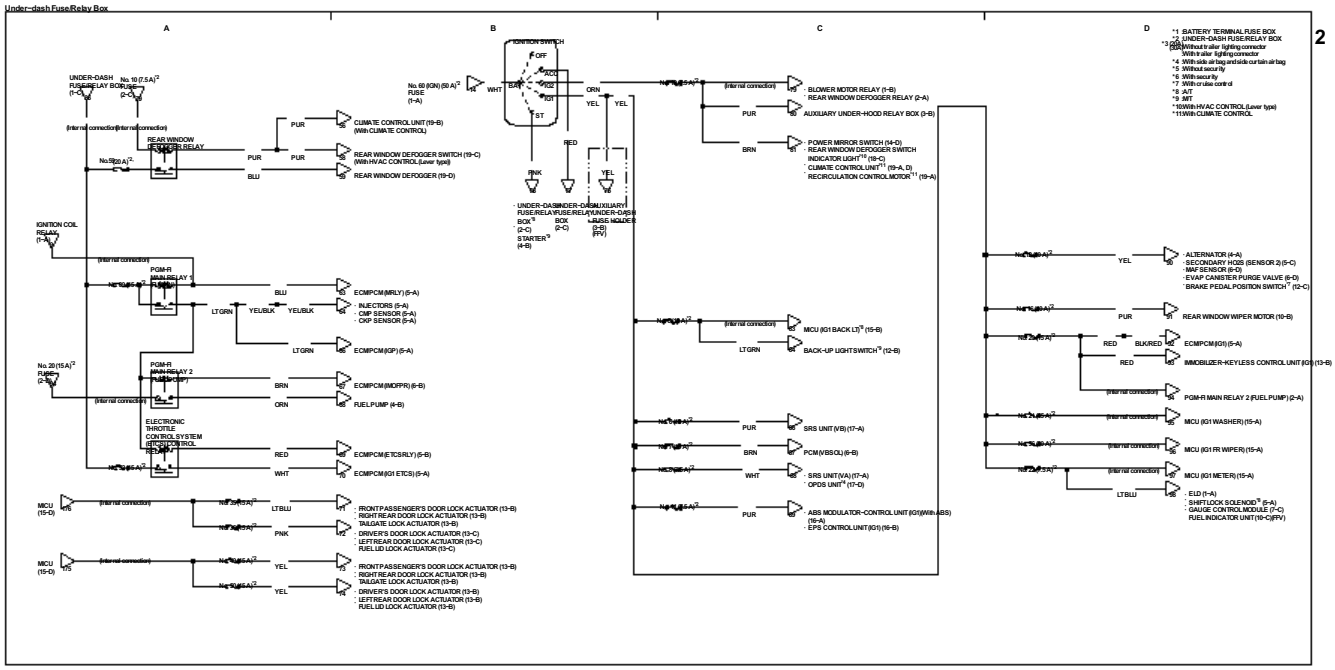
1

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER−DASH FUSE/RELAY BOX



Internal connection)

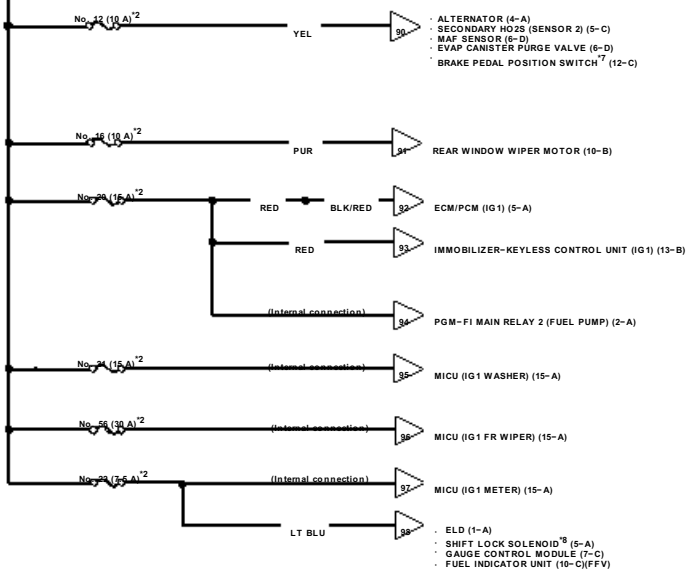
Wiring Diagram



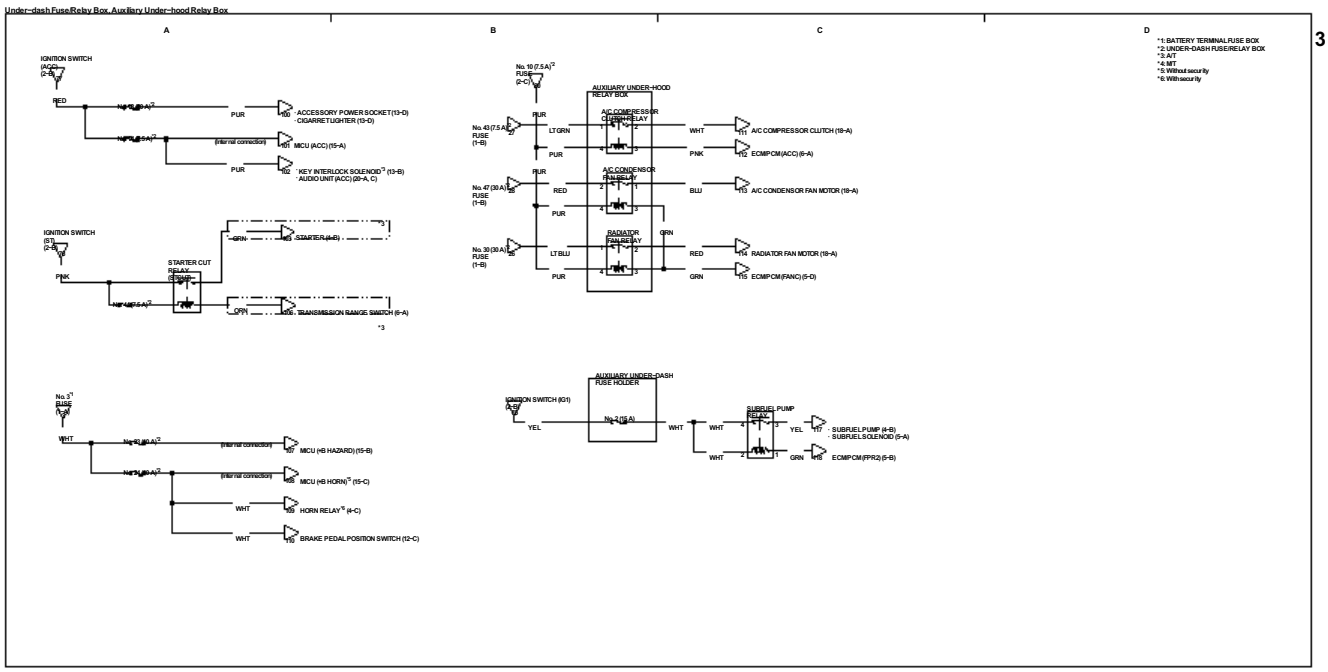
D

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 (20A) : Without trailer lighting connector
(30A) : With trailer lighting connector
*5 : With side airbag and side curtain airbag
*6 : Without security
*7 : With security
*8 : With cruise control
*9 : A/T
*10 : M/T
*11 : With HVAC CONTROL (Lever type)
: With CLIMATE CONTROL

2



Wiring Diagram

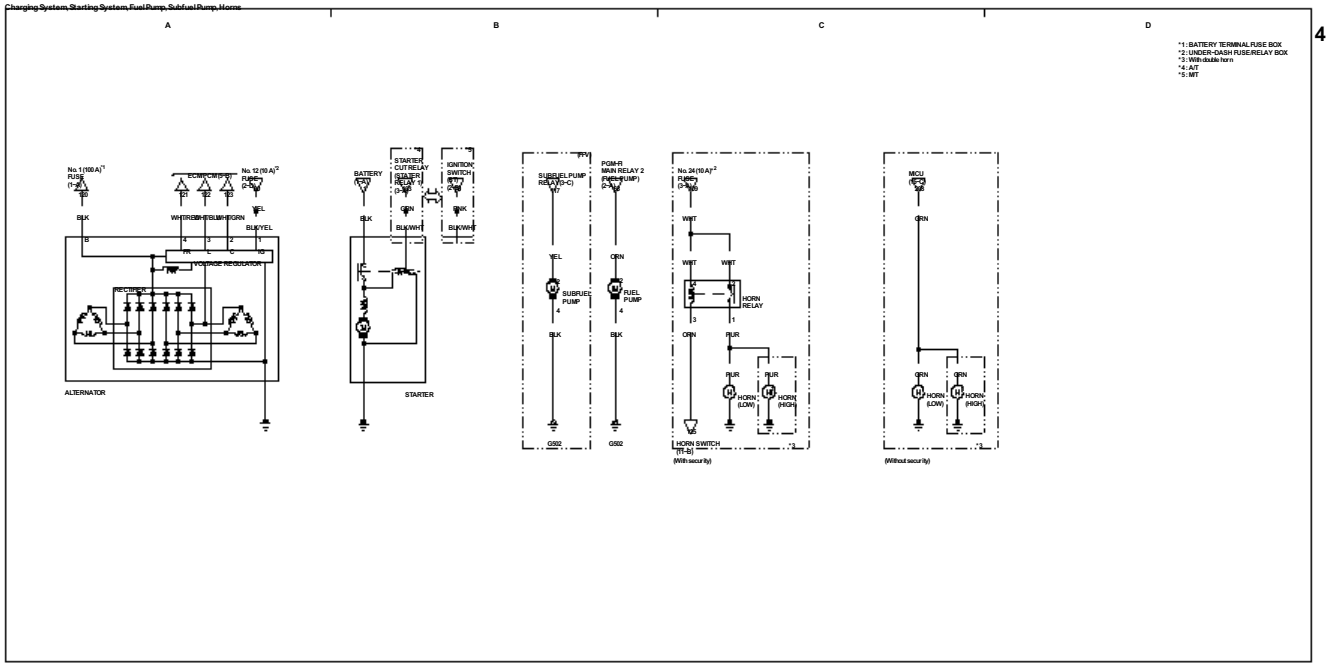


D

*1: BATTERY TERMINAL FUSE BOX
*2: UNDER-DASH FUSE/RELAY BOX
*3: A/T
*4: M/T
*5: Without security
*6: With security

3

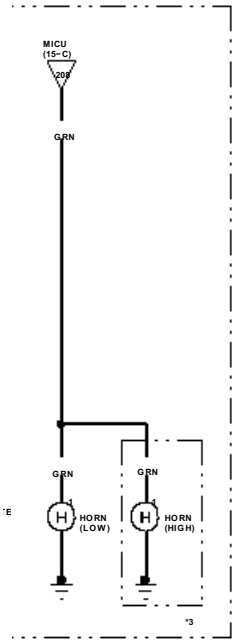
Wiring Diagram



D

4

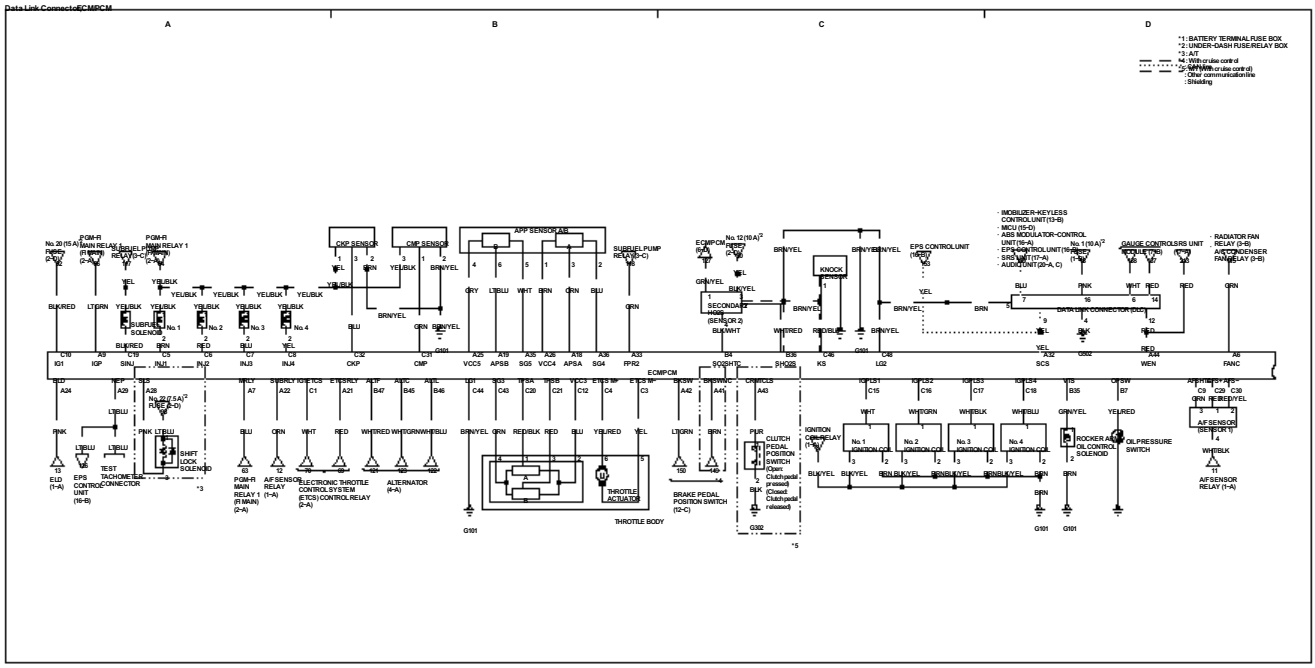
*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : With double horn
*4 : A/T
*5 : M/T



ithout security)

: security)

Wiring Diagram

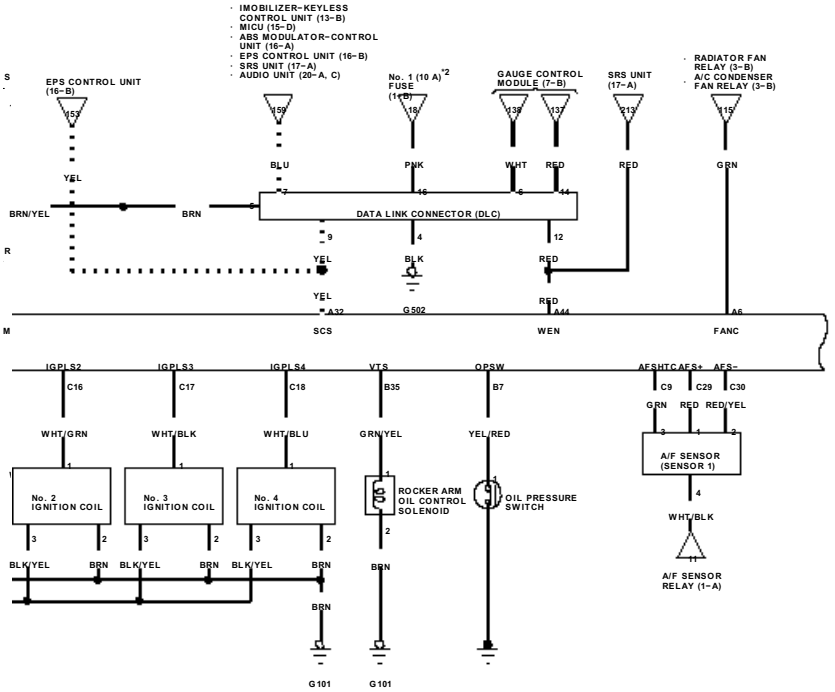


D

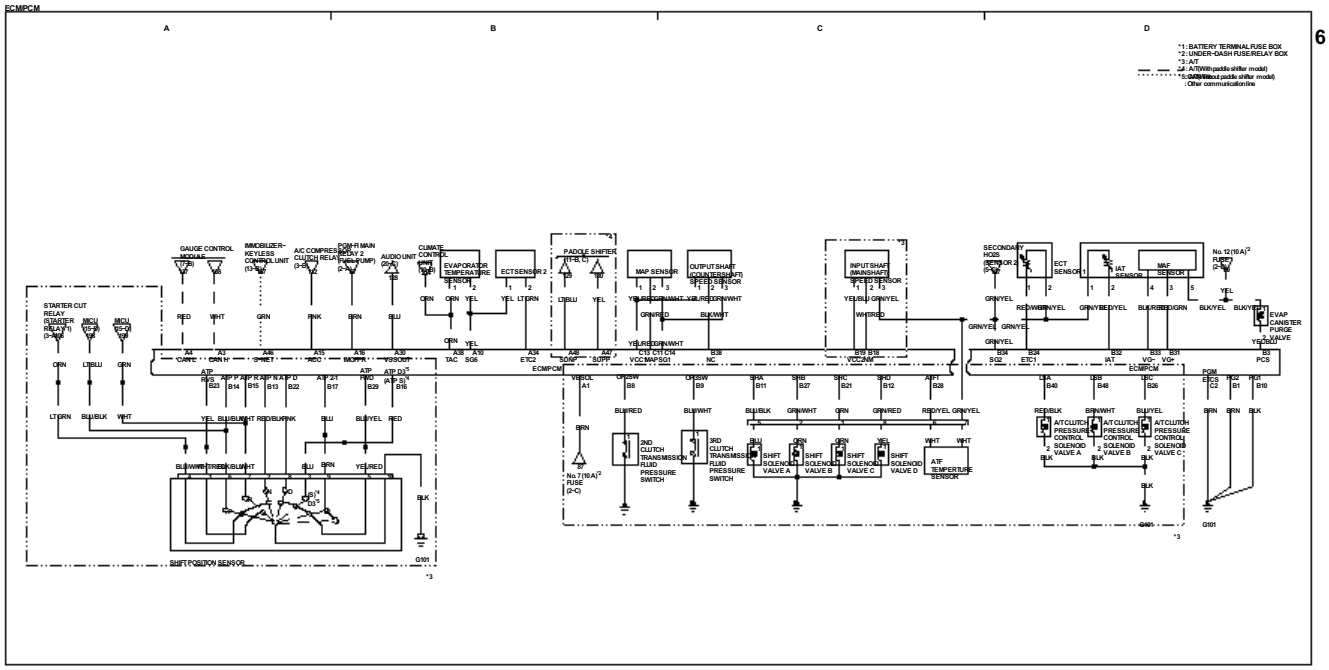
*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : A/T
*4 : With cruise control
*5 : M/T (With cruise control)

: CAN line
: Other communication line
: Shielding

5



Wiring Diagram

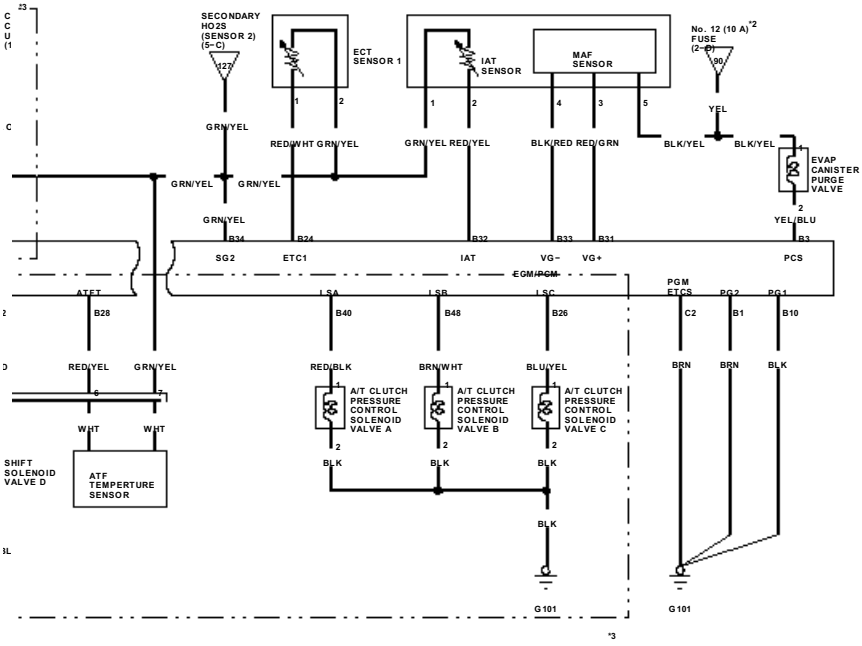


D

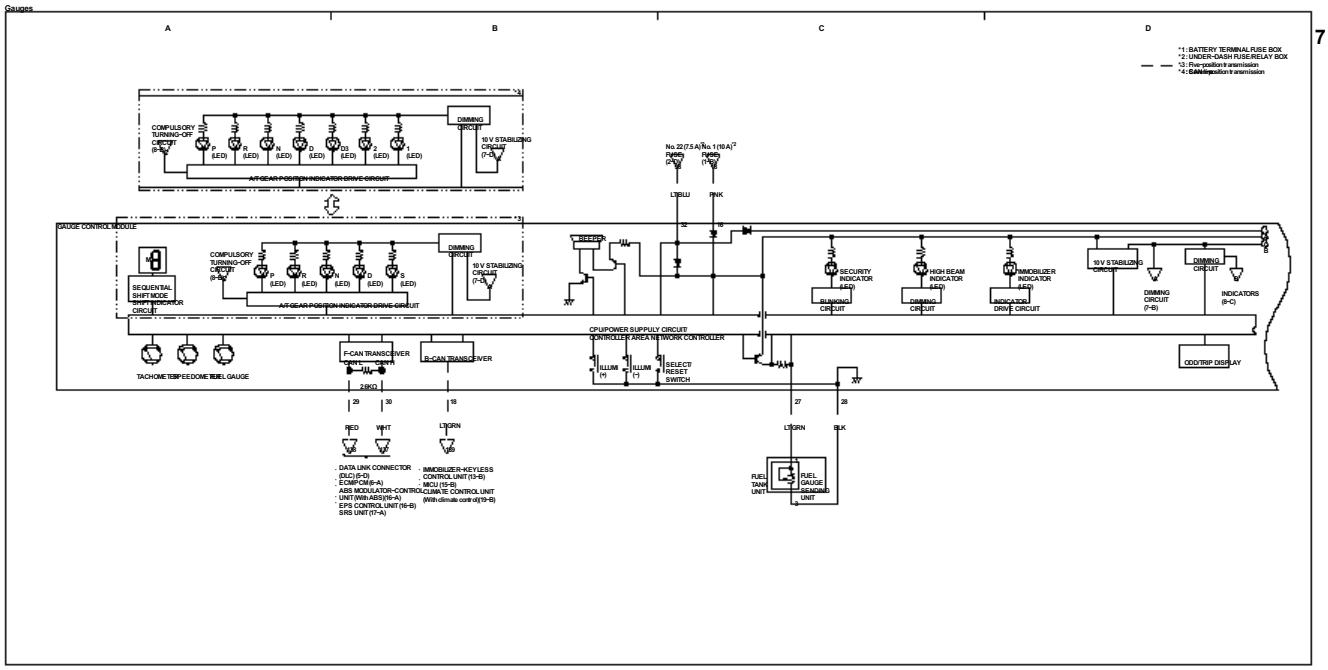
6

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : A/T
*4 : A/T(With paddle shifter model)
*5 : A/T(Without paddle shifter model)

: CAN line
: Other communication line



Wiring Diagram

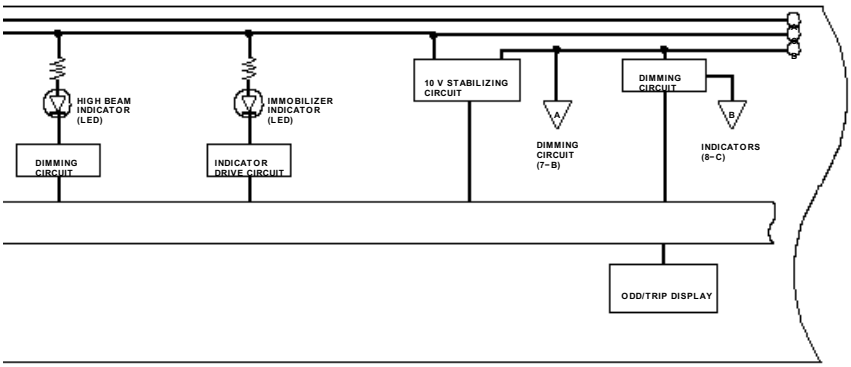


D

7

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : Five-position transmission
*4 : Seven-position transmission

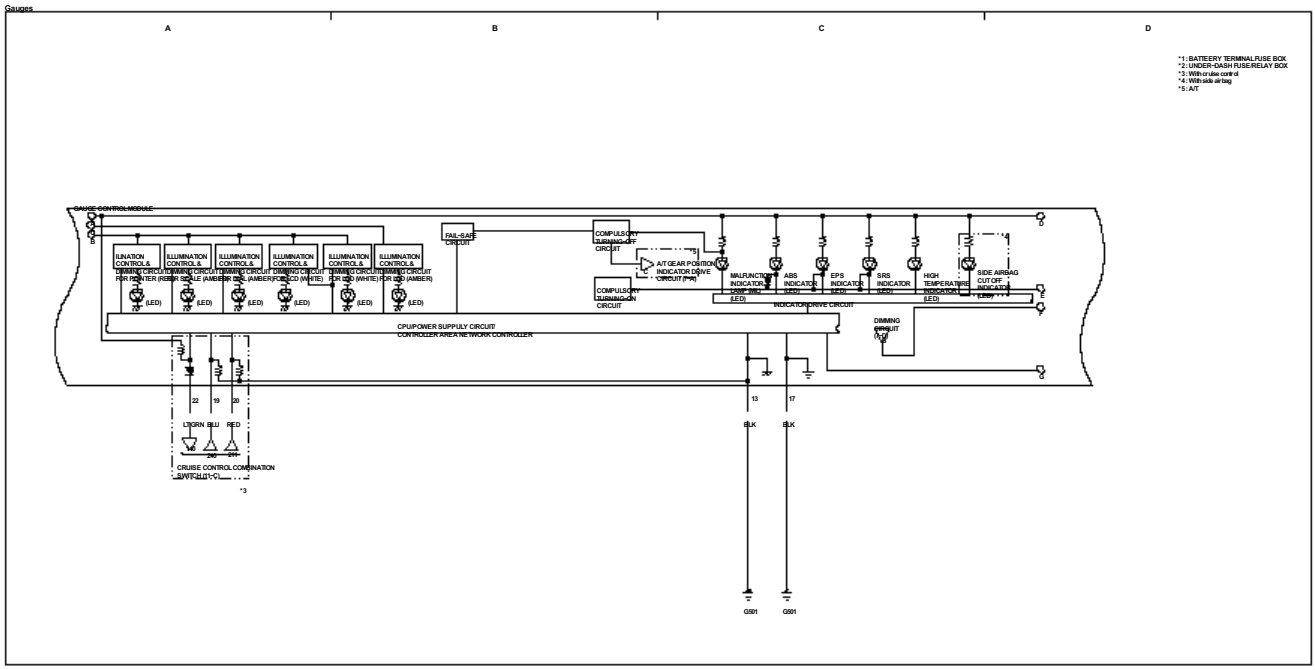
: CAN line



CAN TRANSCEIVER

OBILIZER-KEYLESS
ITROL UNIT (13-B)
U (15-B)
MATE CONTROL UNIT
h climate control)(19-B)

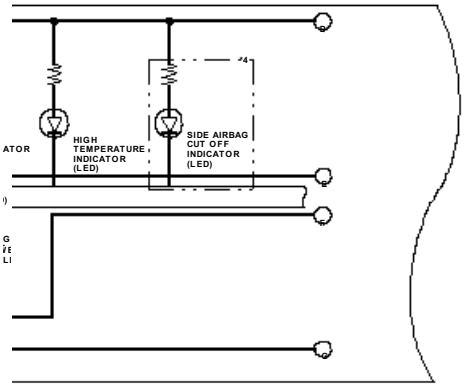
Wiring Diagram



D

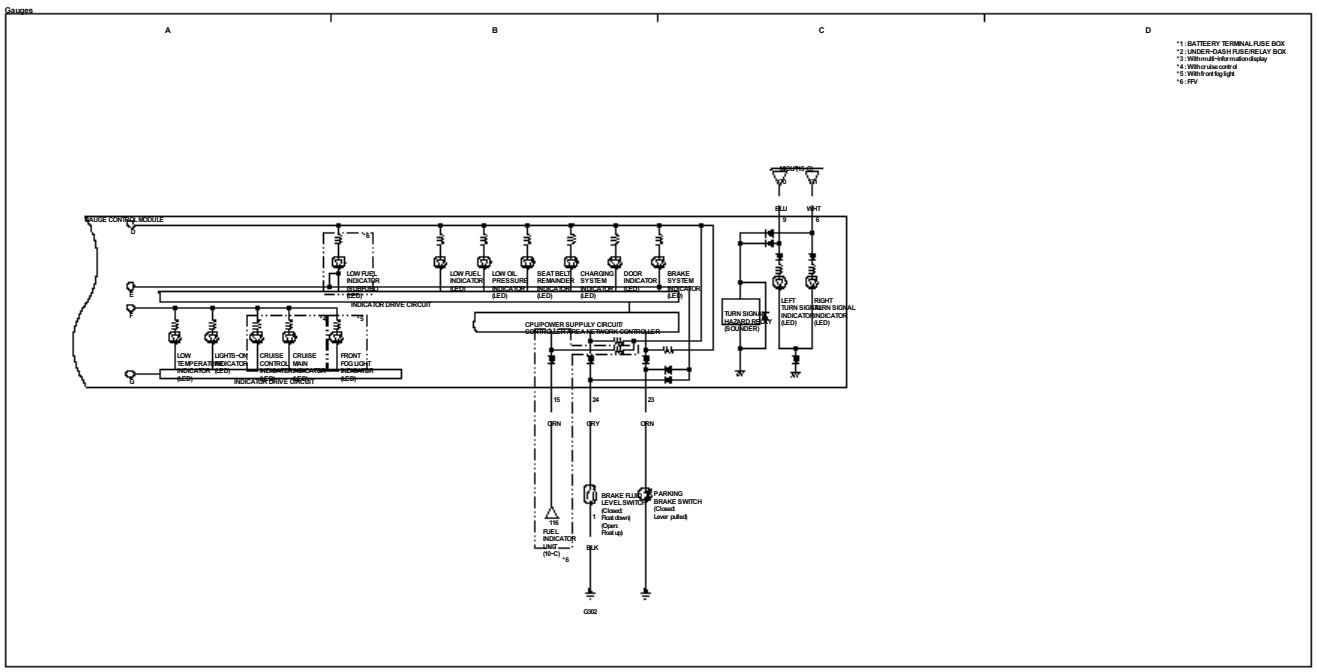
8

*1 : BATTEERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : With cruise control
*4 : With side airbag
*5 : A/T



JPPULY CIRCUIT/
AREA NETWORK CONTROLLER

Wiring Diagram

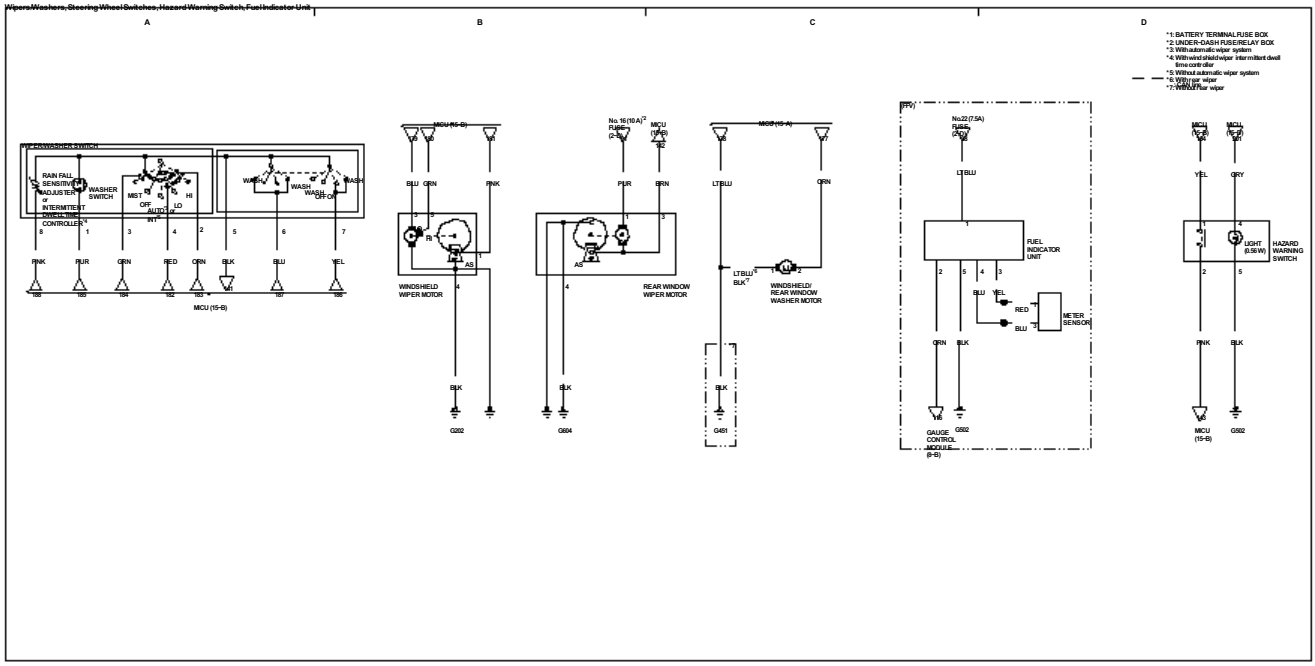


D

*1 : BATTEERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : With multi-information display
*4 : With cruise control
*5 : With front fog light
*6 : FFV

9

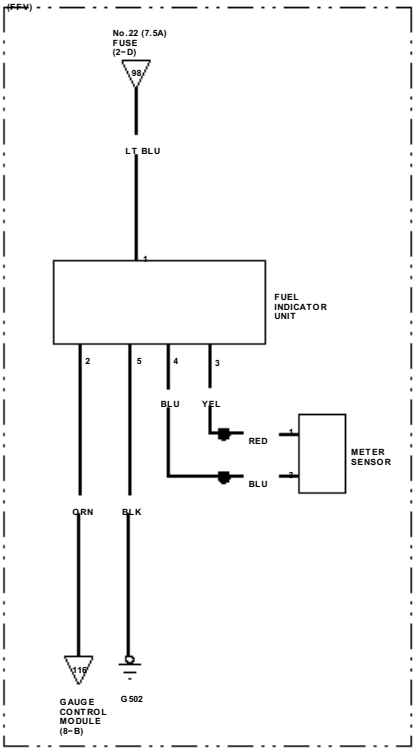
Wiring Diagram

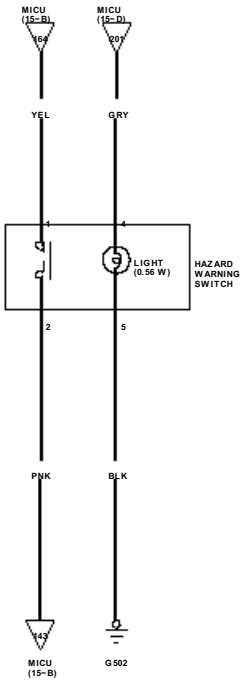


D

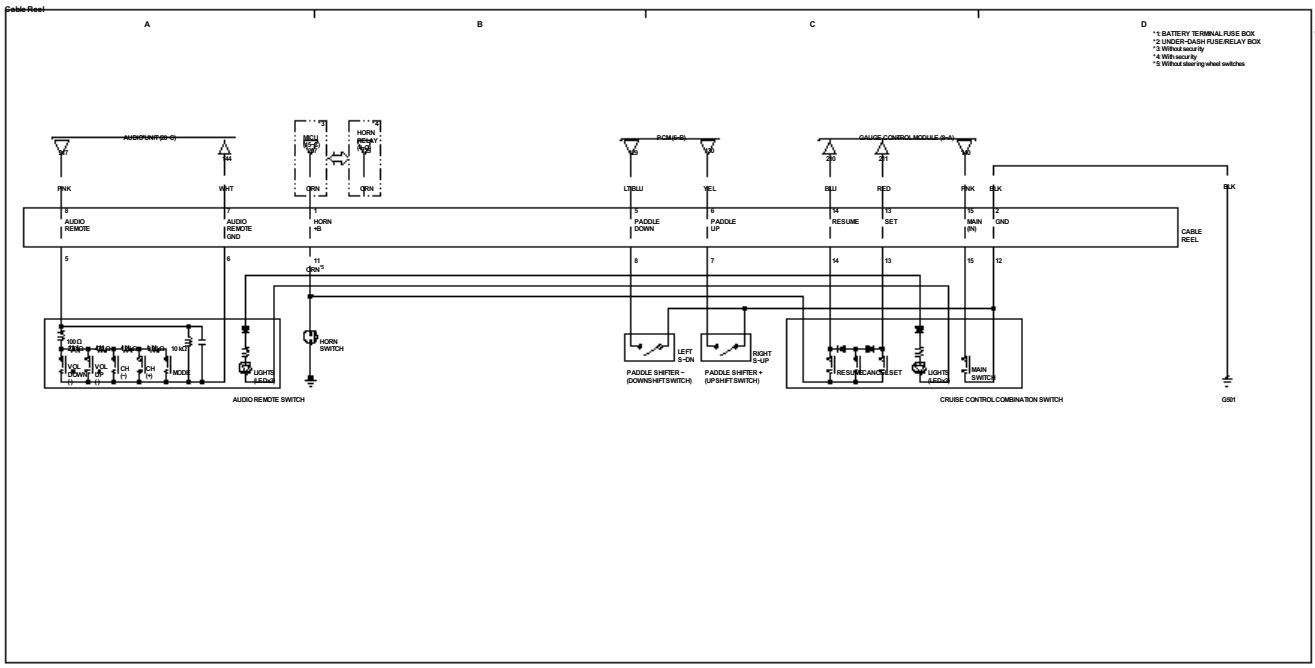
*1: BATTERY TERMINAL FUSE BOX
*2: UNDER-DASH FUSE/RELAY BOX
*3: With automatic wiper system
*4: With wind shield wiper intermittent dwell time controller
*5: Without automatic wiper system
*6: With rear wiper
*7: Without rear wiper

: CAN line





Wiring Diagram



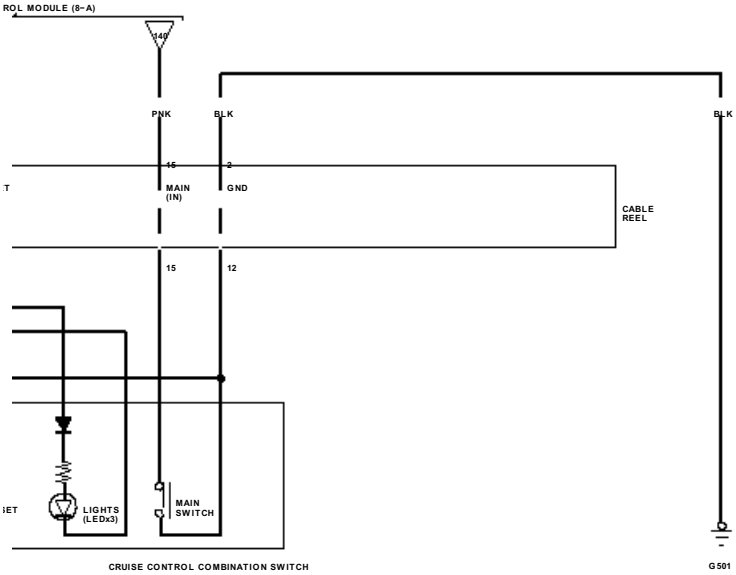
D

*1: BATTERY TERMINAL FUSE BOX
*2: UNDER-DASH FUSE/RELAY BOX
*3: Without security
*4: With security
*5: Without steering wheel switches

11

ROL MODULE (8-A)

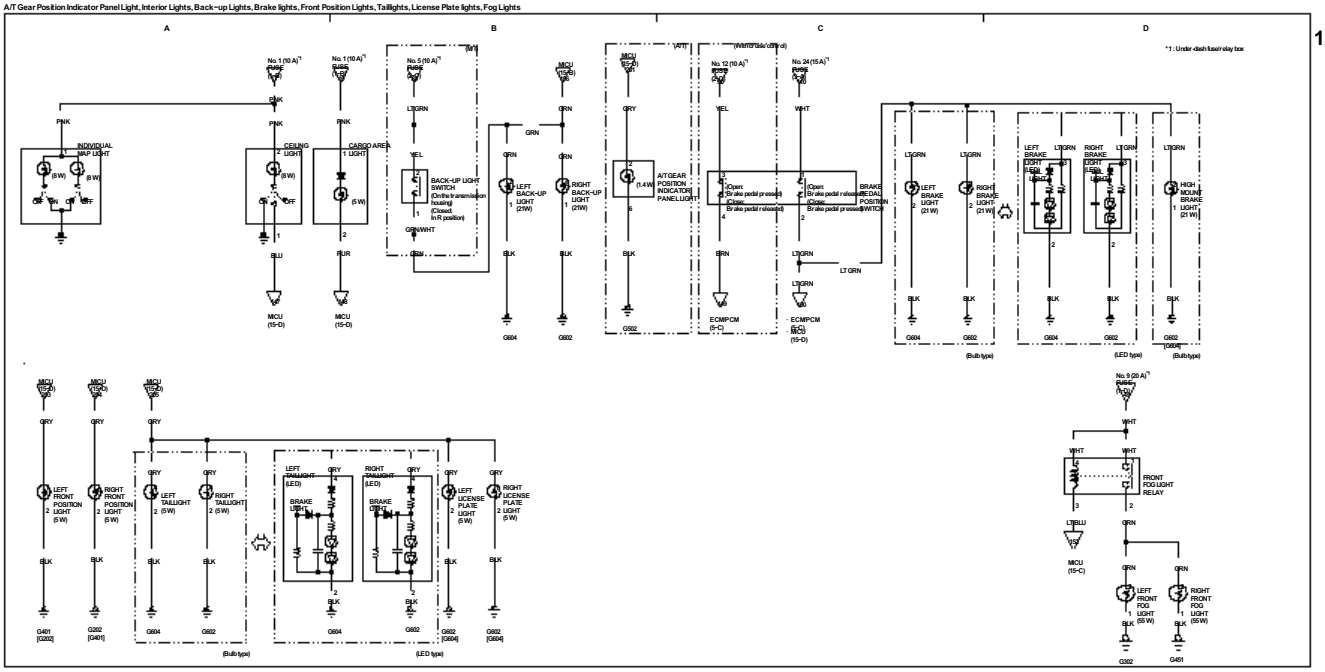
IODULE (8-A)



CRUISE CONTROL COMBINATION SWITCH

G501

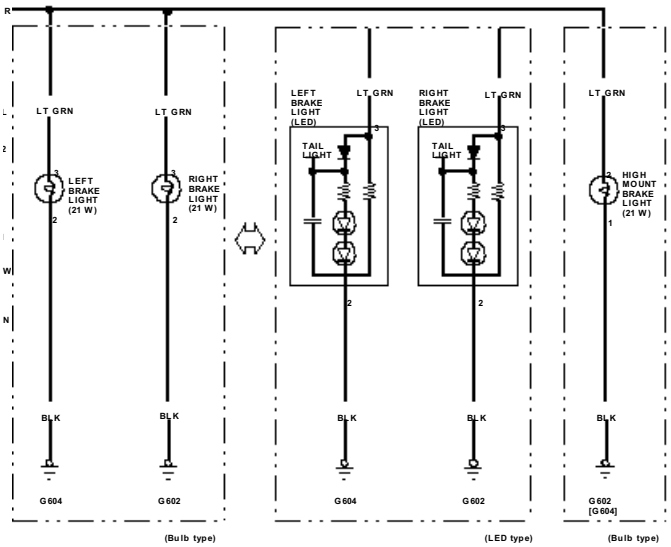
Wiring Diagram

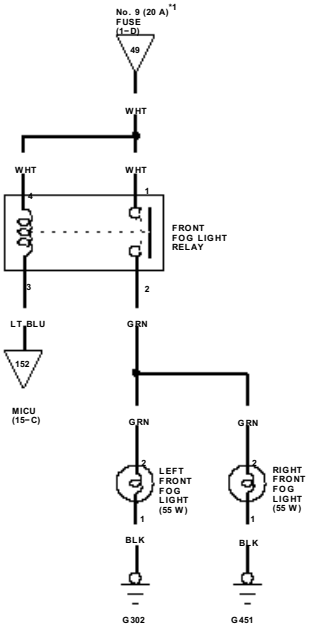


D

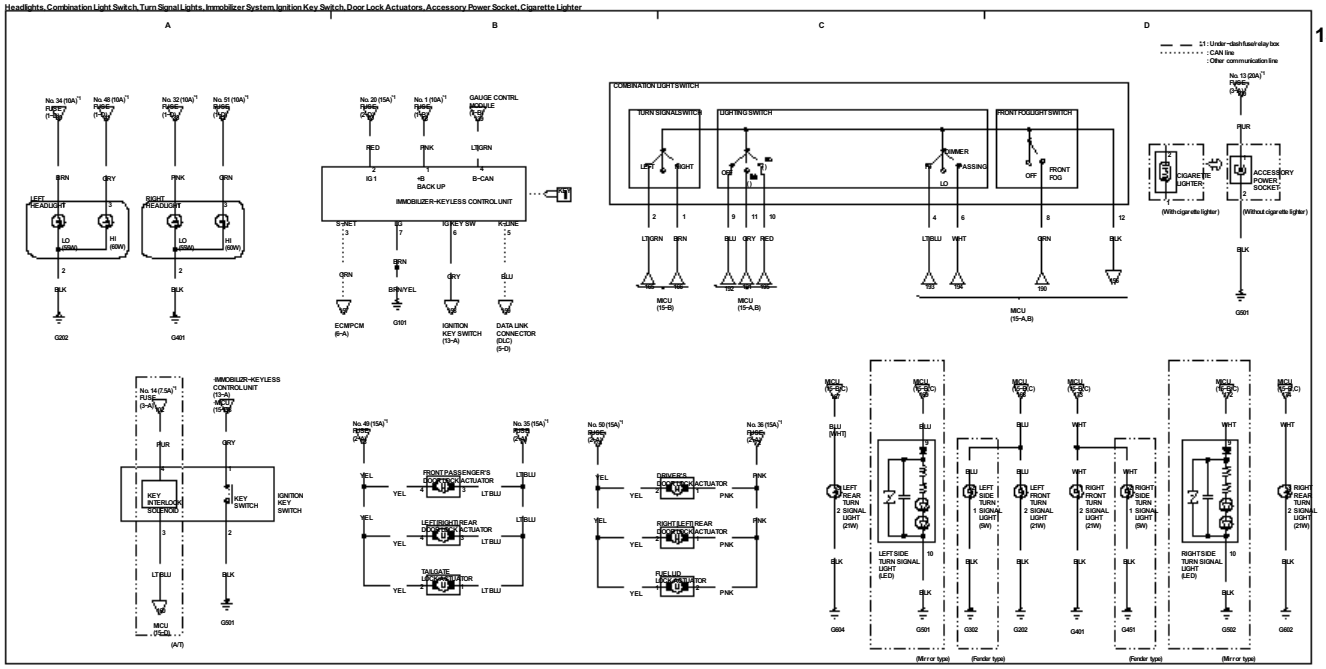
12

*1 : Under-dash fuse/relay box





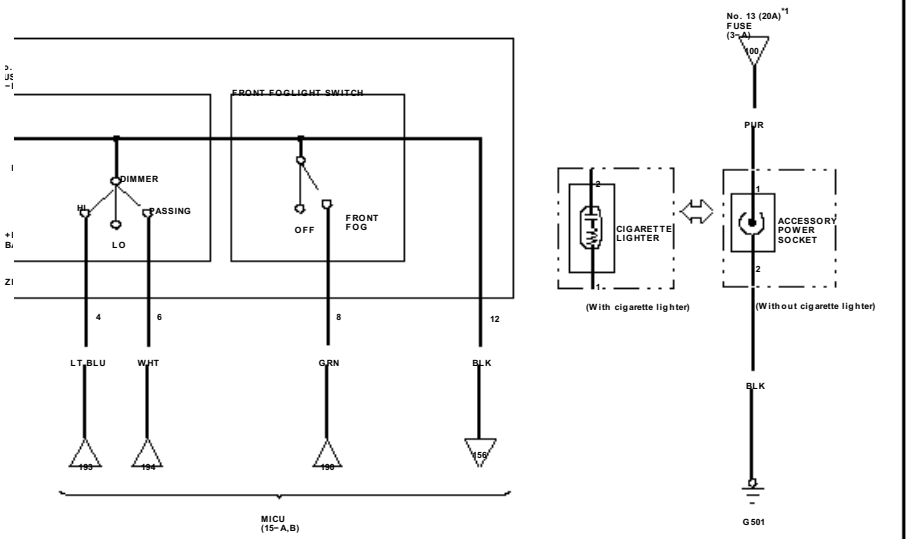
Wiring Diagram

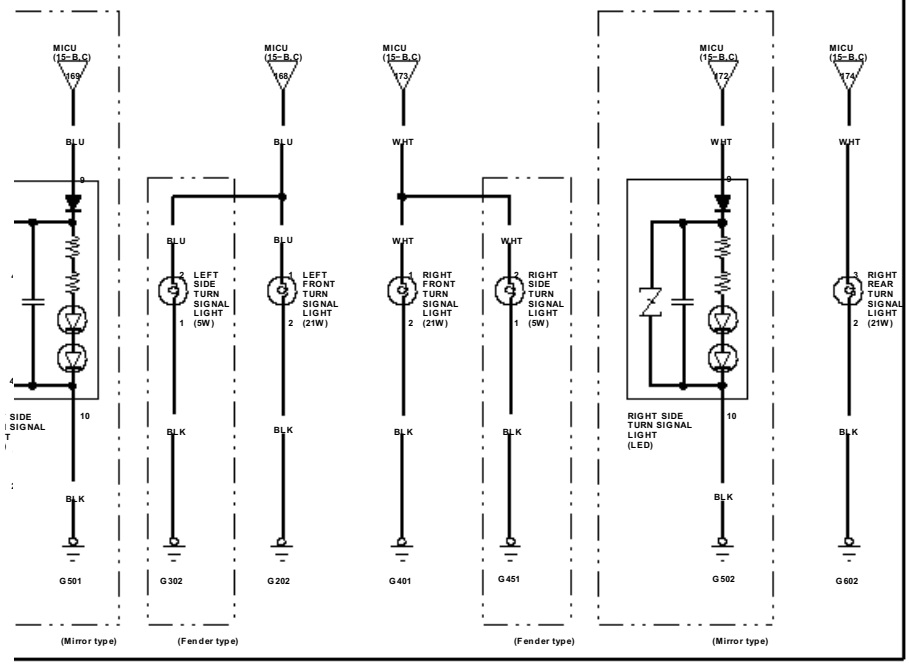


13

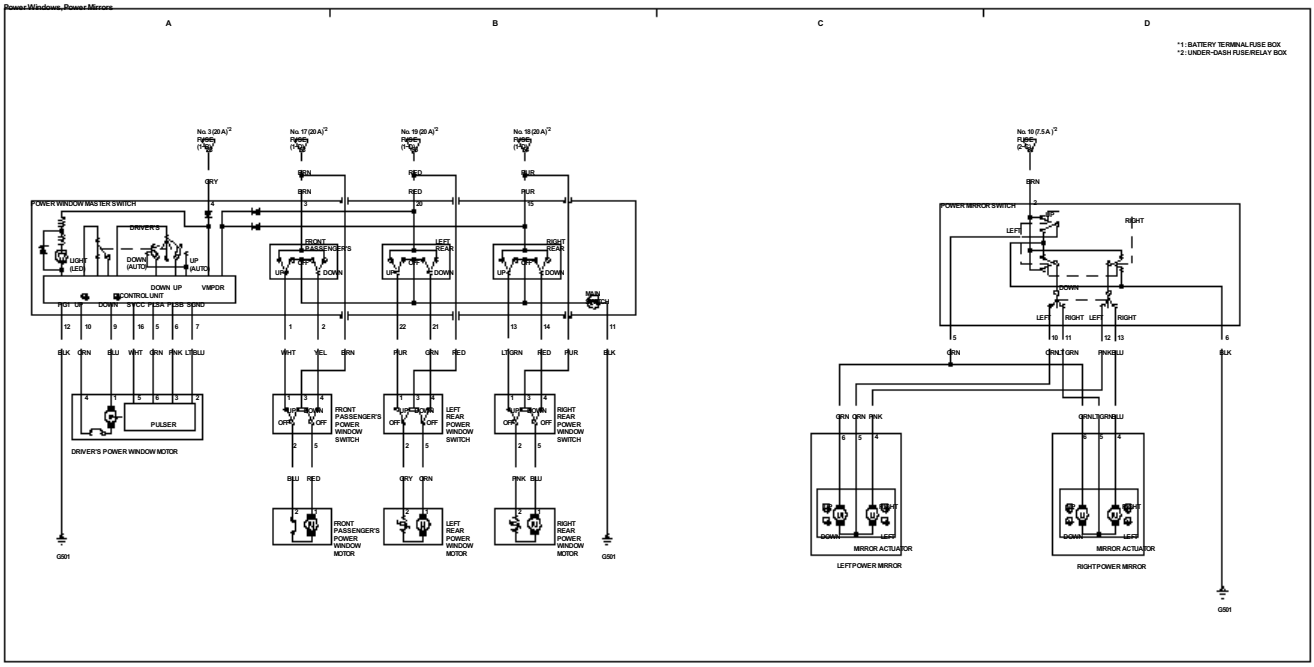
D

*1 : Under-dash fuse/relay box
: CAN line
: Other communication line



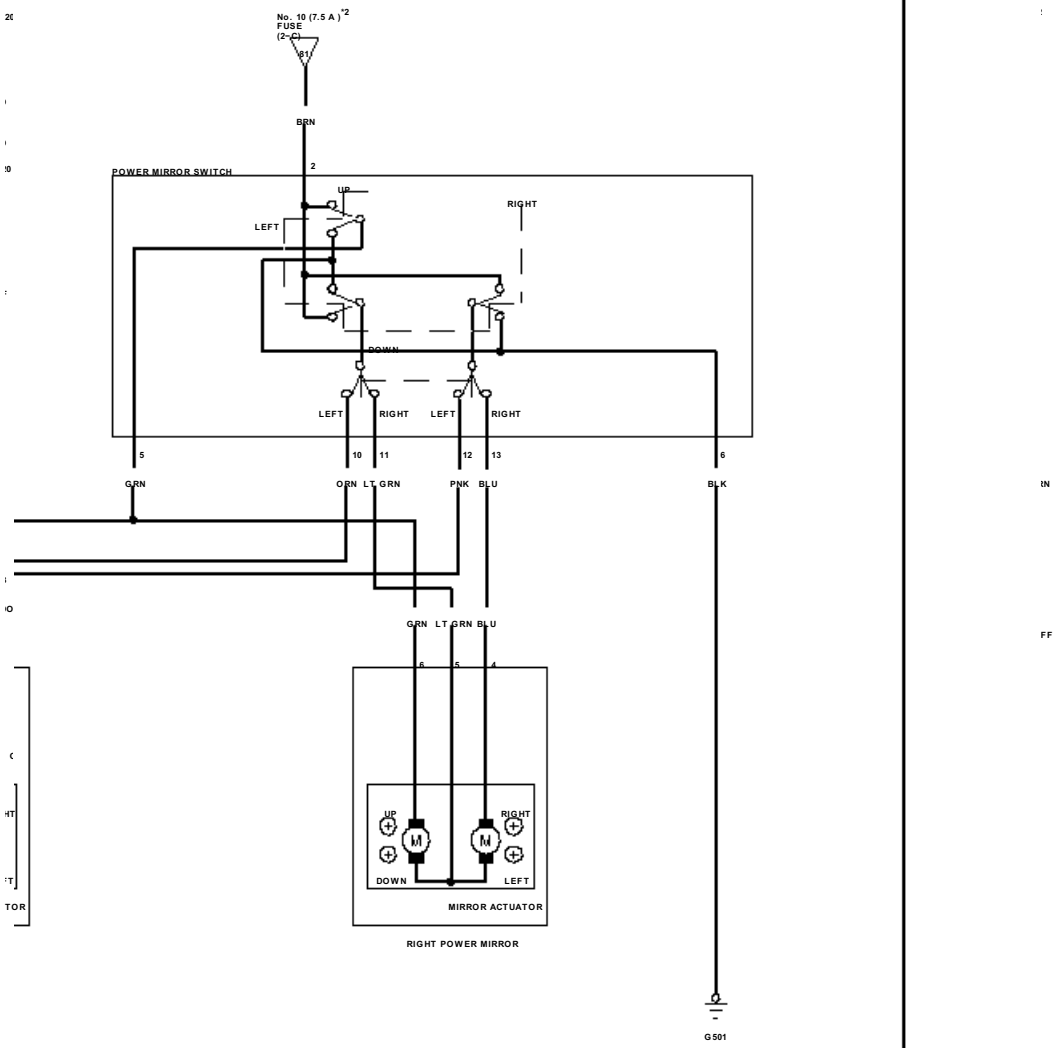


Wiring Diagram

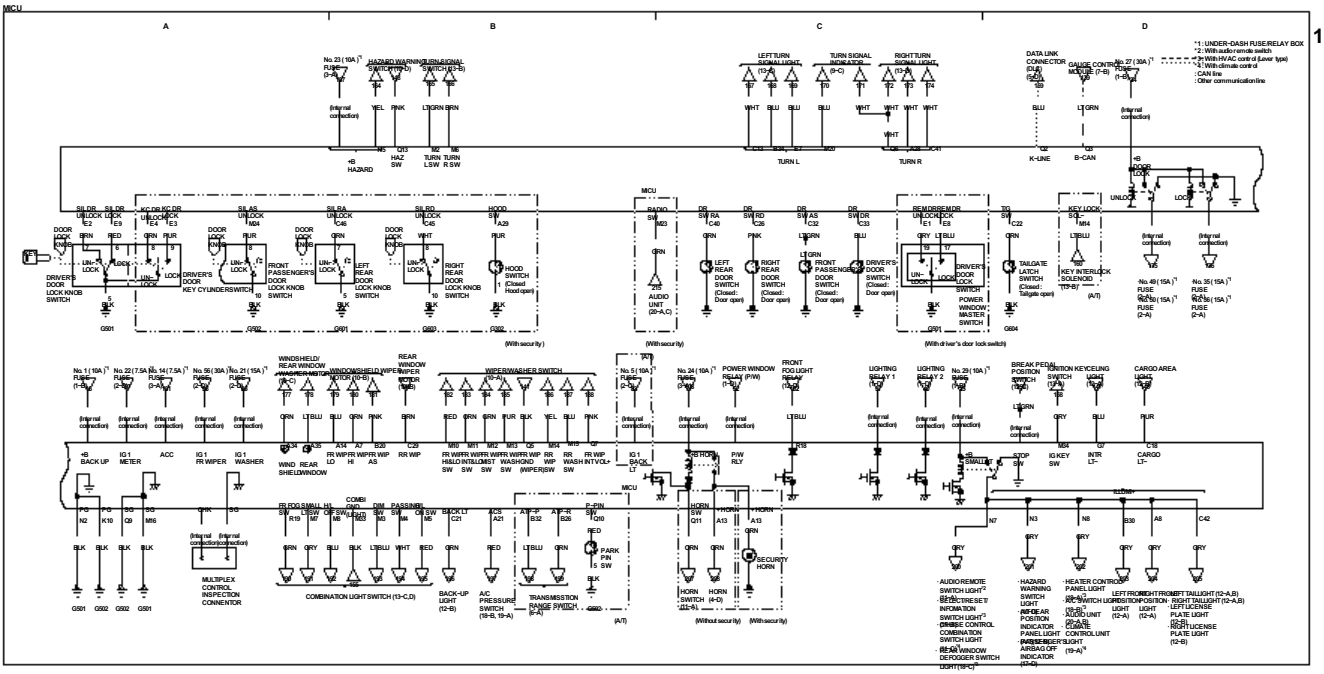


D

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX

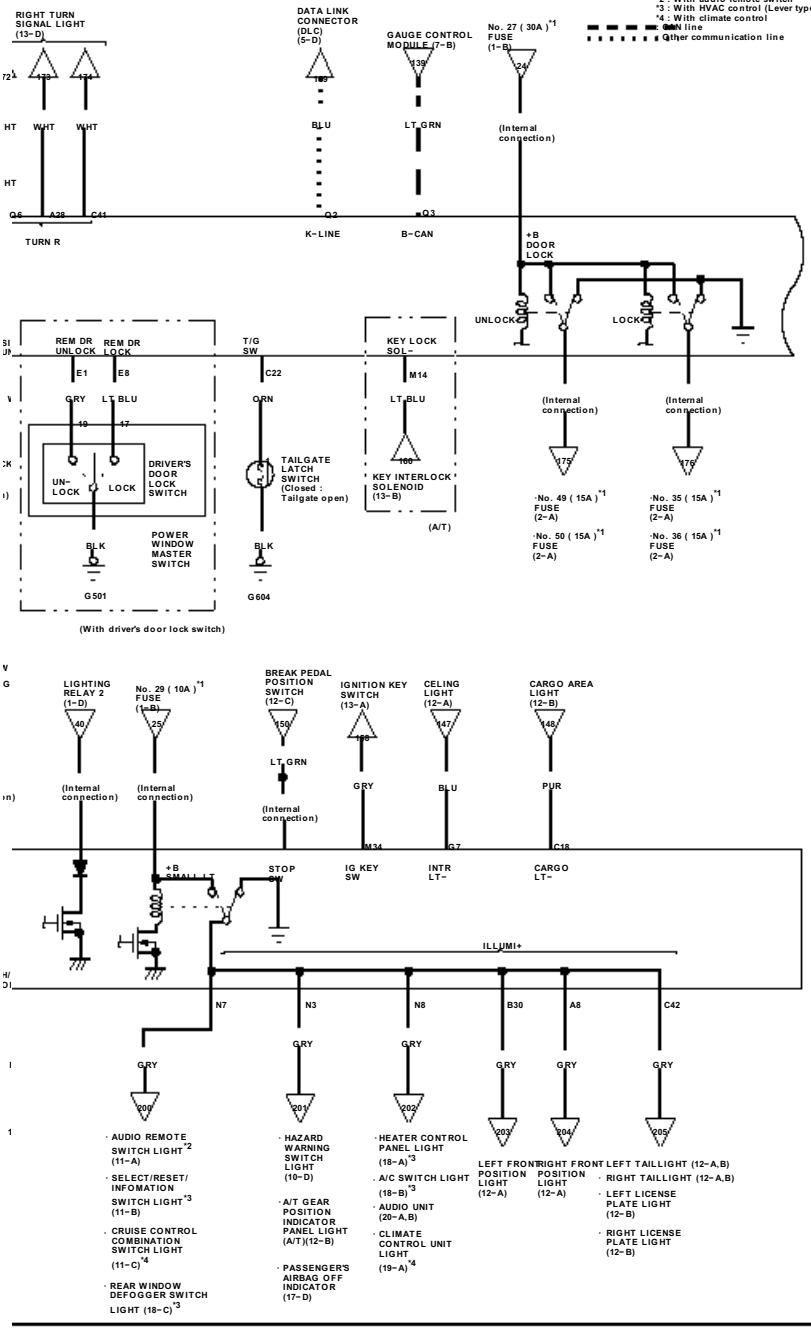


Wiring Diagram

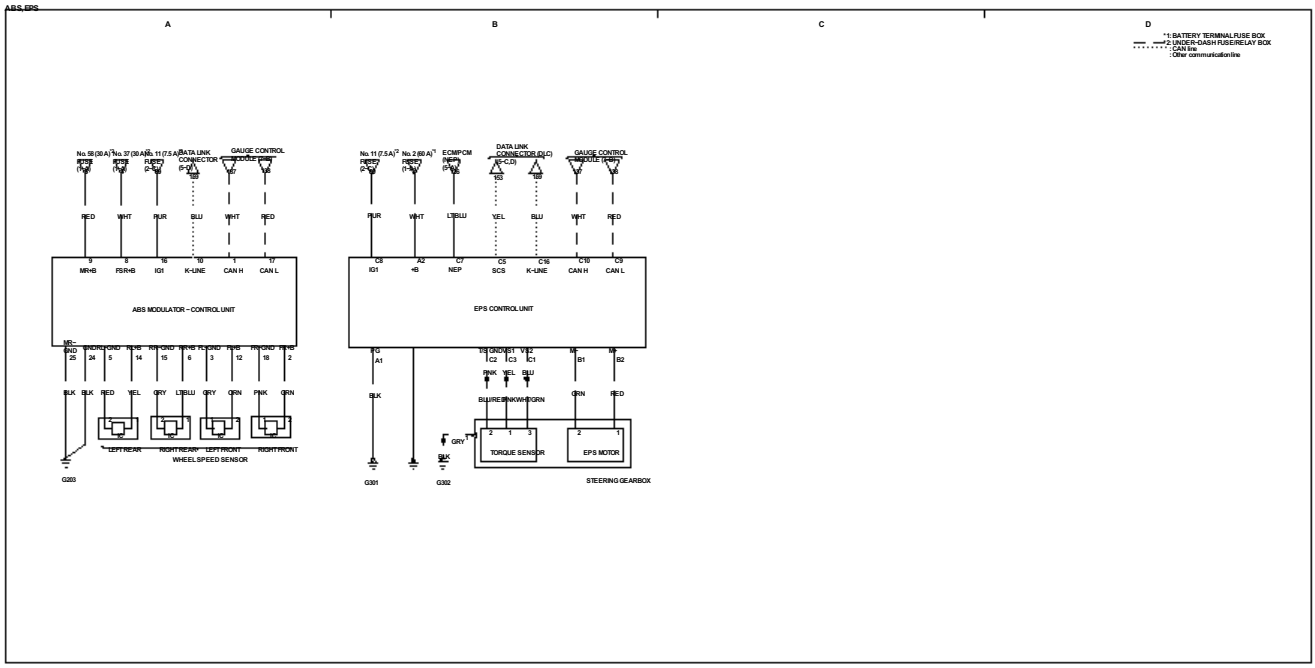


D

*1 : UNDER-DASH FUSE/RELAY BOX
*2 : With audio remote switch
*3 : With HVAC control (Lever type)
*4 : With climate control
CAN line
Other communication line



Wiring Diagram



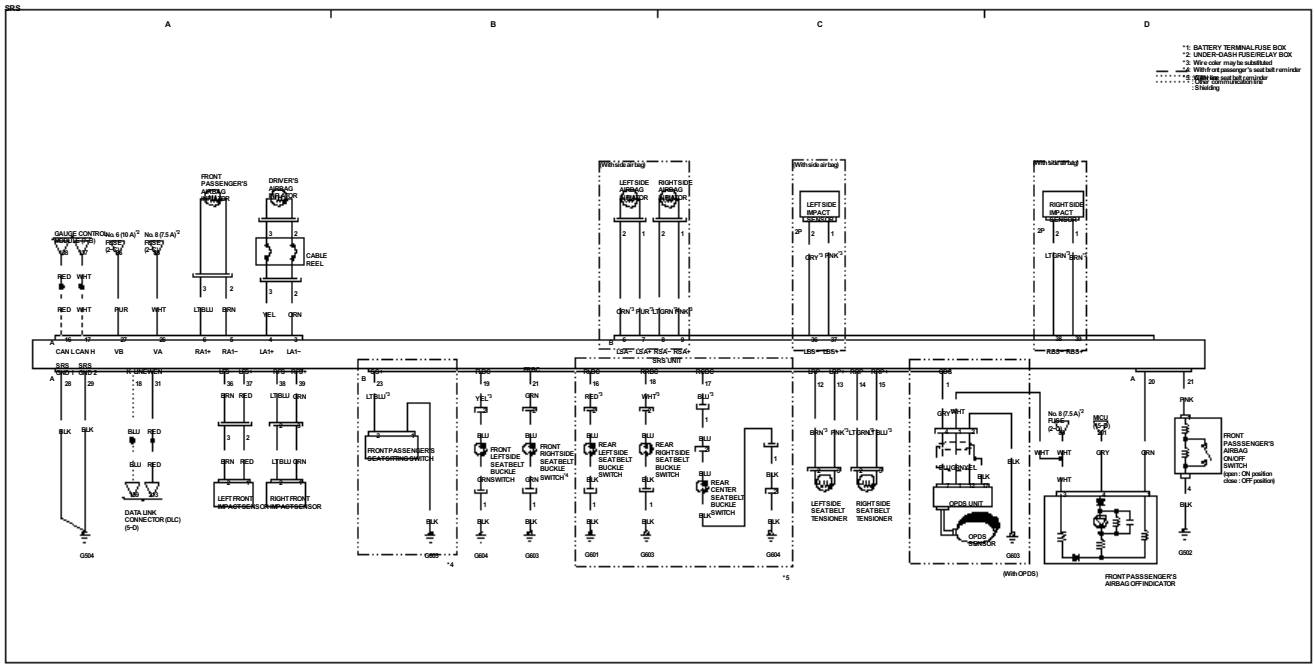
D

*1: BATTERY TERMINAL FUSE BOX
*2: UNDER−DASH FUSE/RELAY BOX

: CAN line
: Other communication line

16

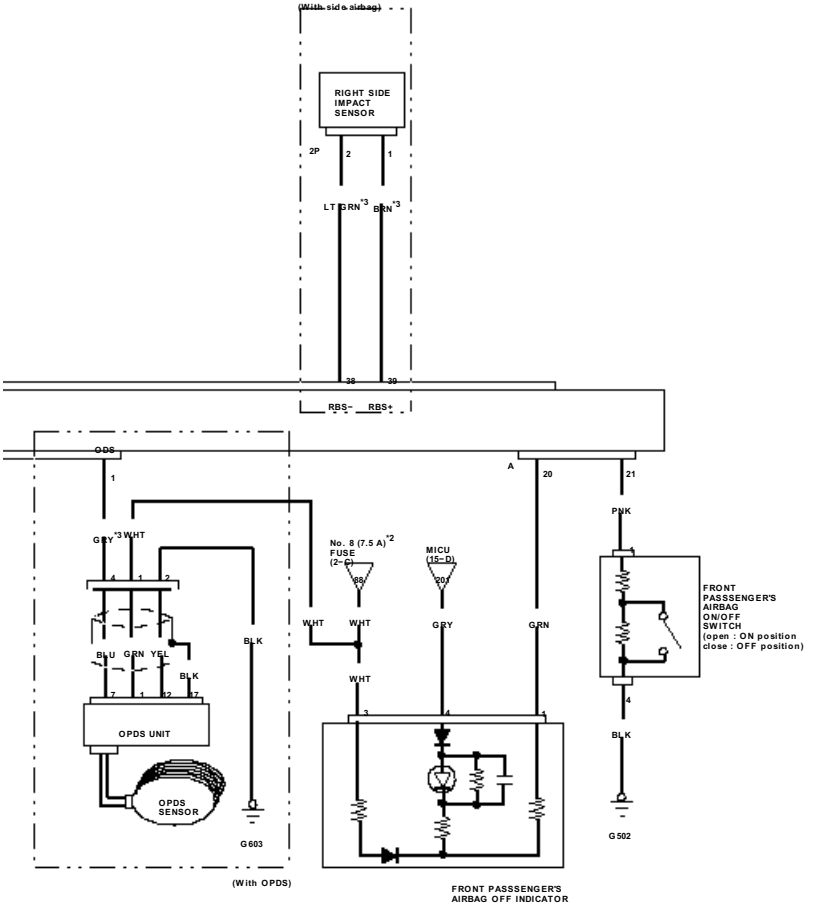
Wiring Diagram



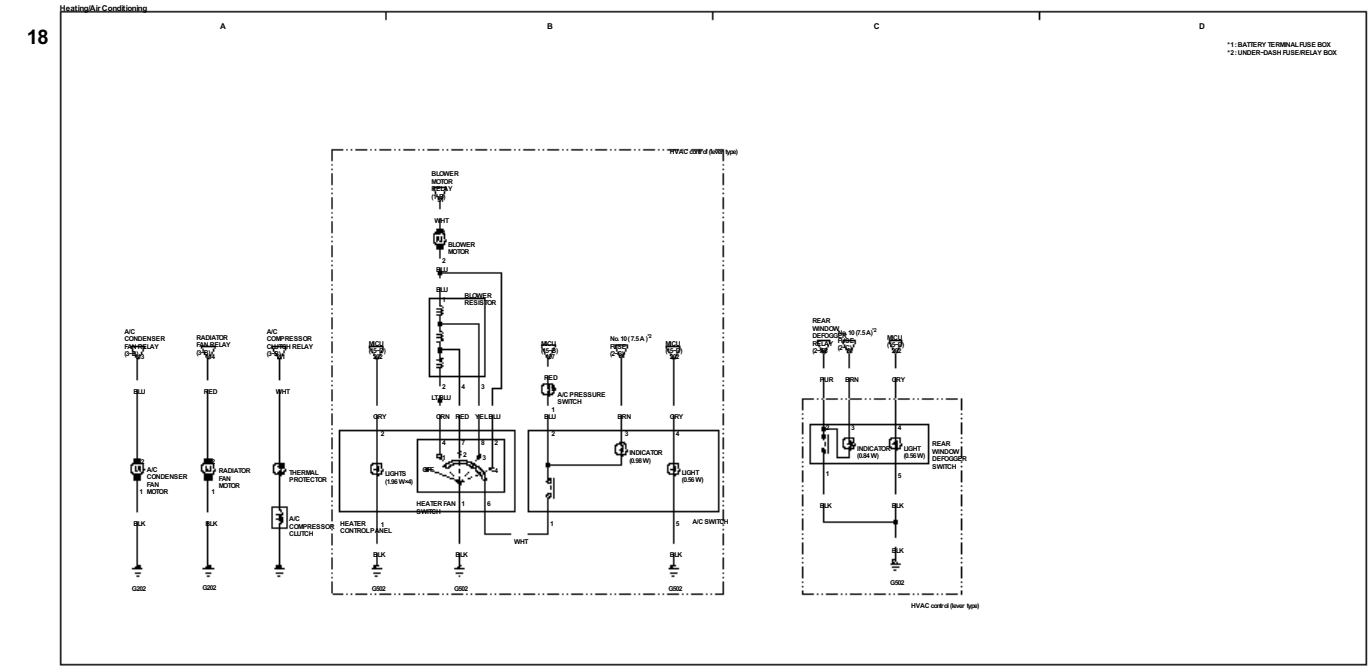
D

*1: BATTERY TERMINAL FUSE BOX
*2: UNDER−DASH FUSE/RELAY BOX
*3: Wire color may be substituted
*4: With front passenger's seat belt reminder
*5: With rear seat belt reminder

: CAN line
: Other communication line
: Shielding



Wiring Diagram



D

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX

18

W
IS

DW
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CH

ver type)

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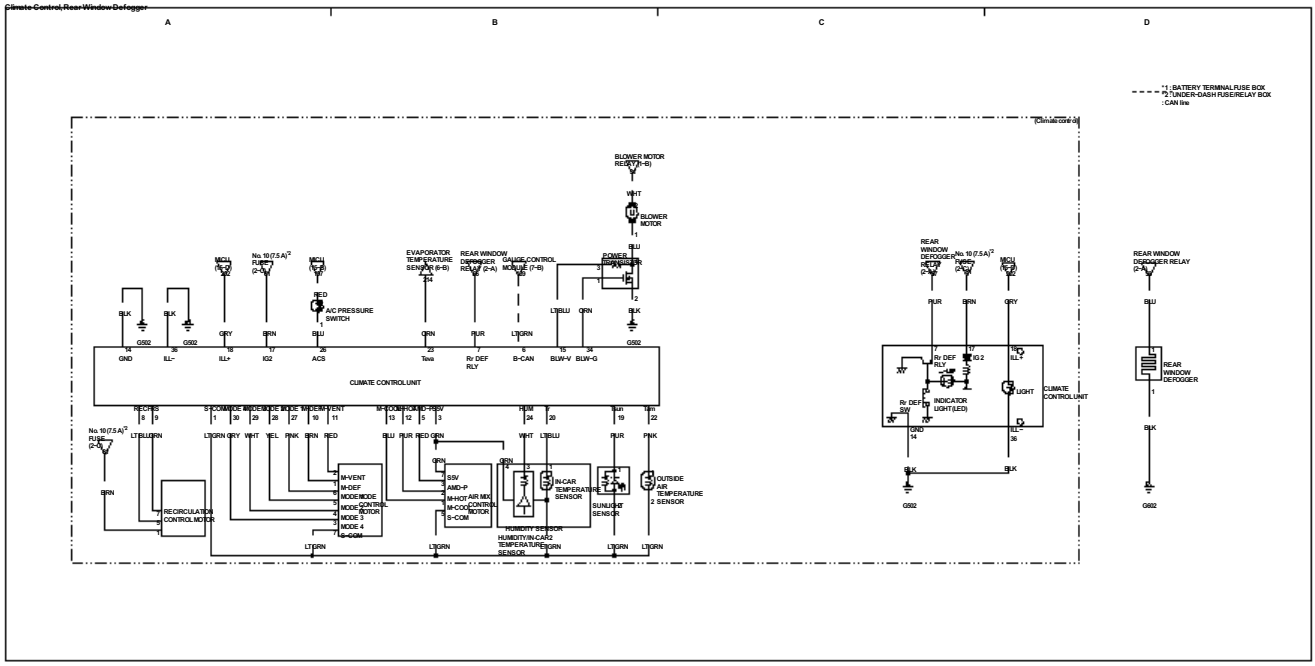
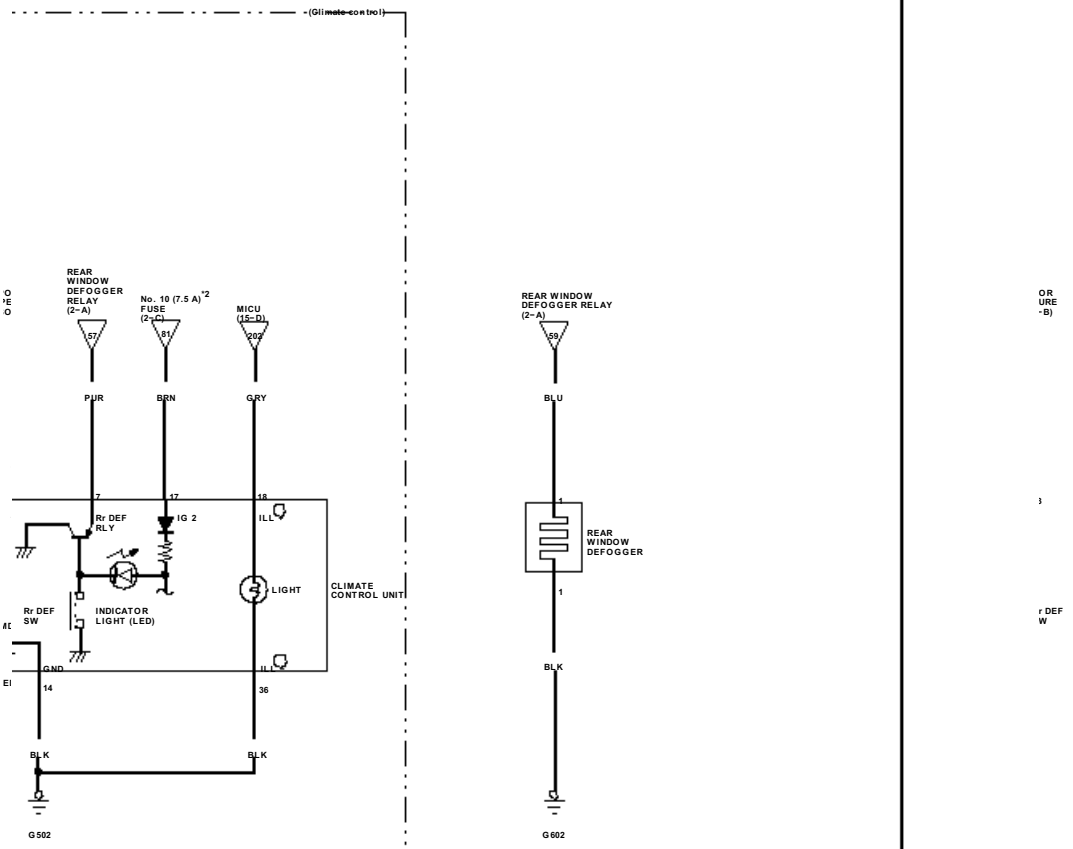
Wiring Diagram

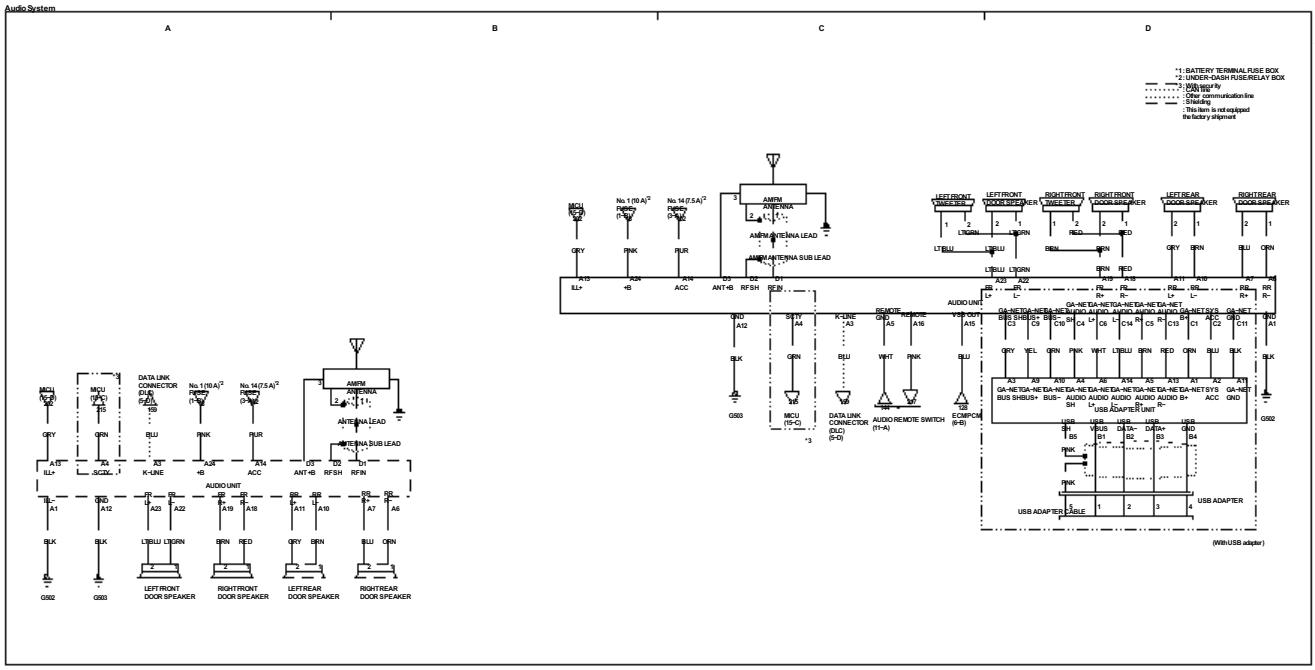


D

*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
: CAN line

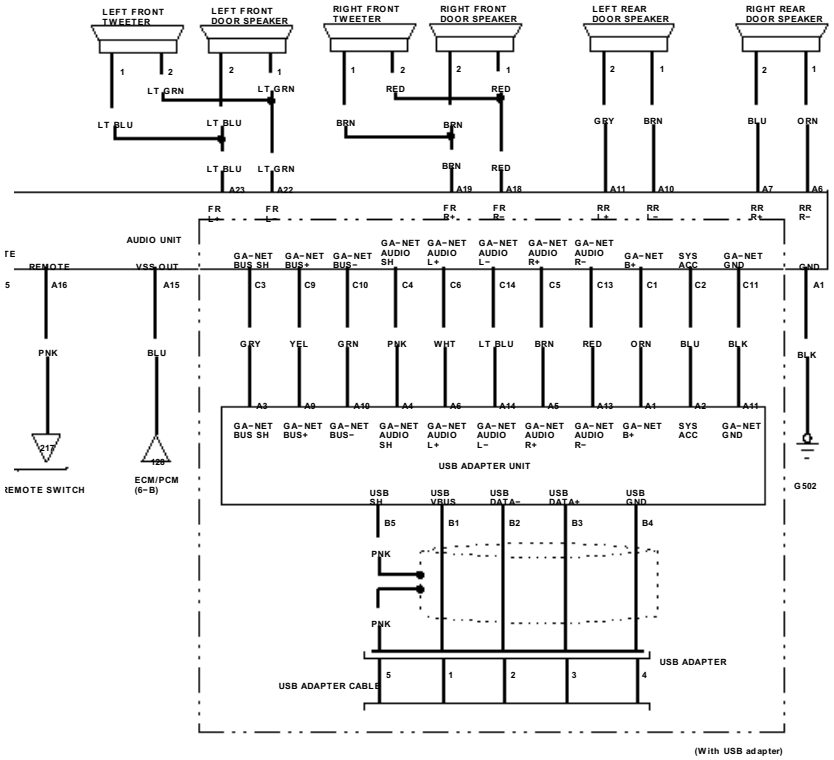


Wiring Diagram



*1 : BATTERY TERMINAL FUSE BOX
*2 : UNDER-DASH FUSE/RELAY BOX
*3 : With security

: CAN line
: Other communication line
: Shielding
: This item is not equipped the factory shipment



(With USB adapter)