

Mazda 3 Workshop Manual - General Information

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VIN

BK12F2*	100001
BK12Z2*	100001
BK12Z5*	100001
BK14F2*	100001
BK14Z2*	100001
BK14Z5*	100001

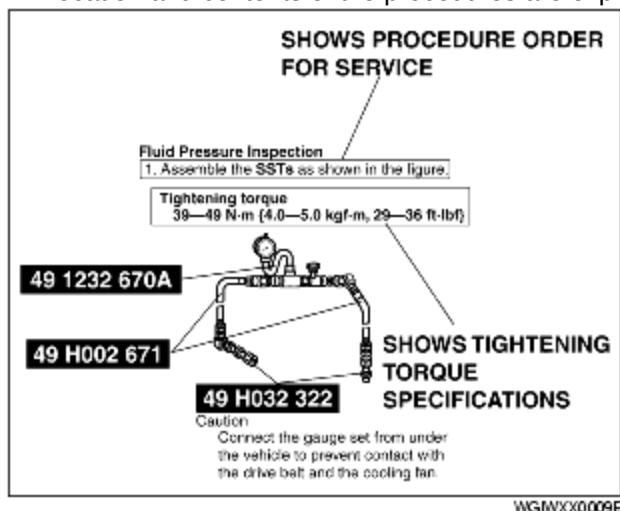
Range of Topics

- This manual contains procedures for performing all required service operations. The procedures are divided into the following five basic operations:
 - Removal/Installation
 - Disassembly/Assembly
 - Replacement
 - Inspection
 - Adjustment
- Simple operations which can be performed easily just by looking at the vehicle (i.e., removal/installation of parts, jacking, vehicle lifting, cleaning of parts, and visual inspection) have been omitted.

Service Procedure

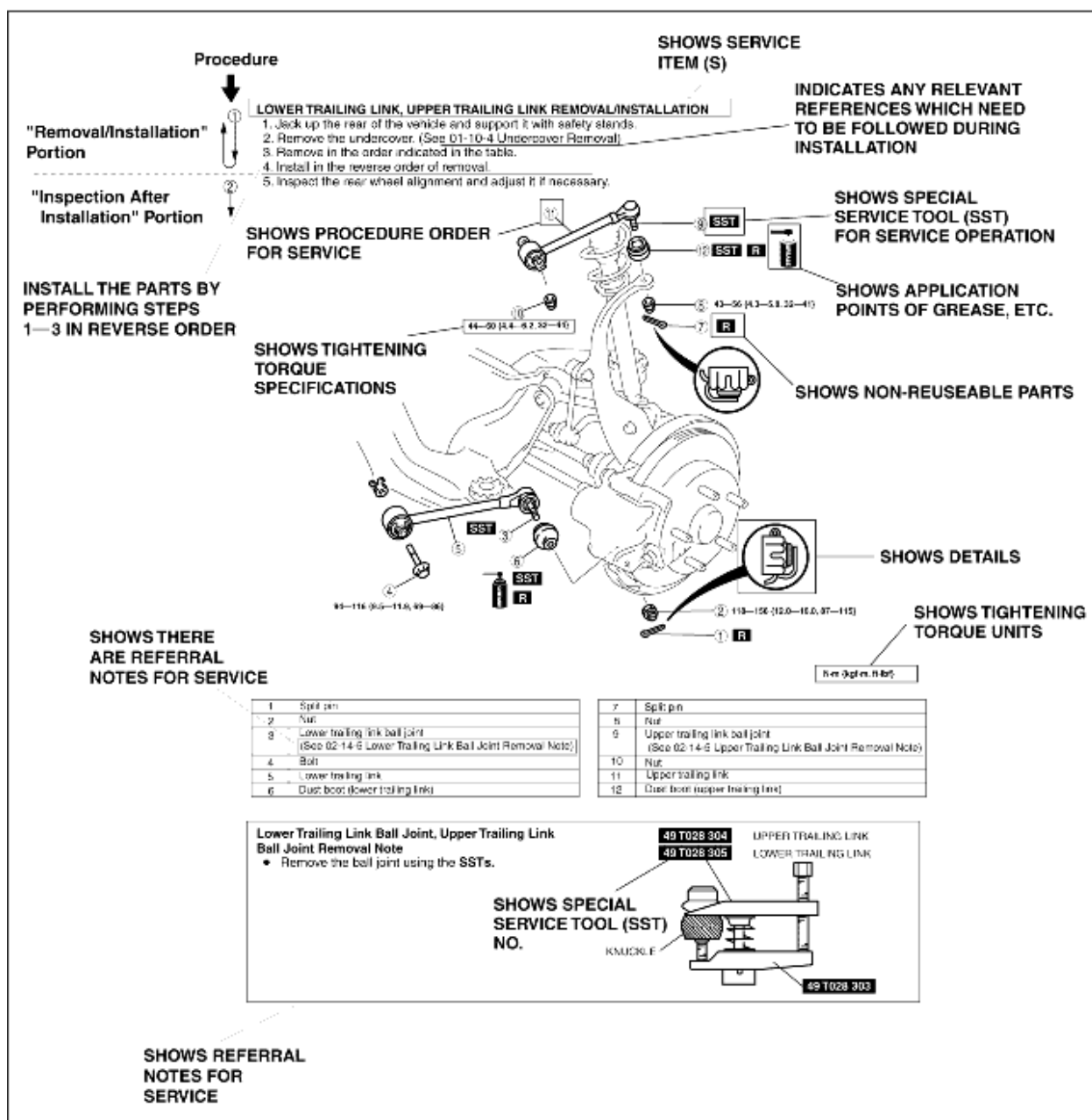
Inspection, adjustment

- Inspection and adjustment procedures are divided into steps. Important points regarding the location and contents of the procedures are explained in detail and shown in the illustrations.



Repair procedure

1. Most repair operations begin with an overview illustration. It identifies the components, shows how the parts fit together, and describes visual part inspection. However, only removal/installation procedures that need to be performed methodically have written instructions.
2. Expendable parts, tightening torques, and symbols for oil, grease, and sealant are shown in the overview illustration. In addition, symbols indicating parts requiring the use of special service tools or equivalent are also shown.
3. Procedure steps are numbered and the part that is the main point of that procedure is shown in the illustration with the corresponding number. Occasionally, there are important points or additional information concerning a procedure. Refer to this information when servicing the related part.



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Symbols

• There are eight symbols indicating oil, grease, fluids, sealant, and the use of **SST** or equivalent. These symbols show application points or use of these materials during service.

Symbol	Meaning	Kind
	Apply oil	New appropriate engine oil or gear oil
	Apply brake fluid	New appropriate brake fluid

	Apply automatic transaxle/transmission fluid	New appropriate automatic transaxle/transmission fluid
	Apply grease	Appropriate grease
	Apply sealant	Appropriate sealant
	Apply petroleum jelly	Appropriate petroleum jelly
	Replace part	O-ring, gasket, etc.
	Use SST or equivalent	Appropriate tools

Advisory Messages

- You will find several **Warnings**, **Cautions**, **Notes**, **Specifications** and **Upper and Lower Limits** in this manual.

Warning

- A Warning indicates a situation in which serious injury or death could result if the warning is ignored.

Caution

- A Caution indicates a situation in which damage to the vehicle or parts could result if the caution is ignored.

Note

- A Note provides added information that will help you to complete a particular procedure.

Specification

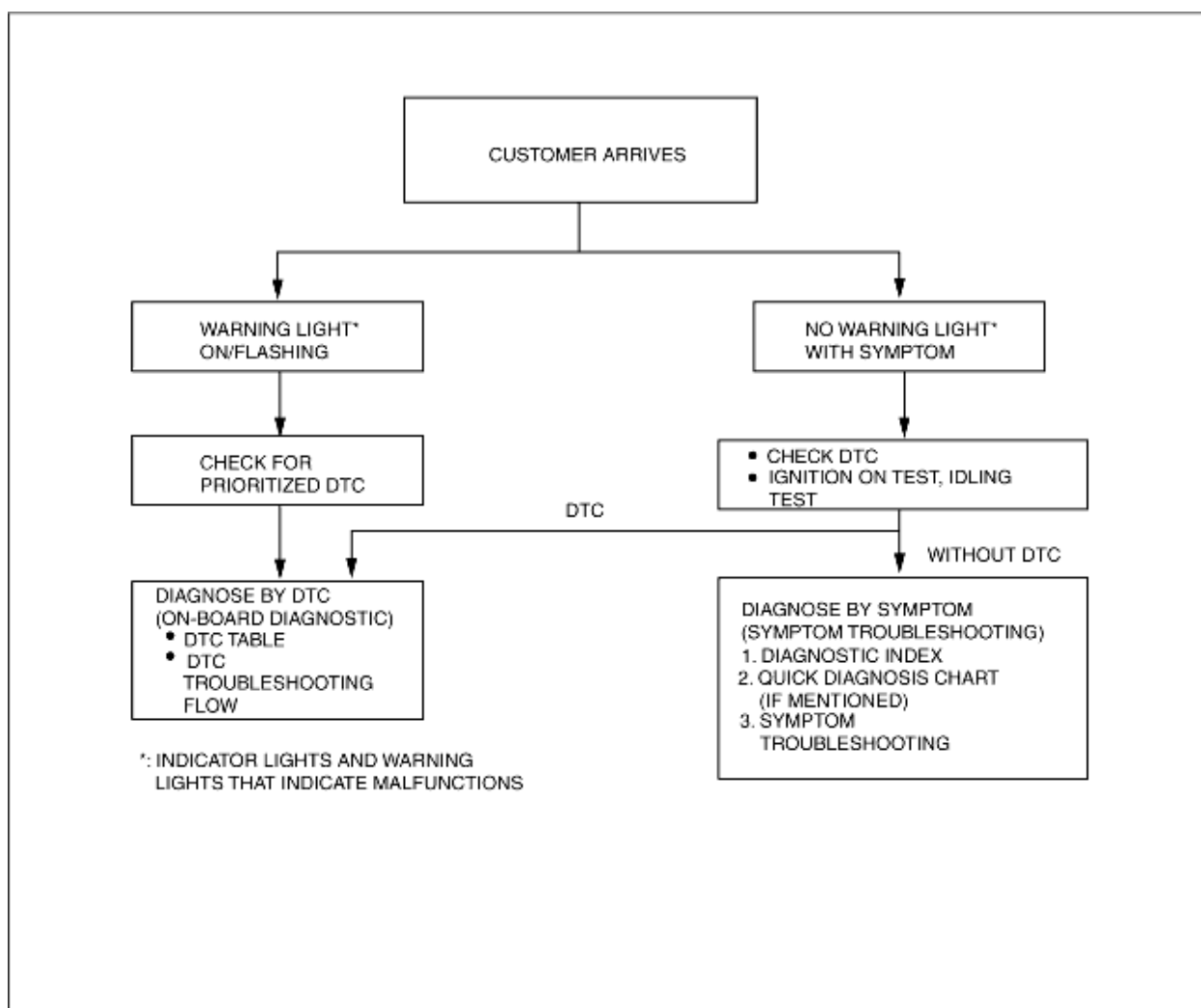
- The values indicate the allowable range when performing inspections or adjustments.

Upper and lower limits

- The values indicate the upper and lower limits that must not be exceeded when performing inspections or adjustments.

Troubleshooting Procedure

Basic flow of troubleshooting



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DTC troubleshooting flow (on-board diagnostic)

- Diagnostic trouble codes (DTCs) are important hints for repairing malfunctions that are difficult to simulate. Perform the specific DTC diagnostic inspection to quickly and accurately diagnose the malfunction.
- The on-board diagnostic function is used during inspection. When a DTC is shown specifying the cause of a malfunction, continue the diagnostic inspection according to the items indicated by the on-board diagnostic function.

Diagnostic index

- The diagnostic index lists the symptoms of specific malfunctions. Select the symptoms related or most closely relating to the malfunction.

Quick diagnosis chart (If mentioned)

- The quick diagnosis chart lists diagnosis and inspection procedures to be performed specifically relating to the cause of the malfunction.

Symptom troubleshooting

- Symptom troubleshooting quickly determines the location of the malfunction according to symptom type.

Procedures for Use

Using the basic inspection (section 05)

- Perform the basic inspection procedure before symptom troubleshooting.
- Perform each step in the order shown.
- The reference column lists the location of the detailed procedure for each basic inspection.
- Although inspections and adjustments are performed according to the reference column procedures, if the cause of the malfunction is discovered during basic inspection, continue the procedures as indicated in the action column.

SHOWS INSPECTION ORDER

SHOWS ITEM NAMES FOR DETAILED PROCEDURES

SHOW POINTS REQUIRING ATTENTION BASED ON INSPECTION RESULTS

AUTOMATIC TRANSAXLE BASIC INSPECTION

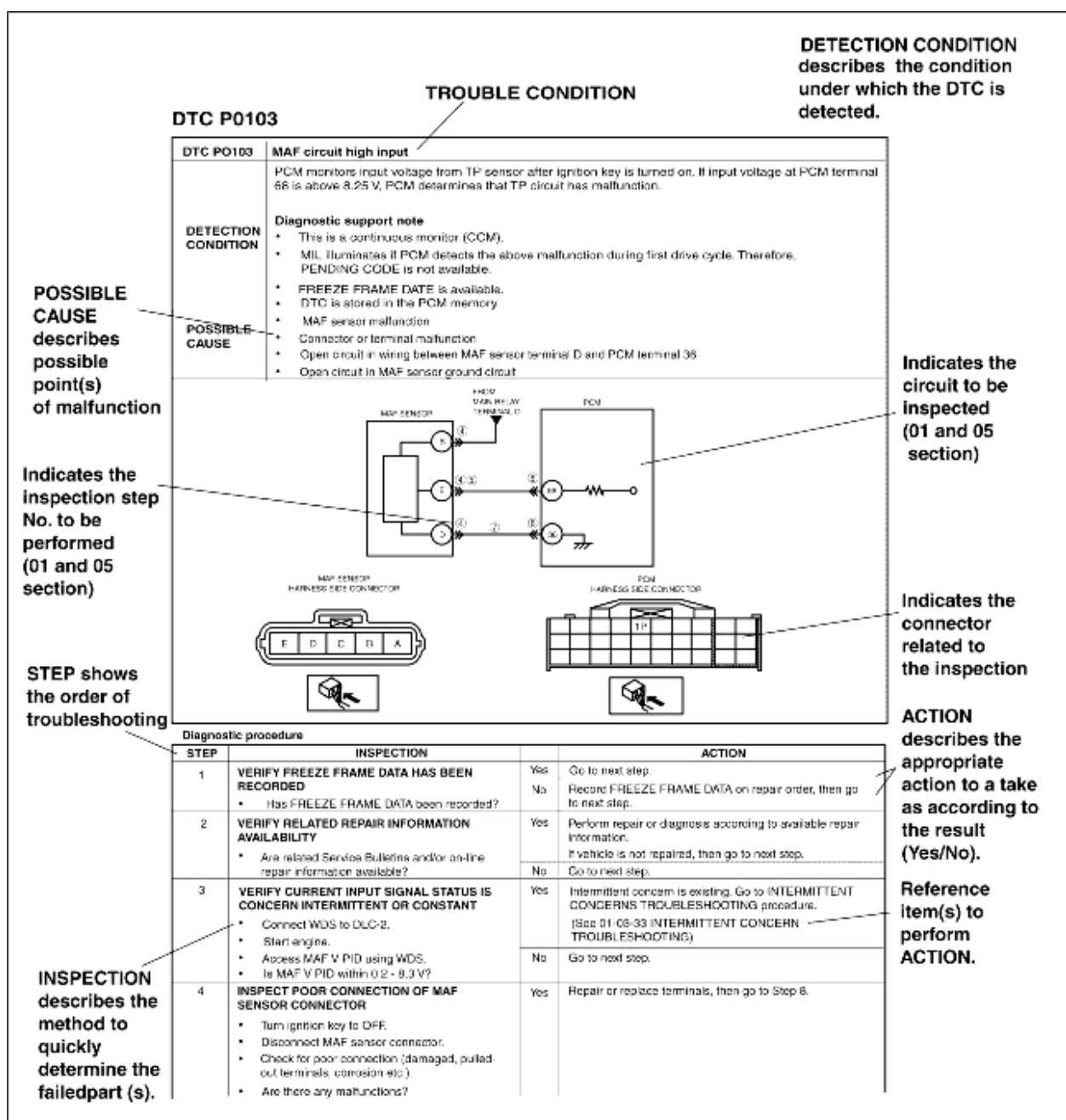
STEP	INSPECTION		ACTION
1	• Turn ignition switch is on. • Does O/D OFF indicator light (illuminate/go out) correspond to O/D OFF switch position (on/off)?	Yes No	Go to next step. Perform symptom troubleshooting No.26 "O/D OFF indicator light does not illuminate when O/D OFF switch is turned to on", or No.27 "O/D OFF indicator light illuminates when O/D OFF switch is not turned to on"
2	• Turn ignition switch is on. • When selector lever is moved, are selector lever position and indicator aligned? Also, when other ranges are selected from N or P during idling, does vehicle creep within 1 to 2 seconds?	Yes No	Go to next step. Inspect selector lever. Repair or replace defective areas.
3	• Inspect the ATF color condition. (See 05-17-6 Automatic Transaxle Fluids (ATF) Condition Inspection) • Are ATF color and odor normal?	Yes No	Go to next step. Repair or replace any defective parts according to inspection result. Flush ATF and cooler line as necessary.
4	• Perform line pressure test. (See 05-17-2 Line Pressure Test) • Is line pressure okay?	Yes No	Go to next step. Adjust accelerator cable as necessary. Repair or replace any defective parts according to inspection result.
5	• Perform stall test. • Is stall speed is okay?	Yes No	Go to next step. Repair or replace defective parts according to inspection result.

REFERENCE COLUMN

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Using the DTC troubleshooting flow

- DTC troubleshooting flow shows diagnostic procedures, inspection methods, and proper action to take for each DTC.



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Using the diagnostic index

- The symptoms of the malfunctions are listed in the diagnostic index for symptom troubleshooting.

- The exact malfunction symptoms can be selected by following the index.

No.	TROUBLESHOOTING ITEM		DESCRIPTION	Page
1	Melting of main or other fuses		—	(See 01-03-6 MELT NO.1 MAIN OR OTHER FUSE)
2	MIL comes on		MIL is illuminated incorrectly.	(See 01-03-7 NO.2 MIL COMES ON)
3	Will not crank		Starter does not work	(See 01-03-8 NO. 3 WILL NOT CRANK)
4	Hard start/long crank/erratic start/erratic crank		Starter cranks engine at normal speed but engine requires excessive cranking time before starting.	(See 01-03-9 NO. 4 HARD START/ LONG CRANK/ERRATIC CRANK)
5	Engine stalls.	After start/idle	Engine stops unexpectedly at idle and/or after start.	(See 01-03-11 NO. 5 ENGINE-STALLS AFTER START/AT IDLE)
6	Crank normally but will not start		Starter cranks engine at normal speed but engine will not run.	(See 01-03-15 NO.6 CRANKS NORMALLY BUT WILL NOT START)
7	Slow return to idle		Engine takes more time than normal to return to idle speed.	(See 01-03-19 NO. 7 SLOW RERUN TO IDLE)
8	Engine runs rough/rotting		Engine speed fluctuates between specified idle speed and lower speed and engine shakes excessively.	(See 01-03-20 NO. 8 ENGINE RUNS ROUGH/ROLLING IDLE)
9	Fast idle/runs on		Engine speed continues at fast idle after warm-up. Engine runs after ignition key is turned to OFF.	(See 01-03-23 NO. 9 FAST IDLE/ RUNS ON)
10	Low idle/stalls during deceleration		Engine stops unexpectedly at beginning of deceleration or recovery from deceleration.	(See 01-03-24 NO. 10 LOW IDLE/ STALLS DURING DECELERATION)

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Using the quick diagnosis chart

- The chart lists the relation between the symptom and the cause of the malfunction.
- The chart is effective in quickly narrowing down the relation between symptom and cause of the malfunction. It also specifies the area of the common cause when multiple malfunction symptoms occur.
- The appropriate diagnostic inspection relating to malfunction cause as specified by the symptoms can be selected by looking down the diagnostic inspection column of the chart.

② PARTS WHICH MAY BE THE CAUSE OF PROBLEMS

SYMPTOM QUICK DIAGNOSTIC CHART

PART WHICH MAY BE THE SYMPTOM

① CHOOSE THE ACTUAL SYMPTOM

Possible factor		Starter motor malfunction (Mechanical or electrical)	Starter circuit including ignition switch open	Improper engine oil level	Low or dead battery	Charging system malfunction	Improper engine compression	Improper valve timing	Hydrolocked engine	Improper engine oil viscosity	Improper oilpuck	Basic engine malfunction	Drive plate or flywheel seized	Improper lens on or damaged drive belts	Improper engine coolant level	Water and air passage mixture improperly	Cooling system malfunction (fluid level, hoses, overflow system, thermostat, etc.)	Cooling fan system malfunction	Engine or transaxle mounts improperly installed	Cooling fan or condenser fan seal improperly	Accelerator cable free play mis-adjustment	Fuel quality
Troubleshooting item																						
1	Melts of main or other fuse																					
2	MIL comes on																					
3	Will not crank	x	x		x	x				x				x								
4	Hard to start/long crank/erratic start/erratic crank																					x
5	Engine stalls After start/idle							x	x	x												x
6	Cranks normally but will not start							x	x	x												x
7	Slow return to idle																	x				
8	Engine runs rough/rolling idle							x	x													x
9	Fast idle/revs on																				x	
10	Low idle/stalls during deceleration																					
11	Engine stalls/cuts							x	x													x
	Engine runs rough							x	x													x
	Misses							x	x													x
	Back/jerk							x	x													x
	Hesitation/stumble							x	x													x
	Surges							x	x													x
12	Lack/loss of power							x	x													x
13	Knocking/pinging							x										x				
14	Poor fuel economy							x	x							x	x	x				x
15	Emissions compliance							x	x													
16	High oil consumption/leakage									x	x	x										
17	Cooling system concerns Overheating														x	x	x	x				
18	Cooling system concerns Runs cold																		x	x		
19	Exhaust smoke												x					x				
20	Fuel odor (in engine compartment)																					
21	Engine noise		x									x		x								
22	Vibration concerns (engine)												x							x		
23	A/C does not work sufficiently																					
24	A/C always on/ A/C compressor runs continuously																					
25	A/C does not cut off under wide open throttle conditions																					
26	Exhaust sulphur smell																					x
27	Fuel refill concerns																					
28	Fuel filling shut off issues																					
29	Intermittent concerns				x																	
30	Constant voltage																					
31	Spark plug condition							x		x	x					x						x
32	Automatic transaxle concerns																					
	Upshift/downshift/engagement																					

(See 05-01 AUTOMATIC TRANSAXLE SYMPTOM TROUBLESHOOTING)

Using the symptom troubleshooting

- Symptom troubleshooting shows diagnostic procedures, inspection methods, and proper action to take for each trouble symptom.

Take note for each trouble symptom.

DESCRIPTION
describes what
kind of **TROUBLE**
SYMPTOM

TROUBLE SYMPTOM

POSSIBLE CAUSE
describes
possible
point of
malfunction

STEP shows
the order of
troubleshooting.

Reference
item (s) for
additional
information to
perform
INSPECTION.

INSPECTION
describes the
method to
quickly
determine the
failed part.

ACTION
describes
the appropriate
action to take
as a result
(YES/NO) of
INSPECTION.

How to
perform
ACTION is
described in
the relative
material
shown.

Reference
item(s) to
perform
ACTION.

14	Engine flares up or slips when upshifting or down shifting - When accelerator pedal is depressed for driveway, engine speed increase but vehicle speed increase slowly. - When accelerator is depressed while driving, engine speed increases but vehicle not. - There is clutch slip because clutch is stuck or line pressure is low. - Clutch stuck, slippage (forward clutch, 3-4 clutch, 2-4 brake band, one-way clutch 1, one-way clutch 2) - Line pressure low - Malfunction or mis-adjustment of TP sensor - Malfunction of VSS - Malfunction of input/turbine speed sensor - Malfunction of sensor ground - Malfunction of shift solenoid A, B or C - Malfunction of TCC solenoid valve - Malfunction of body ground - Malfunction of throttle cable - Malfunction of throttle valve body - Poor operating of mechanical pressure - Selector lever position disparity - TR switch position disparity Note - Before following troubleshooting steps, make sure that Automatic Transaxle On-board Diagnostic and Automatic Transaxle Basic Inspection are conducted.
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Diagnostic procedure			
STEP	INSPECTION		ACTION
1	Is line pressure okay?	Yes No	Go to next step. Repair or replace any defective parts according to inspection results.
2	Is shift point okay? (See 05-17-5 ROAD TEST)	Yes No	Go to next step. Go to symptom troubleshooting No.9 "Abnormal shift".
3	- Stop engine and turn ignition switch on. - Connect WDS to DLC-2. - Simulate SHIFT A, SHIFT B and SHIFT C PIDs for ON. - Is operating sound of shift solenoids heard?	Yes No	- Overhaul control valve body and repair or replace any defective parts. (See ATX Workshop Manual 3F4A-EL (1666-1A-99F)) - If problem remains, replace or overhaul transaxle and repair or replace defective parts. (See 05-17-15 AUTOMATIC TRANSAXLE REMOVE/INSTALLATION) - Inspect for bend, damage, corrosion or loose connection if shift solenoid A, B, or C terminal on ATX. - Inspect for shift solenoid mechanical stuck. (See 05-17-14 Inspection of Operation) - If shift solenoids are okay, inspect for open or short circuit between PCM connector terminal A, B or C.
4	- Verify test results. - If okay, return to diagnostic index to service any additional symptoms. - If malfunction remains, inspect related Service Bulletins and/or On-line Repair Information and perform repair or diagnosis. - If vehicle is repaired, troubleshooting completed. - If vehicle is not repaired or additional diagnostic information is not available, replace or reprogram PCM.		

Electric current	A (ampere)
Electric power	W (watt)
Electric resistance	ohm
Electric voltage	V (volt)
Length	mm (millimeter)
	in (inch)
Negative pressure	kPa (kilo pascal)
	mmHg (millimeters of mercury)
	inHg (inches of mercury)
Positive pressure	kPa (kilo pascal)
	kgf/cm ² (kilogram force per square centimeter)
	psi (pounds per square inch)
Number of revolutions	rpm (revolutions per minute)
Torque	N·m (Newton meter)
	kgf·m (kilogram force meter)
	kgf·cm (kilogram force centimeter)
	ft·lbf (foot pound force)
	in·lbf (inch pound force)
Volume	L (liter)
	US qt (U.S. quart)
	Imp qt (Imperial quart)
	ml (milliliter)
	cc (cubic centimeter)
	cu in (cubic inch)
	fl oz (fluid ounce)
Weight	g (gram)

	oz (ounce)
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Conversion to SI Units (Système International d'Units)

- All numerical values in this manual are based on SI units. Numbers shown in conventional units are converted from these values.

Rounding Off

- Converted values are rounded off to the same number of places as the SI unit value. For example, if the SI unit value is 17.2 and the value after conversion is 37.84, the converted value will be rounded off to 37.8.

Upper and Lower Limits

- When the data indicates upper and lower limits, the converted values are rounded down if the SI unit value is an upper limit and rounded up if the SI unit value is a lower limit. Therefore, converted values for the same SI unit value may differ after conversion. For example, consider 2.7 kgf/cm² in the following specifications:

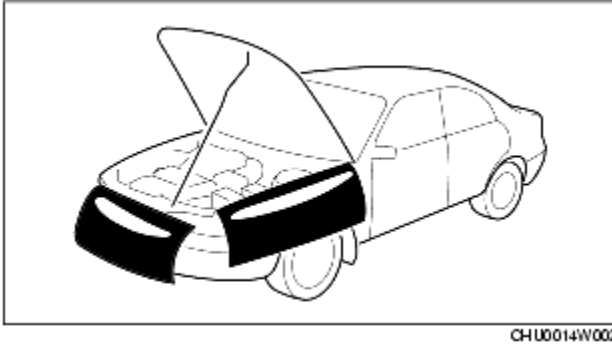
210-260 kPa {2.1-2.7 kgf/cm², 30-38 psi}

270-310 kPa {2.7-3.2 kgf/cm², 39-45 psi}

- The actual converted values for 2.7 kgf/cm² are 264 kPa and 38.4 psi. In the first specification, 2.7 is used as an upper limit, so the converted values are rounded down to 260 and 38. In the second specification, 2.7 is used as a lower limit, so the converted values are rounded up to 270 and 39.

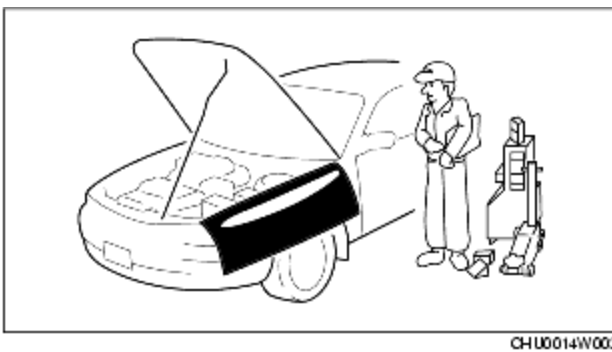
Protection of the Vehicle

- Always be sure to cover fenders, seats and floor areas before starting work.



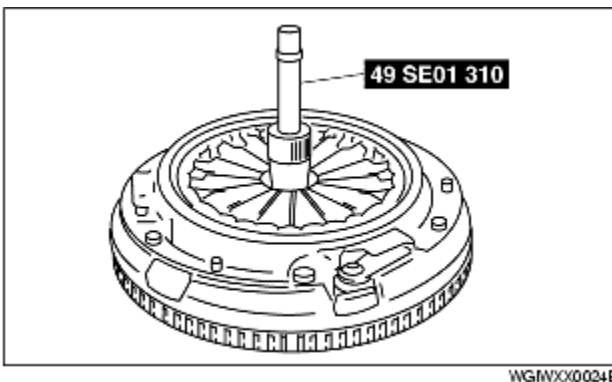
Preparation of Tools and Measuring Equipment

- Be sure that all necessary tools and measuring equipment are available before starting any work.



Special Service Tools

- Use special service tools or equivalent when they are required.



Disconnection of the Negative Battery Cable

- Before beginning any work, turn the ignition switch to LOCK position, then disconnect the negative battery cable and wait for more than 1 min. to allow the backup power supply of the SAS control module

to deplete its stored power. Disconnecting the battery cable will delete the memories of the clock, audio, and DTCs, etc. Therefore, it is necessary to verify those memories before disconnecting the cable.

- If the battery had been disconnected during vehicle maintenance or for other reasons, the window will not fully close automatically. Carry out the power window each switch initial setting. (See [POWER WINDOW SYSTEM INITIAL SETTING](#).)

Oil Leakage Inspection

- Use either of the following procedures to identify the type of oil that is leaking:

Using UV light (black light)

1. Remove any oil on the engine or transaxle.

Note

- Referring to the fluorescent dye instruction manual, mix the specified amount of dye into the engine oil or ATF (or transaxle oil).

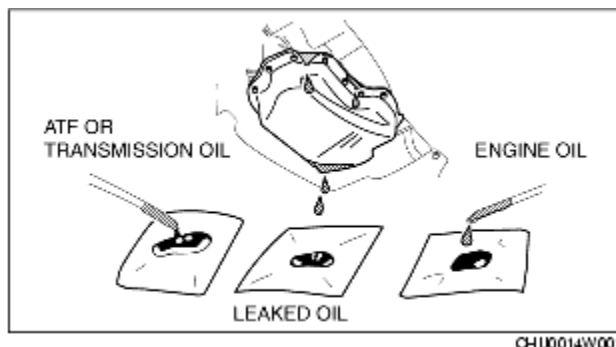
2. Pour the fluorescent dye into the engine oil or ATF (or transaxle oil).
3. Allow the engine to run for 30 min.
4. Inspect for dye leakage by irradiating with UV light (black light), and identify the type of oil that is leaking.
5. If no dye leakage is found, allow the engine to run for another 30 min. or drive the vehicle then reinspect.
6. Find where the oil is leaking from, then make necessary repairs.

Note

- To determine whether it is necessary to replace the oil after adding the fluorescent dye, refer to the fluorescent dye instruction manual.

Not using UV light (black light)

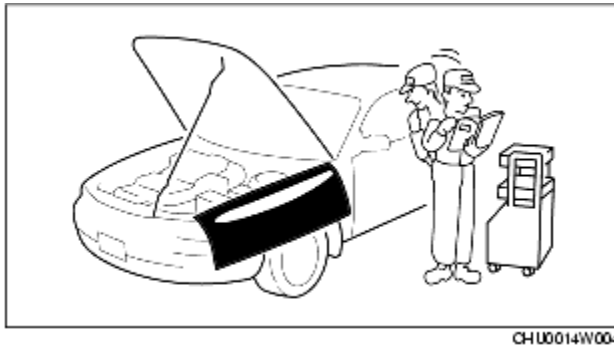
1. Gather some of the leaking oil using an absorbent white tissue.
2. Take samples of engine oil and ATF (or transaxle oil), both from the dipstick, and place them next to the leaked oil already gathered on the tissue.
3. Compare the appearance and smell, and identify the type of oil that is leaking.



4. Remove any oil on the engine or transaxle.
5. Allow the engine to run for 30 min.
6. Check the area where the oil is leaking, then make necessary repairs.

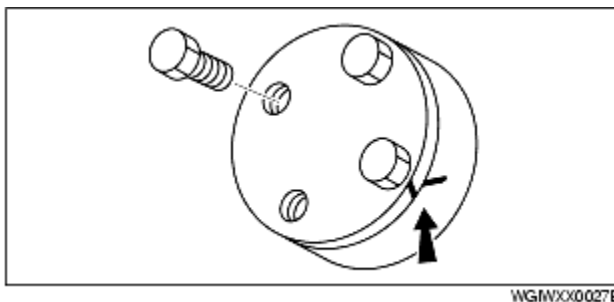
Removal of Parts

- While correcting a problem, also try to determine its cause. Begin work only after first learning which parts and subassemblies must be removed and disassembled for replacement or repair. After removing the part, plug all holes and ports to prevent foreign material from entering.



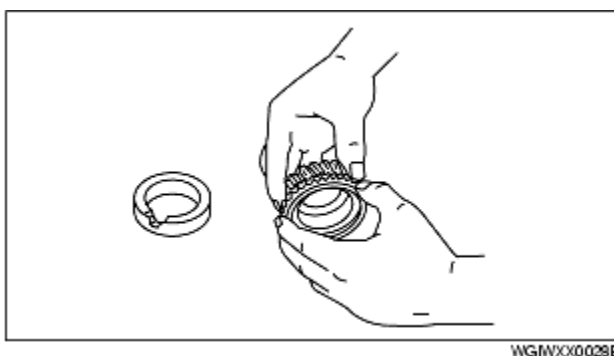
Disassembly

- If the disassembly procedure is complex, requiring many parts to be disassembled, all parts should be marked in a place that will not affect their performance or external appearance and identified so that reassembly can be performed easily and efficiently.



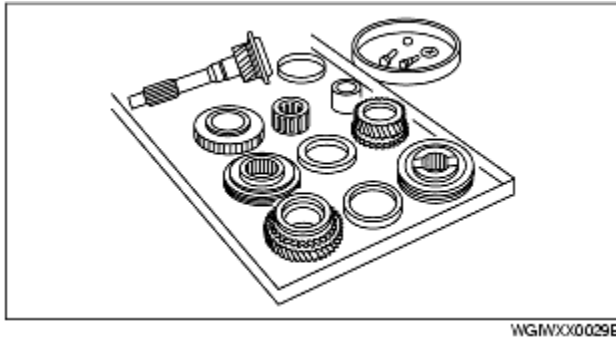
Inspection During Removal, Disassembly

- When removed, each part should be carefully inspected for malfunction, deformation, damage and other problems.



Arrangement of Parts

- All disassembled parts should be carefully arranged for reassembly.



- Be sure to separate or otherwise identify the parts to be replaced from those that will be reused.

Cleaning of Parts

- All parts to be reused should be carefully and thoroughly cleaned in the appropriate method.

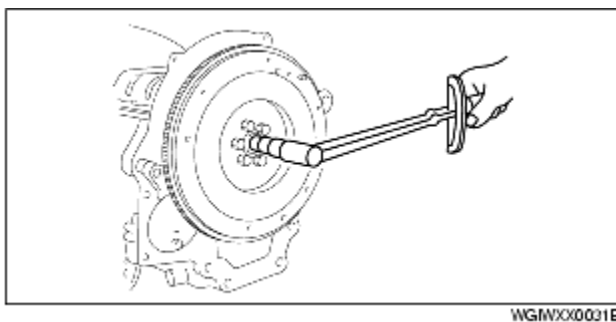


Warning

- Using compressed air can cause dirt and other particles to fly out causing injury to the eyes. Wear protective eye wear whenever using compressed air.

Reassembly

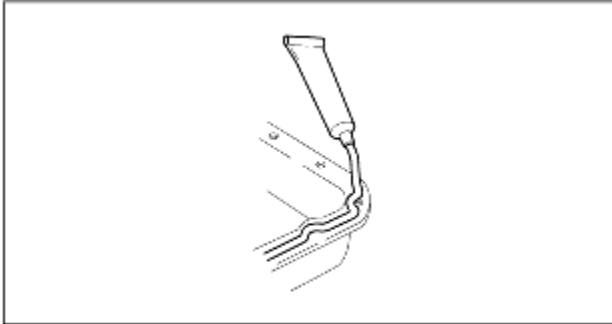
- Standard values, such as torques and certain adjustments, must be strictly observed in the reassembly of all parts.



- If removed, the following parts should be replaced with new ones:

- Oil seals

- Gaskets
 - O-rings
 - Lock washers
 - Cotter pins
 - Nylon nuts
- Depending on location:



- Sealant and gaskets, or both, should be applied to specified locations. When sealant is applied, parts should be installed before sealant hardens to prevent leakage.
- Oil should be applied to the moving components of parts.
- Specified oil or grease should be applied at the prescribed locations (such as oil seals) before reassembly.

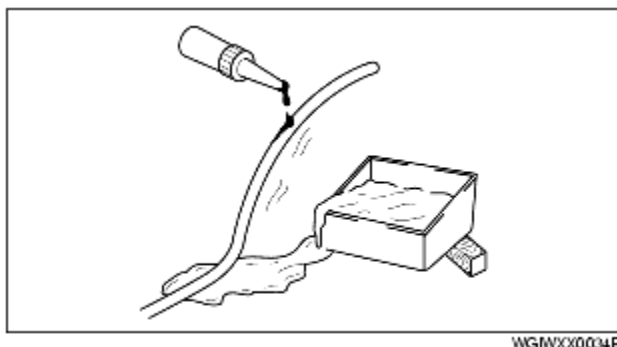
Adjustment

- Use suitable gauges and testers when making adjustments.



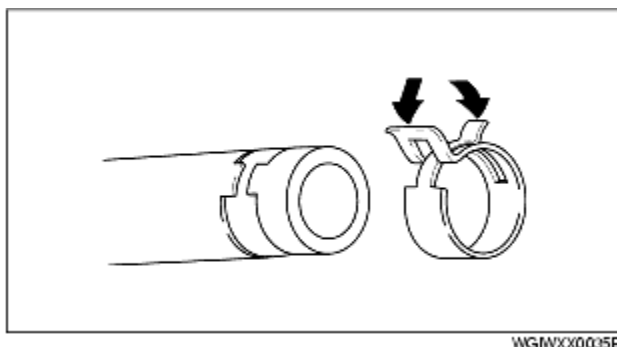
Rubber Parts and Tubing

- Prevent gasoline or oil from getting on rubber parts or tubing.



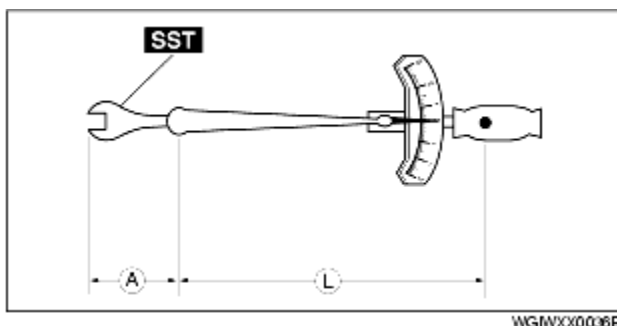
Hose Clamps

- When reinstalling, position the hose clamp in the original location on the hose and squeeze the clamp lightly with large pliers to ensure a good fit.



Torque Formulas

- When using a torque wrench-**SST** or equivalent combination, the written torque must be recalculated due to the extra length that the **SST** or equivalent adds to the torque wrench. Recalculate the torque by using the following formulas. Choose the formula that applies to you.



Torque Unit	Formula
N·m	$N \cdot m \times [L/(L+A)]$
kgf·m	$kgf \cdot m \times [L/(L+A)]$
kgf·cm	$kgf \cdot cm \times [L/(L+A)]$
ft·lbf	$ft \cdot lbf \times [L/(L+A)]$
in·lbf	$in \cdot lbf \times [L/(L+A)]$

A :

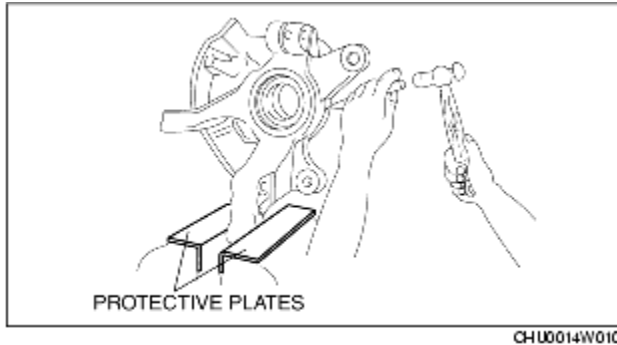
The length of the **SST** past the torque wrench drive.

L :

The length of the torque wrench.

Vise

- When using a vise, put protective plates in the jaws of the vise to prevent damage to parts.



Dynamometer

- When inspecting and servicing the power train on the dynamometer or speed meter tester, pay attention to the following:

- Place a fan, preferably a vehicle-speed proportional type, in front of the vehicle.
- Make sure the vehicle is in a facility with an exhaust gas ventilation system.
- Since the rear bumper might deform from the heat, cool the rear with a fan. (Surface of the bumper must be below **70°C {158°F} degrees.**)
- Keep the area around the vehicle uncluttered so that heat does not build up.
- Watch the water temperature gauge and don't overheat the engine.
- Avoid added load to the engine and maintain normal driving conditions as much as possible.

Note

- When only the front or rear wheels are rotated on a chassis dynamometer or equivalent, the DSC CM determines that there is a malfunction in the DSC and illuminates the following lights:
 - Vehicles with DSC
 - ABS warning light
 - Brake system warning light
 - DSC indicator light
- If the above lights are illuminated, dismount the vehicle from the chassis dynamometer and turn the ignition switch to the LOCK position. Then, turn the ignition switch back to the ON position, run the vehicle at 10 km/h or more and verify that the warning lights go out. In this case, a DTC will be stored in the memory. Clear the DTC from the memory by following the memory clearing procedure [DSC] in the on-board diagnostic system. (See [ON-BOARD DIAGNOSIS \[DSC \(DYNAMIC STABILITY CONTROL\)\]](#))

INSTALLATION OF RADIO SYSTEM

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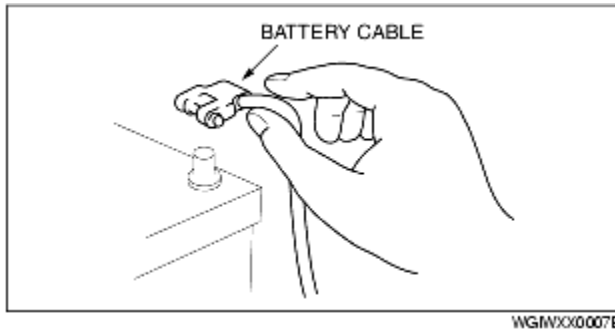
• If a radio system is installed improperly or if a high-powered type is used, the CIS and other systems may be affected. When the vehicle is to be equipped with a radio, observe the following precautions:

- Install the antenna at the farthest point from control modules.
- Install the antenna feeder as far as possible from the control module harnesses.
- Ensure that the antenna and feeder are properly adjusted.
- Do not install a high-powered radio system.

Electrical Parts

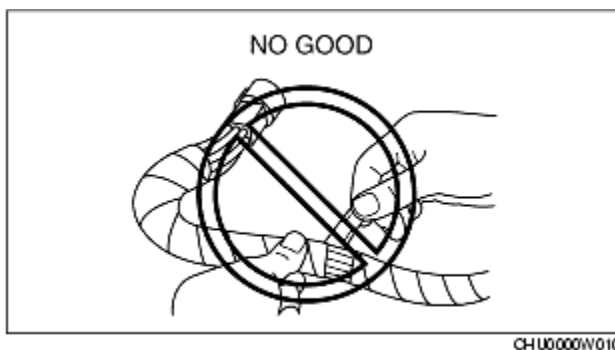
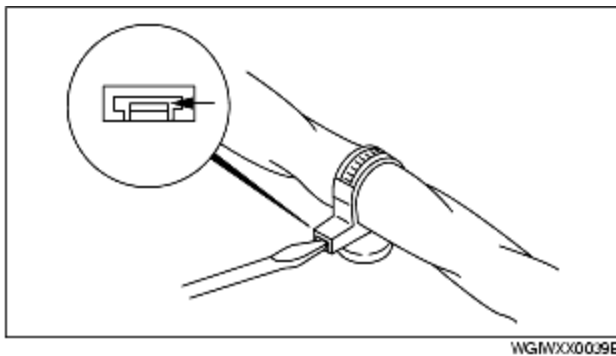
Battery cable

- Before disconnecting connectors or removing electrical parts, disconnect the negative battery cable.



Wiring harness

- To remove the wiring harness from the clip in the engine room, pry up the hook of the clip using a flathead screwdriver.



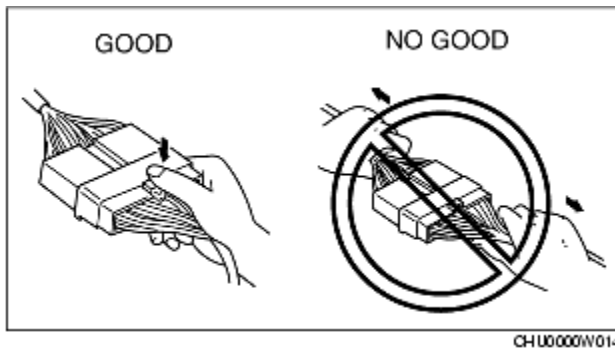
Caution

- Do not remove the harness protective tape. Otherwise, the wires could rub against the body, which could result in water penetration and electrical shorting.

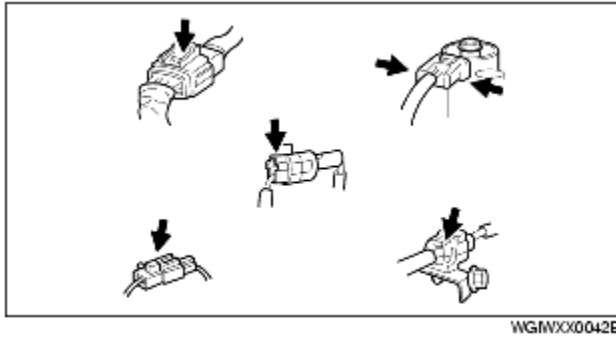
Connectors

Disconnecting connectors

- When disconnecting connector, grasp the connectors, not the wires.

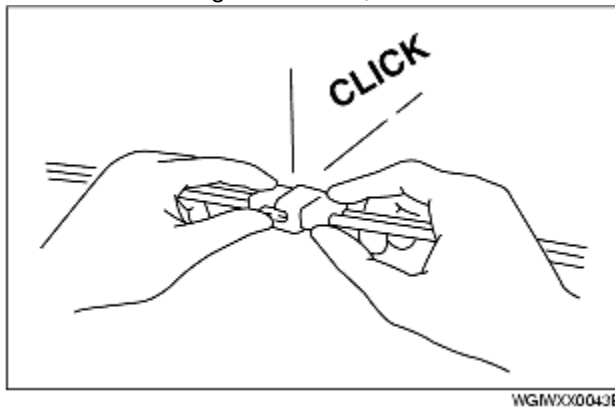


- Connectors can be disconnected by pressing or pulling the lock lever as shown.



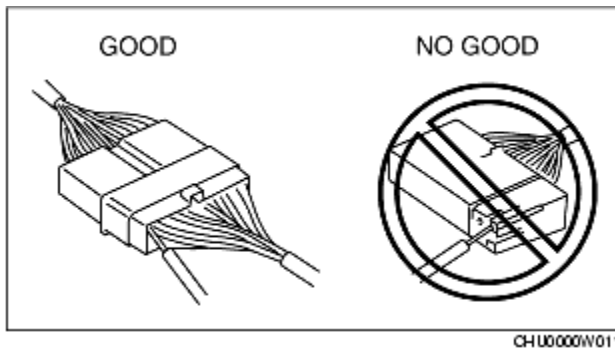
Locking connector

- When locking connectors, listen for a click indicating they are securely locked.

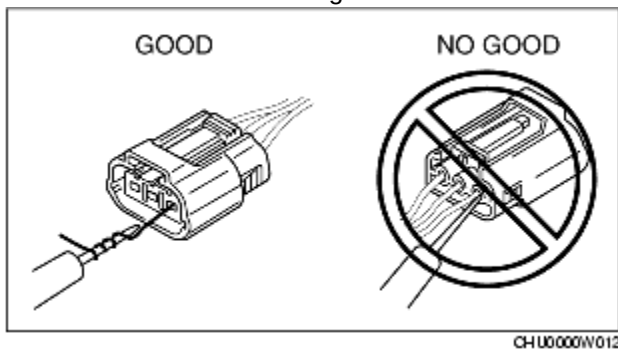


Inspection

- When a tester is used to inspect for continuity or measuring voltage, insert the tester probe from the wiring harness side.



- Inspect the terminals of waterproof connectors from the connector side since they cannot be accessed from the wiring harness side.



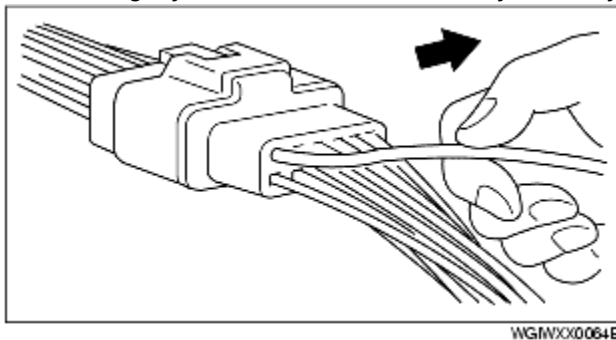
Caution

- To prevent damage to the terminal, wrap a thin wire around the tester probe before inserting into terminal.

Terminals

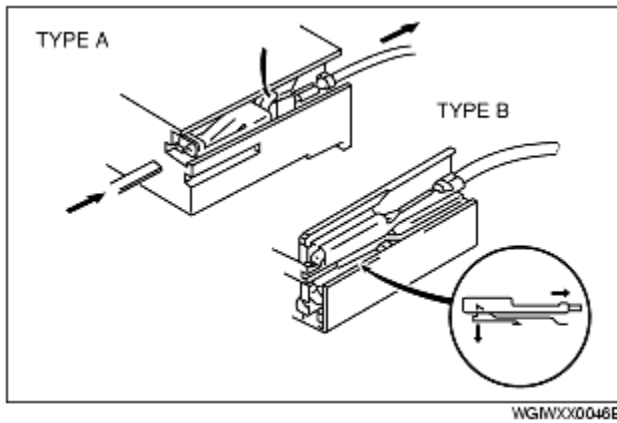
Inspection

- Pull lightly on individual wires to verify that they are secured in the terminal.



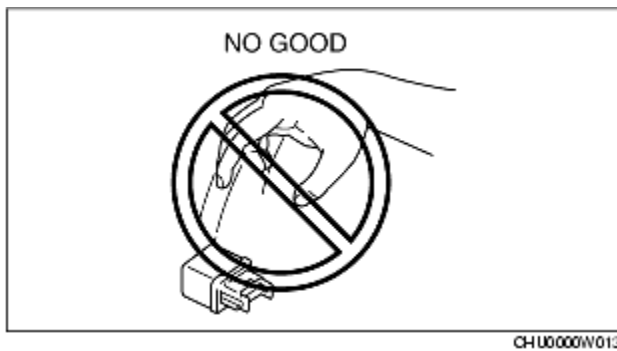
Replacement

- Use the appropriate tools to remove a terminal as shown. When installing a terminal, be sure to insert it until it locks securely.
- Insert a thin piece of metal from the terminal side of the connector and with the terminal locking tab pressed down, pull the terminal out from the connector.



Sensors, Switches, and Relays

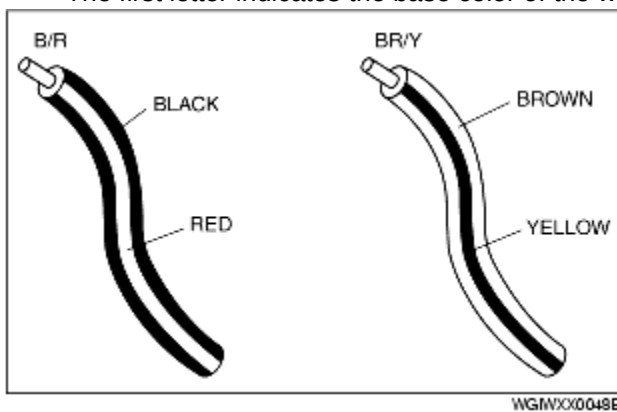
- Handle sensors, switches, and relays carefully. Do not drop them or strike them against other objects.



Wiring Harness

Wiring color codes

- Two-color wires are indicated by a two-color code symbol.
- The first letter indicates the base color of the wire and the second the color of the stripe.



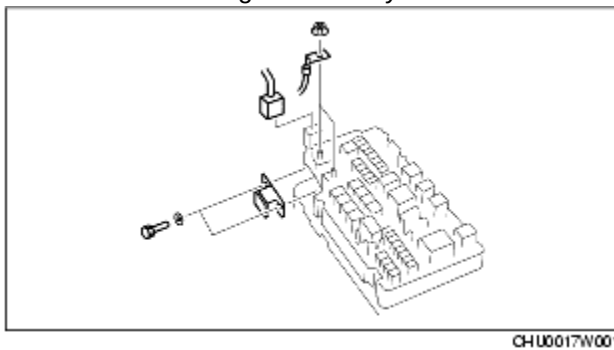
CODE	COLOR	CODE	COLOR
B	Black	O	Orange
BR	Brown	P	Pink

G	Green	R	Red
GY	Gray	V	Violet
L	Blue	W	White
LB	Light Blue	Y	Yellow
LG	Light Green	-	-

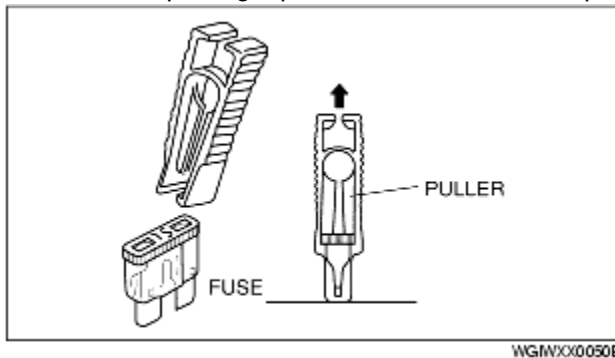
Fuse

Replacement

- When replacing a fuse, be sure to replace it with one of the same capacity. If a fuse fails again, the circuit probably has a short and the wiring should be inspected.
- Be sure the negative battery terminal is disconnected before replacing a main fuse.



- When replacing a pullout fuse, use the fuse puller.

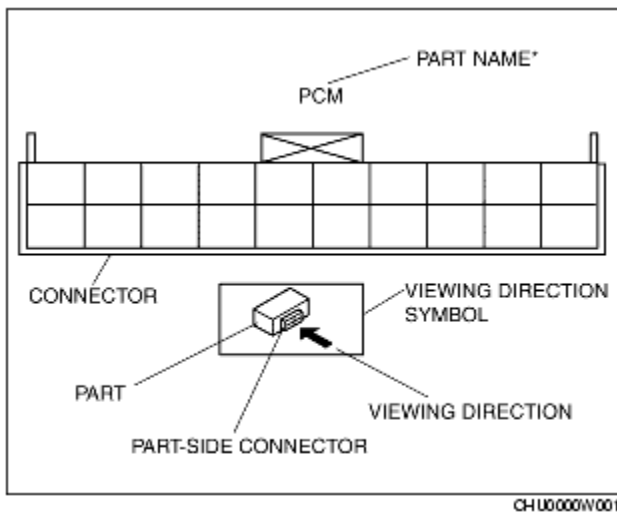


Direction of View for Connector

- The viewing direction of connectors is indicated with a symbol.
- The figures showing the viewing direction are the same as those used in Wiring Diagrams.
- The viewing directions are shown in the following three ways:

Part-side connector

The viewing direction of part-side connectors is from the terminal side.

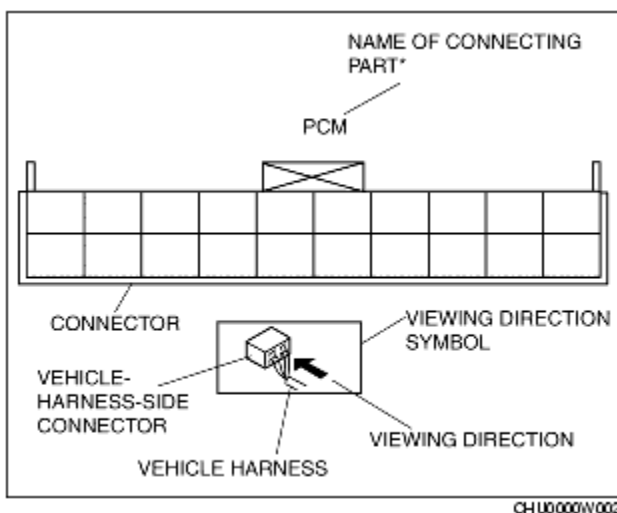


* :

Part names are shown only when there are multiple connector drawings.

Vehicle harness-side connector

The viewing direction of vehicle harness-side connectors is from the harness side.



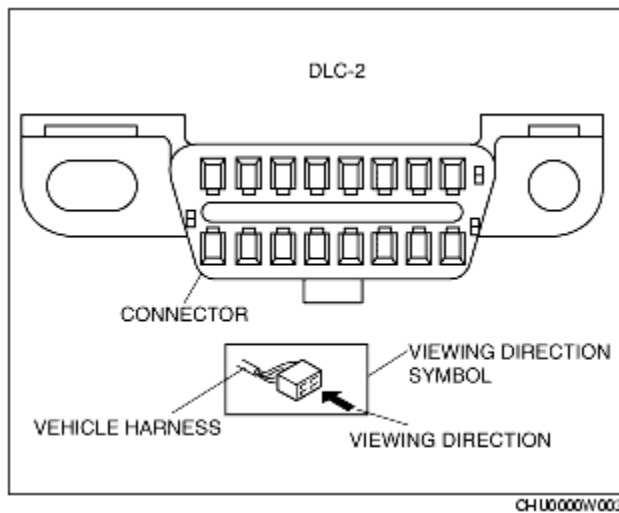
* :

Part names are shown only when there are multiple connector drawings.

Other

When it is necessary to show the terminal side of vehicle harness-side connectors, such as the following connectors, the viewing direction is from the terminal side.

- Main fuse block and the main fuse block relays
- Data link connector
- Check connector
- Relay box

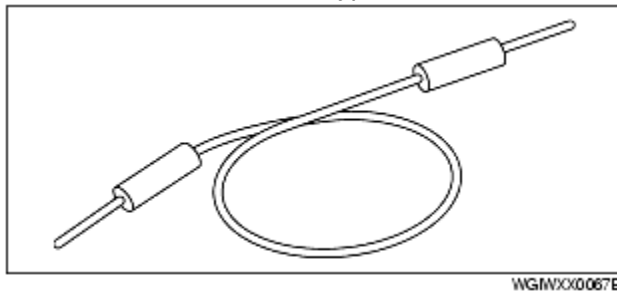


Electrical Troubleshooting Tools

Jumper wire

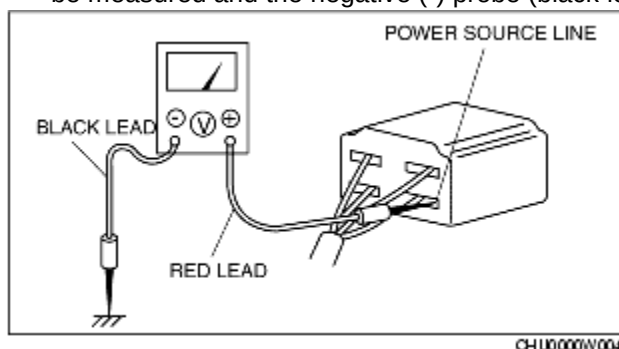
Caution

- Do not connect a jumper wire from the power source line to a body ground. This may cause burning or other damage to wiring harnesses or electronic components.
- A jumper wire is used to create a temporary circuit. Connect the jumper wire between the terminals of a circuit to bypass a switch.



Voltmeter

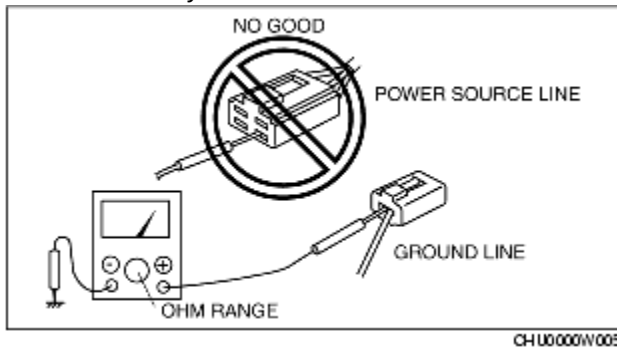
- The DC voltmeter is used to measure circuit voltage. A voltmeter with a range of **15 V or more** is used by connecting the positive (+) probe (red lead wire) to the point where voltage will be measured and the negative (-) probe (black lead wire) to a body ground.



Ohmmeter

Caution

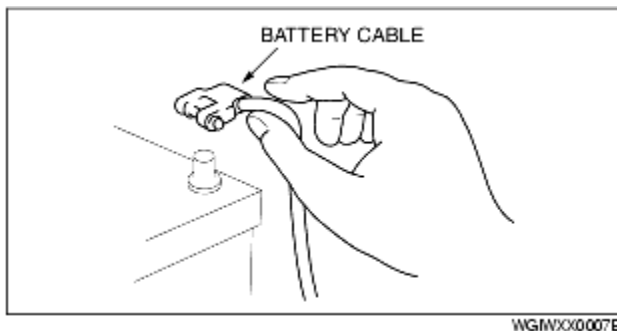
- Do not connect the ohmmeter to any circuit where voltage is applied. This will damage the ohmmeter.
- The ohmmeter is used to measure the resistance between two points in a circuit and to inspect for continuity and short circuits.



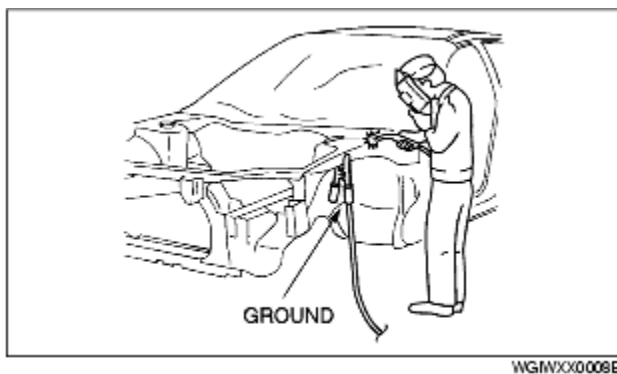
Precautions Before Welding

A vehicle has various electrical parts. To protect the parts from excessive current generated when welding, be sure to perform the following procedure.

1. Turn the ignition switch to the LOCK position.
2. Disconnect the battery cables.



3. Securely connect the welding machine ground near the welding area.



4. Cover the peripheral parts of the welding area to protect them from weld spatter.

JACKING POSITIONS, VEHICLE LIFT (2 SUPPORTS) AND SAFETY STAND (RIGID RACK) POSITIONS

B3E00000007W01

Jacking Positions

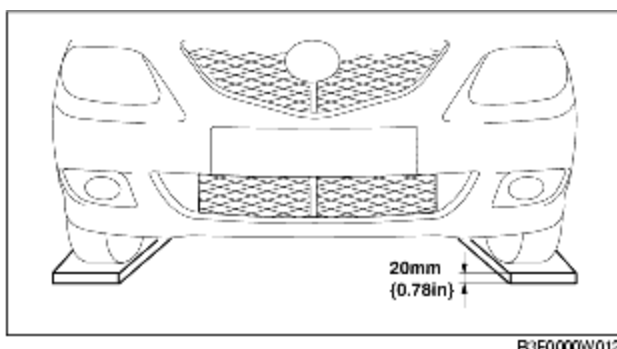
Warning

- Improperly jacking a vehicle is dangerous. The vehicle can slip off the jack and cause serious injury. Use only the correct front and rear jacking points and block the wheels.
- Use safety stands to support the vehicle after it has been lifted.

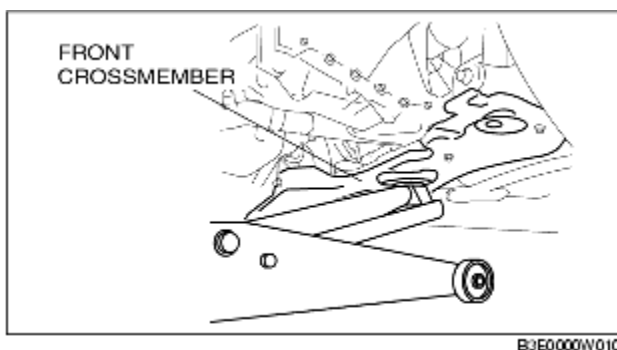
Front

Note

- Before setting the jack under the vehicle, place boards (approx. 20 mm {0.78 in} thick) under the front tires so that the bumper does not interfere with the jack.



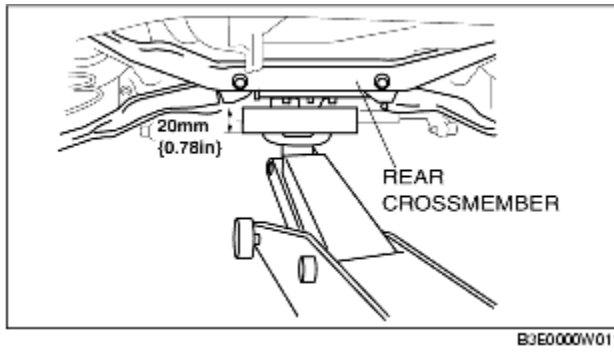
- At the center of the front crossmember.



Rear

Caution

- Place a board (approx. 20 mm {0.78 in} thick) between the rear crossmember and the jack to prevent damage to the crossmember.
- At the center of the rear crossmember.

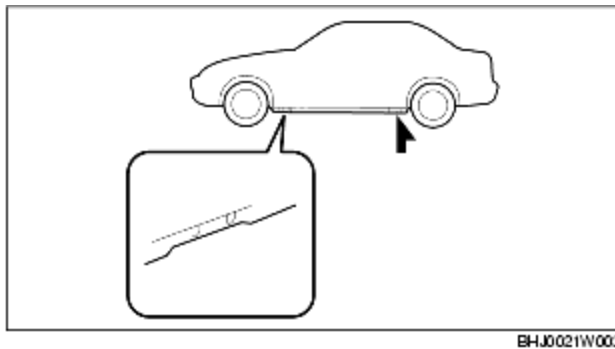


Vehicle Lift Positions

Front and rear

Warning

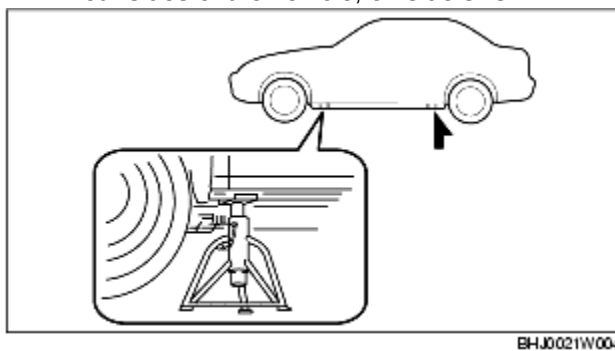
- Unstably lifting a vehicle is dangerous. The vehicle can slip off the lift and cause serious injury and/or vehicle damage. Make sure that the vehicle is on the lift horizontally by adjusting the height of support at the end of the arm of the lift.



Safety Stand Positions

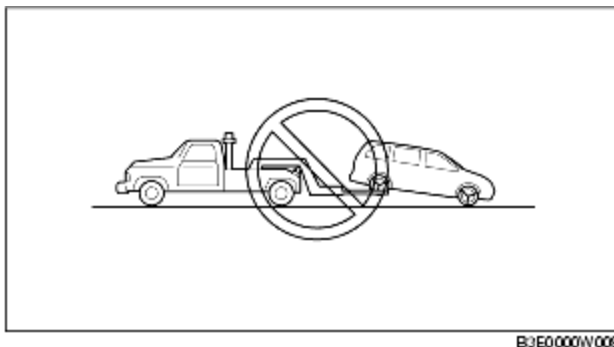
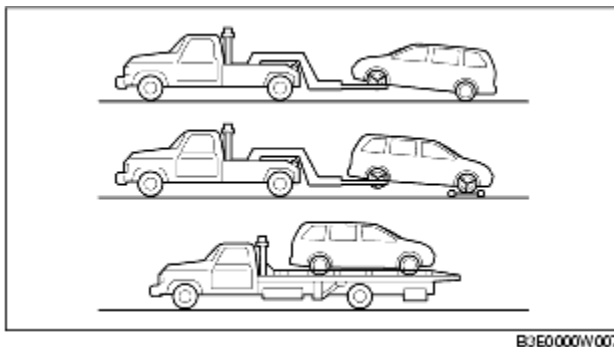
Front and rear

- Both sides of the vehicle, on side sills.



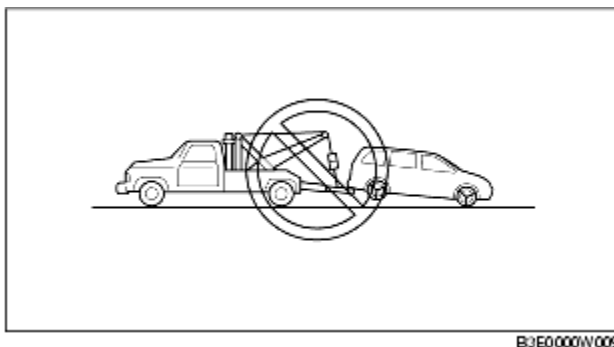
Towing

- Proper lifting and towing are necessary to prevent damage to the vehicle. State and local laws must be followed.
- A towed vehicle usually should have its front wheels off the ground. If excessive damage or other conditions prevent this, use wheel dollies.
- When towing with the rear wheels on the ground, release the parking brake.



Caution

- Do not tow the vehicle backward forward with driving wheel on the ground. This may cause internal damage to the transaxle.



Caution

- Do not tow with sling-type equipment. This could damage your vehicle. Use wheel-lift or flatbed equipment.

Caution

- Do not use the holes under the front and rear for towing. They are designed ONLY for tying down the vehicle when it is being transported.

Towing Hooks

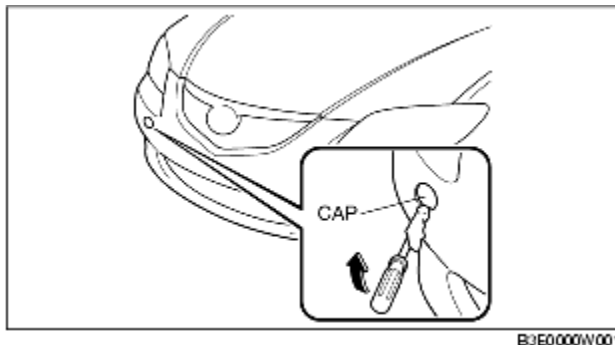
Caution

- The towing hooks should be used only in an emergency (to get the vehicle out of a ditch or a snow bank, for example).
- When using the towing eyelet or hooks, always pull the lead or chain in a straight direction with respect to the eyelet or hook. Apply no sideways force.
- Don't use the tying hook under the rear for towing. It is designed **ONLY** for tying down the vehicle when it's being transported. Using it for towing will damage the bumper.

Note

- When towing with chain or lead, wrap the chain or lead with a soft cloth near the bumper to prevent damage to the bumper.

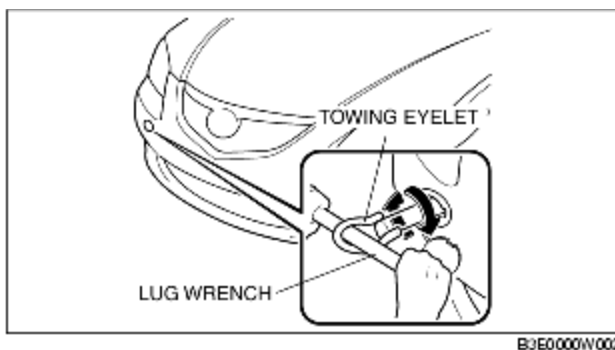
1. Remove the towing eyelet from trunk.
2. Wrap a screwdriver or similar tool with a soft cloth to prevent damage to the painted bumper and open the cap located on the front bumper.



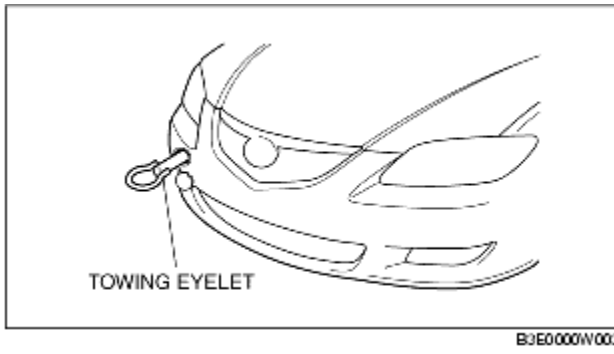
Caution

- The cap cannot be completely removed. Do not use excessive force as it may damage the cap or scratch the painted bumper surface.

3. Securely install the towing eyelet using the wheel brace.

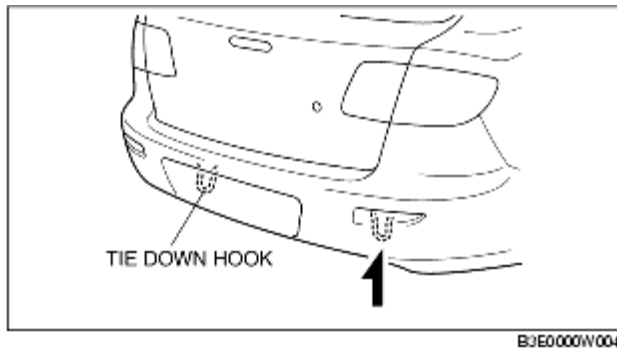


4. Hook the tying rope to the towing eyelet.



Caution

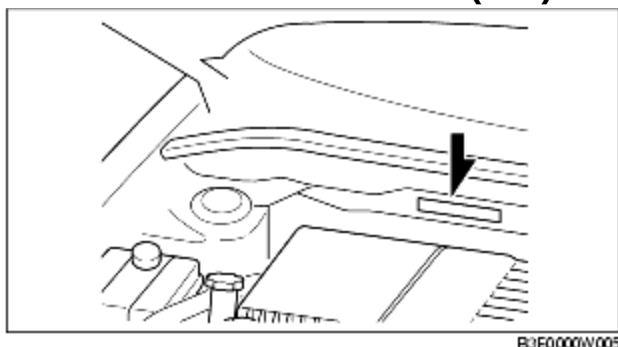
- If the towing eyelet is not securely tightened, it may loosen or disengage from the bumper when towing the vehicle. Make sure that the towing eyelet is securely tightened to the bumper.



IDENTIFICATION NUMBER LOCATIONS

B3E00000010W01

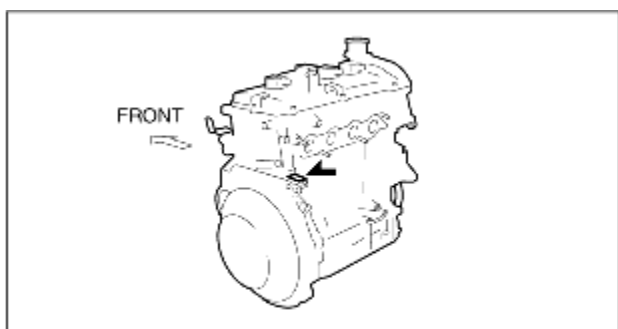
Vehicle Identification Number (VIN)



B3E0000W005

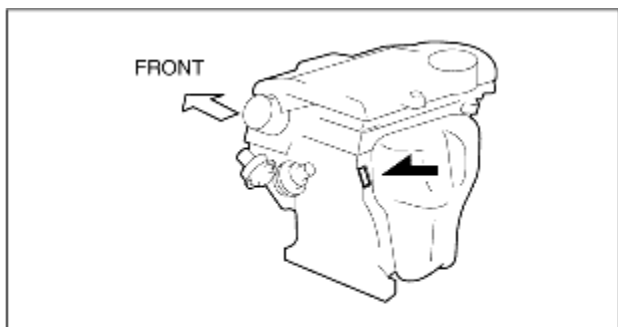
Engine Identification Number

Z6



ADA2026W002

LF



B3E0000W006

NEW STANDARDS

B3E00000020W01

- Following is a comparison of the previous standard and the new standard.

New Standard		Previous Standard		Remark
Abbreviation	Name	Abbreviation	Name	
AP	Accelerator Pedal	-	Accelerator Pedal	
APP	Accelerator Pedal Position	-	Accelerator Pedal Position	
ACL	Air Cleaner	-	Air Cleaner	
A/C	Air Conditioning	-	Air Conditioning	
BARO	Barometric Pressure	-	Atmospheric Pressure	
B+	Battery Positive Voltage	V _B	Battery Voltage	
-	Brake Switch	-	Stoplight Switch	
-	Calibration Resistor	-	Corrected Resistance	#6
CMP sensor	Camshaft Position Sensor	-	Crank Angle Sensor	
LOAD	Calculated Load Voltage	-	-	
CAC	Charge Air Cooler	-	Intercooler	
CLS	Closed Loop System	-	Feedback System	
CTP	Closed Throttle Position	-	Fully Closed	
CPP	Clutch Pedal Position	-	Clutch Position	
CIS	Continuous Fuel Injection System	EGI	Electronic Gasoline Injection System	
CS sensor	Control Sleeve Sensor	CSP sensor	Control Sleeve Position Sensor	#6
CKP sensor	Crankshaft Position Sensor	-	Crank Angle Sensor 2	
DLC	Data Link Connector	-	Diagnosis Connector	
DTM	Diagnostic Test Mode	-	Test Mode	#1
DTC	Diagnostic Trouble Code(s)	-	Service Code(s)	

DI	Distributor Ignition	-	Spark Ignition	
DLI	Distributorless Ignition	-	Direct Ignition	
EI	Electronic Ignition	-	Electronic Spark Ignition	#2
ECT	Engine Coolant Temperature	-	Water Thermo	
EM	Engine Modification	-	Engine Modification	
-	Engine Speed Input Signal	-	Engine RPM Signal	
EVAP	Evaporative Emission	-	Evaporative Emission	
EGR	Exhaust Gas Recirculation	-	Exhaust Gas Recirculation	
FC	Fan Control	-	Fan Control	
FF	Flexible Fuel	-	Flexible Fuel	
4GR	Fourth Gear	-	Overdrive	
-	Fuel Pump Relay	-	Circuit Opening Relay	#3
FSO solenoid	Fuel Shut Off Solenoid	FCV	Fuel Cut Valve	#6
GEN	Generator	-	Alternator	
GND	Ground	-	Ground/Earth	
HO2S	Heated Oxygen Sensor	-	Oxygen Sensor	With heater
IAC	Idle Air Control	-	Idle Speed Control	
-	IDM Relay	-	Spill Valve Relay	#6
-	Incorrect Gear Ratio	-	-	
-	Injection Pump	FIP	Fuel Injection Pump	#6
-	Input/Turbine Speed Sensor	-	Pulse Generator	
IAT	Intake Air Temperature	-	Intake Air Thermo	
KS	Knock Sensor	-	Knock Sensor	
MIL	Malfunction Indicator Lamp	-	Malfunction Indicator Light	
MAP	Manifold Absolute Pressure	-	Intake Air Pressure	
MAF	Mass Air Flow	-	Mass Air Flow	
MAF sensor	Mass Air Flow Sensor	-	Airflow Sensor	

MFL	Multipoint Fuel Injection	-	Multipoint Fuel Injection	
OBD	On-Board Diagnostic	-	Diagnosis/Self Diagnosis	
OL	Open Loop	-	Open Loop	
-	Output Speed Sensor	-	Vehicle Speed Sensor 1	
OC	Oxidation Catalytic Converter	-	Catalytic Converter	
O2S	Oxygen Sensor	-	Oxygen Sensor	
PNP	Park/Neutral Position	-	Park/Neutral Range	
PID	Parameter Identification	-	Parameter Identification	
-	PCM Control Relay	-	Main Relay	#6
PSP	Power Steering Pressure	-	Power Steering Pressure	
PCM	Powertrain Control Module	ECU	Engine Control Unit	#4
-	Pressure Control Solenoid	-	Line Pressure Solenoid Valve	
PAIR	Pulsed Secondary Air Injection	-	Secondary Air Injection System	Pulsed injection
-	Pump Speed Sensor	-	NE Sensor	#6
RAM	Random Access Memory	-	-	
AIR	Secondary Air Injection	-	Secondary Air Injection System	Injection with air pump
SAPV	Secondary Air Pulse Valve	-	Reed Valve	
SFI	Sequential Multipoint Fuel Injection	-	Sequential Fuel Injection	
-	Shift Solenoid A	-	1-2 Shift Solenoid Valve	
		-	Shift A Solenoid Valve	
-	Shift Solenoid B	-	2-3 Shift Solenoid Valve	
		-	Shift B Solenoid Valve	
-	Shift Solenoid C	-	3-4 Shift Solenoid Valve	
3GR	Third Gear	-	3rd Gear	
TWC	Three Way Catalytic Converter	-	Catalytic Converter	
TB	Throttle Body	-	Throttle Body	
TP	Throttle Position	-	-	

TP sensor	Throttle Position Sensor	-	Throttle Sensor	
TCV	Timer Control Valve	TCV	Timing Control Valve	#6
TCC	Torque Converter Clutch	-	Lockup Position	
TCM	Transmission (Transaxle) Control Module	-	EC-AT Control Unit	
-	Transmission (Transaxle) Fluid Temperature Sensor	-	ATF Thermosensor	
TR	Transmission (Transaxle) Range	-	Inhibitor Position	
TC	Turbocharger	-	Turbocharger	
VSS	Vehicle Speed Sensor	-	Vehicle Speed Sensor	
VR	Voltage Regulator	-	IC Regulator	
VAF sensor	Volume Air Flow Sensor	-	Air Flow Sensor	
WUTWC	Warm Up Three Way Catalytic Converter	-	Catalytic Converter	#5
WOT	Wide Open Throttle	-	Fully Open	

#1 :

Diagnostic trouble codes depend on the diagnostic test mode

#2 :

Controlled by the PCM

#3 :

In some models, there is a fuel pump relay that controls pump speed. That relay is now called the fuel pump relay (speed).

#4 :

Device that controls engine and powertrain

#5 :

Directly connected to exhaust manifold

#6 :

Part name of diesel engine

ABBREVIATIONS

B3E000000011W01

AAS	Air Adjusting Screw
ABS	Antilock Brake System
ACC	Accessories
ALR	Automatic Locking Retractor
API	American Petroleum Institute
ATF	Automatic Transaxle Fluid
ATX	Automatic Transaxle
CAN	Controller Area Network
CCM	Comprehensive Component Monitor
CM	Control Module
DC	Drive Cycle
DSC	Dynamic Stability Control
EBD	Electronic Brakeforce Distribution
EHPAS	Electro Hydraulic Power Assist Steering
E/L	Electric Load
ELR	Emergency Locking Retractor
EX	Exhaust
FS	Front Secondary
FFD	Freeze Frame Data
GPS	Global Positioning System
HI	High
HU	Hydraulic Unit
IG	Ignition
IN	Intake
INT	Intermittent
KOEO	Key On Engine Off

KOER	Key On Engine Running
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LF	Left Front
LH	Left Hand
LO	Low
L/R	Leading Rear
LR	Left Rear
LSD	Limited Slip Differential
M	Motor
MAX	Maximum
MIN	Minimum
MTX	Manual Transaxle
OCV	Oil Control Valve
PAD	Passenger Air Bag Deactivation
PATS	Passive Anti-Theft System
PC	Pending Code
PID	Parameter Identification
PJB	Passenger Junction Box
P/W CM	Power Window Control Module
REC	Recirculate
RF	Right Front
RH	Right Hand
RR	Right Rear
SAS	Sophisticated Air Bag Sensor
SAE	Society of Automotive Engineers
SST	Special Service Tool
SW	Switch
TAS	Throttle Adjust Screw

TCS	Traction Control System
TFT	Transaxle Fluid Temperature
TNS	Tail Number Side Lights
VIS	Variable Intake-Air system
VTCS	Variable Tumble Control System
WDS	Worldwide Diagnostic System
1GR	First Gear
2GR	Second Gear

Pre-Delivery Inspection Table

Exterior

INSPECT and **ADJUST**, if necessary, the following items to specification:

- ☐ Glass, exterior bright metal and paint for damage
- ☐ Wheel lug nuts
- ☐ All weatherstrips for damage or detachment
- ☐ Tire pressures
- ☐ Headlight cleaner and fluid level (if equipped)
- ☐ Operation of bonnet release and lock
- ☐ Operation of trunk lid and fuel-filler lid opener
- ☐ Door operation and alignment including side door and back door
- ☐ Headlight aiming

INSTALL the following parts:

- ☐ Flap (front)
- ☐ Wheel caps or rings (if equipped)

Under bonnet-engine off

INSPECT and **ADJUST**, if necessary, the following items to specification:

- ☐ Fuel, engine coolant, and hydraulic lines, fittings, connections, and components for leaks
- ☐ Engine oil level
- ☐ Brake and clutch fluid level
- ☐ Windshield washer reservoir fluid level
- ☐ Manual transmission/Transaxle oil level
- ☐ Radiator coolant level and specific gravity
- ☐ Tightness of water hose clamps
- ☐ Tightness of battery terminals, electrolyte level and specific gravity
- ☐ Differential oil level

Interior

INSTALL the following items:

- ☐ Fuse for accessories

INSPECT the operations of the following items:

- ☐ Seat controls (slide and recline) and headrests
- ☐ Folding rear seat
- ☐ Door locks, including childproof door locks
- ☐ Seat belts and warning system
- ☐ Ignition switch and steering lock
- ☐ Transmission/Transaxle range switch
- ☐ Warning buzzers
- ☐ Ignition key reminder alarm
- ☐ Air bag system using warning light
- ☐ Cruise control system (if equipped)
- ☐ Power door lock
- ☐ Shift-lock system (if equipped)
- ☐ Starter interlock
- ☐ All lights including warning, and indicator lights
- ☐ Horn, wipers, and washers
- ☐ Wiper blades performance

Clean wiper blades and windshield, if necessary

- ☐ Antenna
- ☐ Audio system
- ☐ Cigarette lighter and clock
- ☐ Power windows (if equipped)
- ☐ Heater, defroster, and air conditioner at various mode selections (if equipped)

INSPECT the following items:

- ☐ Presence of spare fuse

- ☐ Upholstery and interior finish

INSPECT and **ADJUST**, if necessary, the following items:

- ☐ Operation and fit of windows
- ☐ Pedal height and free play of clutch pedal
- ☐ Parking brake

Under bonnet-engine running at operating temperature

INSPECT the following items:

- ☐ Automatic transmission/Transaxle fluid level
- ☐ Operation of idle-up system for electrical load, air conditioner or power steering (if equipped)
- ☐ Ignition timing
- ☐ Idle speed
- ☐ Operation of throttle position sensor

On hoist

INSPECT the following items:

- ☐ Manual transmission/Transaxle oil level
- ☐ Underside fuel, coolant and hydraulic lines, fittings, connections, and components for leaks
- ☐ Tires for cuts or bruises
- ☐ Steering linkage, suspension, exhaust system, and all underside hardware for looseness or damage

Road test

INSPECT the following items:

- ☐ Brake operation
- ☐ Clutch operation
- ☐ Steering control
- ☐ Operation of gauges
- ☐ Squeaks, rattles, and unusual noises
- ☐ Engine general performance
- ☐ Emergency locking retractors and automatic locking retractors
- ☐ Cruise control system (if equipped)

- ☐ Operation of meters and gauges, squeaks, rattles, and abnormal noises

After road test

INSPECT for necessary owner information materials, tools, and spare tire in vehicle

The following items must be completed just before delivery to your customer.

- ☐ Load test battery and charge if necessary (Load test result: Volts)
- ☐ Adjust tire pressure to specification (Specified tire pressure is indicated on the door label.)
- ☐ Clean outside of vehicle
- ☐ Install fuses for accessories
- ☐ Remove seat and cabin carpet protective covers
- ☐ Vacuum inside of vehicle

SCHEDULED MAINTENANCE

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B3E000000013W01

Scheduled Maintenance Table

For Europe (L.H.D. U.K.)

Maintenance Item	Number of months or kilometers (miles), whichever comes first									
	Months	12	24	36	48	60	72	84	96	108
	× 1000 km	20	40	60	80	100	120	140	160	180
	× 1000 miles	12.5	25	37.5	50	62.5	75	87.5	100	112.5
ENGINE										
Engine oil* ¹	R	R	R	R	R	R	R	R	R	R
Engine oil filter* ¹	R	R	R	R	R	R	R	R	R	R
Engine timing chain	Inspect every 240,000 km (150,000 miles)									
Engine valve clearance	Audible inspect every 120,000 km (75,000 miles), if noisy, adjust									
Drive belt* ²			I			I				I
Idle speed (Z6)	I		I		I		I			I
COOLING SYSTEM										
Cooling system		I		I		I		I		
Engine coolant	Replace at first 100,000 km (62,500 miles) or 48 months; after that, every 24 months									
FUEL SYSTEM										
Air cleaner element* ³	Z6	C	C	R	C	C	R	C	C	R
	LF			R			R			R
Fuel lines and hoses		I		I		I		I		
Evaporative system (if installed)			I			I				I
IGNITION SYSTEM										
Spark plugs	Replace every 120,000 km (75,000 miles)									
ELECTRICAL SYSTEM										
Battery electrolyte level and specific gravity	I	I	I	I	I	I	I	I	I	I
CHASSIS & BODY										
Brake lines, hoses and connections	I	I	I	I	I	I	I	I	I	I

Brake fluid*4		R		R		R		R	
Parking brake	I	I	I	I	I	I	I	I	I
Disc brakes	I	I	I	I	I	I	I	I	I
Steering operation and linkages		I		I		I		I	
Front and rear suspension and ball joints		I		I		I		I	
Power steering fluid, lines, hoses and connections	I	I	I	I	I	I	I	I	I
Manual transaxle oil					R				
Automatic transaxle fluid level			I			I			I
Drive shaft dust boots		I		I		I		I	
Body condition (for rust, corrosion and perforation)	Inspect annually								
Exhaust system heat shields	Inspect every 80,000 km (50,000 miles) or 60 months								
Tyres (including spare tyre) (with inflation pressure adjustment)	I	I	I	I	I	I	I	I	I
AIR CONDITIONER SYSTEM									
Cabin air filter (If installed)		R		R		R		R	

Chart symbols

I : Inspect: Inspect and repair, clean, adjust, or replace if necessary.

R : Replace

C : Clean

Remarks

- The ignition and fuel systems are highly important to the emission control systems and to efficient engine operation.

All inspections and adjustments must be made by an expert repairer, we recommend an Authorized Mazda Repairer.

- After the prescribed period, continue to follow the described maintenance at the recommended intervals.
- Refer below for a description of items marked* in the maintenance chart.

*1: If the vehicle is operated under any of the following conditions, change the engine oil and oil filter every 10,000 km {6,250 miles} or shorter.

- Driving in dusty conditions.
- Extended periods of idling or low speed operation.
- Driving for long period in cold temperatures or driving regularly at short distance only.

*2: Also inspect and adjust the power steering and air conditioner drive belts, if installed.

*3: If the vehicle is operated in very dusty or sandy areas, clean and if necessary, replace the air cleaner element more often than the recommended intervals.

*4: If the brakes are used extensively (for example, continuous hard driving or mountain driving) or if the vehicle is operated in extremely humid climates, change the brake fluid annually.

For Israel

Maintenance Item	Maintenance Interval (Number of months or km (miles), whichever comes first)												
	Months	12	24	36	48	60	72	84	96	108	120	132	144
	×1000 km	15	30	45	60	75	90	105	120	135	150	165	180
	×1000 miles	9	18	27	36	45	54	63	75	81	90	99	108
ENGINE													
Engine oil	*1	R	R	R	R	R	R	R	R	R	R	R	R
Engine Oil filter	*1	R	R	R	R	R	R	R	R	R	R	R	R
Engine timing chain		Inspect every 240,000 km (150,000 miles)											
Engine valve clearance		Audible inspect every 120,000 km (75,000 miles), if noisy, adjust											
Drive belts	*2	I	I	I	I	I	I	I	I	I	I	I	I
Idle speed (Z6)		I		I		I		I		I		I	
COOLING SYSTEM													
Cooling system			I		I		I		I		I		I
Engine coolant		Replace at first 90,000 km (54,000miles) or 48 months; after that, every 24 months											
FUEL SYSTEM													
Air cleaner element	*3	C	C	C	R	C	C	C	R	C	C	C	R
Fuel filter						R					R		
Fuel lines & hoses			I		I		I		I		I		I
IGNITION SYSTEM													
Spark plugs		Replace every 120,000 km (72,000 miles) or 36 months											
EMISSION CONTROL SYSTEM													
Evaporative system (if installed)					I				I				I
ELECTRICAL SYSTEM													
Battery electrolyte level and specific gravity		I	I	I	I	I	I	I	I	I	I	I	I
All electrical system	*4	I	I	I	I	I	I	I	I	I	I	I	I

CHASSIS & BODY													
Brake lines, hoses and connections	I	I	I	I	I	I	I	I	I	I	I	I	I
Brake fluid	*5	I	R	I	R	I	R	I	R	I	R	I	R
Parking brake		I	I	I	I	I	I	I	I	I	I	I	I
Power brake unit (brake booster) and hoses		I	I	I	I	I	I	I	I	I	I	I	I
Disc brakes		I	I	I	I	I	I	I	I	I	I	I	I
Power steering fluid, lines, hoses, and connections		I	I	I	I	I	I	I	I	I	I	I	I
Steering operation and linkages			I		I		I		I		I		I
Automatic transaxle fluid level			I		I		I		I		I		I
Front and rear suspension and ball joints			I		I		I		I		I		I
Drive shaft dust boots			I		I		I		I		I		I
Exhaust system and heat shields	Inspect every 75,000km (45,000km)												
Body condition (for rust, corrosion & perforation)	Inspect annually												
Tyres (including spare tyre) (with inflation pressure adjustment)	I	I	I	I	I	I	I	I	I	I	I	I	I
AIR CONDITIONER SYSTEM													
Cabin air filter (if installed)	R	R	R	R	R	R	R	R	R	R	R	R	R

Chart symbols

I : Inspect: Inspect and clean, repair, adjust, or replace if necessary.

R : Replace

C : Clean

Remarks

Emission control and related systems

- The ignition and fuel systems are highly important to the emission control systems and to efficient engine operation.

All inspections and adjustments must be made by an expert repairer, we recommend an Authorized Mazda Repairer.

- To ensure efficient operation of the engine and all systems related to emission control, the ignition and fuel systems must be serviced regularly. It is strongly recommended that all servicing related to these systems be done by an authorized Mazda Dealer.

- After the prescribed period, continue to follow the described maintenance at the recommended intervals.

- Refer below for a description of items marked* in the maintenance chart.

*1: If the vehicle is operated under any of the following conditions, change the engine oil and oil filter every 10,000km (6,250 miles) or shorter.

a. Driving in dusty conditions.

b. Extended periods of idling or low speed operation.

c. Driving for long period in cold temperatures or driving regularly at short distance only.

*2: Also inspect and adjust the air conditioner drive belts, if installed.

*3: If the vehicle is operated in very dusty or sandy areas, clean and if necessary, replace the air cleaner element more often than the recommended intervals.

*4: This is a full function check of electrical systems such as lights, wiper and washer systems (including wiper blades), and power windows.

*5: If the brakes are used extensively (for example, continuous hard driving or mountain driving) or if the vehicle is operated in extremely humid climates, change the brake fluid annually.

Scheduled Maintenance Service (Specific Work Required)

For Europe (L.H.D. U.K.)

Maintenance Item	Specific Work Required
ENGINE	
Engine valve clearance	Measure clearance.
Drive belts	Inspect for wear, cracks and fraying, and check tension. Replace drive belt.
Engine timing belt	Replace engine timing belt.
Engine oil	Replace engine oil and inspect for leakage.
Oil filter	Replace oil filter and inspect for leakage.
Oil by-pass filter	Replace oil by-pass filter and inspect for leakage.
COOLING SYSTEM	
Cooling system (including coolant level adjustment)	Check coolant level and quality, and inspect for leakage.
Engine coolant	Replace coolant.
FUEL SYSTEM	
Idle speed	Check engine idle rpm.
Idle mixture (for CIS & carburetor leaded fuel)	Check the CO and HC concentrations (see W/M).

Choke system (for carburetor)	Check system operation.
Air cleaner element	Inspect for dirt, oil and damage. Clean air cleaner element (by blowing air). Replace air cleaner element.
Fuel filter	Replace fuel filter.
Fuel lines & hoses	Inspect for cracks, leakage and loose connection.
IGNITION SYSTEM (FOR GASOLINE)	
Initial ignition timing	Check initial ignition timing.
Spark plugs	Inspect for wear, damage, carbon, high-tension lead condition and measure plug gap. Replace spark plugs.
EMISSION CONTROL SYSTEM (FOR GASOLINE)	
Evaporative system	Check system operation (see W/M), vapor lines, vacuum fitting hoses and connection.
Throttle positioner system	Check the diaphragm and system operation, vacuum fitting hoses and connection.
Dash pot (for carburetor)	Check system operation.
E.G.R. system	Check system operation (see W/M), vacuum fitting hoses and connection.
ELECTRICAL SYSTEM	
Battery electrolyte level & specific gravity	Check level and specific gravity.
Battery condition	Check the battery for corroded or loose connections and cracks in the case (for maintenance free type).
All electrical system	Check function of lighting system, windshield wiper (including wiper blade condition) and washer and power windows.
Headlight alignment	Check headlight alignment
CHASSIS & BODY	
Brake & clutch pedals	Check pedal height and free play.
Brake fluid	Check fluid level and inspect for leakage. Replace brake fluid.
Clutch fluid	Check fluid level and inspect for leakage.
Brake lines, hoses & connections	Inspect for cracks, damage, chafing, corrosion, scars, swelling and fluid leakage.
Parking brake	Check lever stroke.

Power brake unit & hoses	Check vacuum lines, connections and check valve for improper attachment, air tightness, cracks chafing and deterioration.
Disc brakes	Test for judder and noise. Inspect caliper for correct operation and fluid leakage, brake pads for wear. Check disc plate condition and thickness.
Drum brakes	Test for judder and noise. Inspect brake drum for wear and scratches; brake lining for wear, peeling and cracks; and wheel cylinder for fluid leakage.
Manual steering gear oil	Check gear oil level.
Power steering fluid, lines, hoses & connections	Check fluid level and condition. Inspect for loose connection, routing, damage, and leaks.
Steering operation & linkages	Check steering wheel free play, hard steering, and operation noise. Check linkages, boots and ball joints condition. Check grease or gear oil.
Power steering fluid & lines	Check fluid level and lines for improper attachment, leakage, cracks, damage, loose connections, chafing and deterioration.
Power steering fluid	Check fluid level.
Power steering system & hoses	Check lines for improper attachment, leakage, cracks, damage, loose connections, chafing and deterioration.
Steering & front suspension	Check free play of steering system, inspect shock absorbers for correct damping force, oil leakage, damage and looseness, and inspect coil springs, arms, links and stabilizer for damage and looseness.
Steering operation & gear housing	Check that the steering wheel has the specified play. Be sure to check for changes, such as excessive play, hard steering or strange noises. Check gear housing and boots for looseness, damage and grease/gear oil leakage.
Steering linkages tie rod ends & arms	Check ball joint, dust cover and other components for looseness, wear, damage and grease leakage.
Front & rear suspension ball joints	Inspect for grease leakage, cracks, damage and looseness.
Manual transmission/transaxle oil	Check oil level and inspect for leakage. Replace manual transmission/transaxle oil.
Automatic transaxle oil level	Check oil level.
Automatic transmission/transaxle fluid level	Check fluid level.
Automatic transmission/transaxle fluid	Replace automatic transmission/transaxle fluid.

Front & rear differential oil	Check oil level and inspect for leakage. Replace front & rear differential oil.
Rear differential oil	Check oil level and inspect for leakage. Replace rear differential oil.
Transfer oil	Check oil level and inspect for leakage. Replace transfer oil.
Upper arm shafts (for B-Series)	Lubricate the upper arm shafts for looseness or damage.
Front & rear wheel bearing grease	Remove wheel bearing and replace the grease.
Propeller shaft joints (with grease nipple)	Lubricate propeller shaft joints.
Drive shaft dust boots	Inspect for grease leakage, cracks, damage and looseness.
Wheel nuts	Tighten wheel nuts.
Bolts & nuts on chassis & body	Tighten bolts and nuts fastening suspension components, members and seat frames.
Bolts & nuts on seats	Move the seat back and forth and side to side to check for squeaking or rattling. If there is any squeaking or rattling, retorque bolts and nuts fastening seat frames.
Body condition (for rust, corrosion & perforation)	Inspect body surface for paint damage, rust, corrosion and perforation.
Exhaust system heat shields	Inspect for damage, corrosion, looseness of connections and gas leakage.
Tires (including spare tire) (with inflation pressure adjustment)	Check air pressure and inspect tires for tread wear, damage and cracks; and wheels for damage and corrosion.
Flat tire repair kit	Check the tire repair fluid expiration date every year when performing the periodic maintenance. Replace the tire repair fluid bottle with new one before the expiration date.
Hinges & catches	Lubricate hinges and catches of doors, trunk lid and hood.
Seat belts	Inspect seat belt webbing for scratches, tears and wear, and check anchor bolt tightness.
Rear suspension uni-ball & sliding rubber bushing (for RX-7)	Inspect for cracks, damage and looseness.

Underside of vehicle	Inspect underside of vehicle (floor pans, frames, fuel lines, around exhaust system, etc.) for damage and corrosion.
Road test	Check brake operation/clutch operation/steering control/operation of meters and gauges/squeaks, rattles or unusual noises/engine general performance/emergency locking retractors.
AIR CONDITIONER SYSTEM	
Refrigerant amount	Check refrigerant amount.
Compressor operation	Check compressor operation, and inspect for noise, oil leakage, cracks and refrigerant leakage.
Cabin air filter	Replace cabin air filter.
4WS SYSTEM	
Front & rear power steering system & hoses	Check lines for improper attachment, leaks, cracks, damage, loose connections, chafing and deterioration.
4WS operation & linkages	Inspect for leakage, cracks, damage and looseness.
Rear wheel steering angle	Inspect for rear wheel steering angle.
Rear suspension outer ball joints	Inspect for grease leakage, cracks, damage and looseness.