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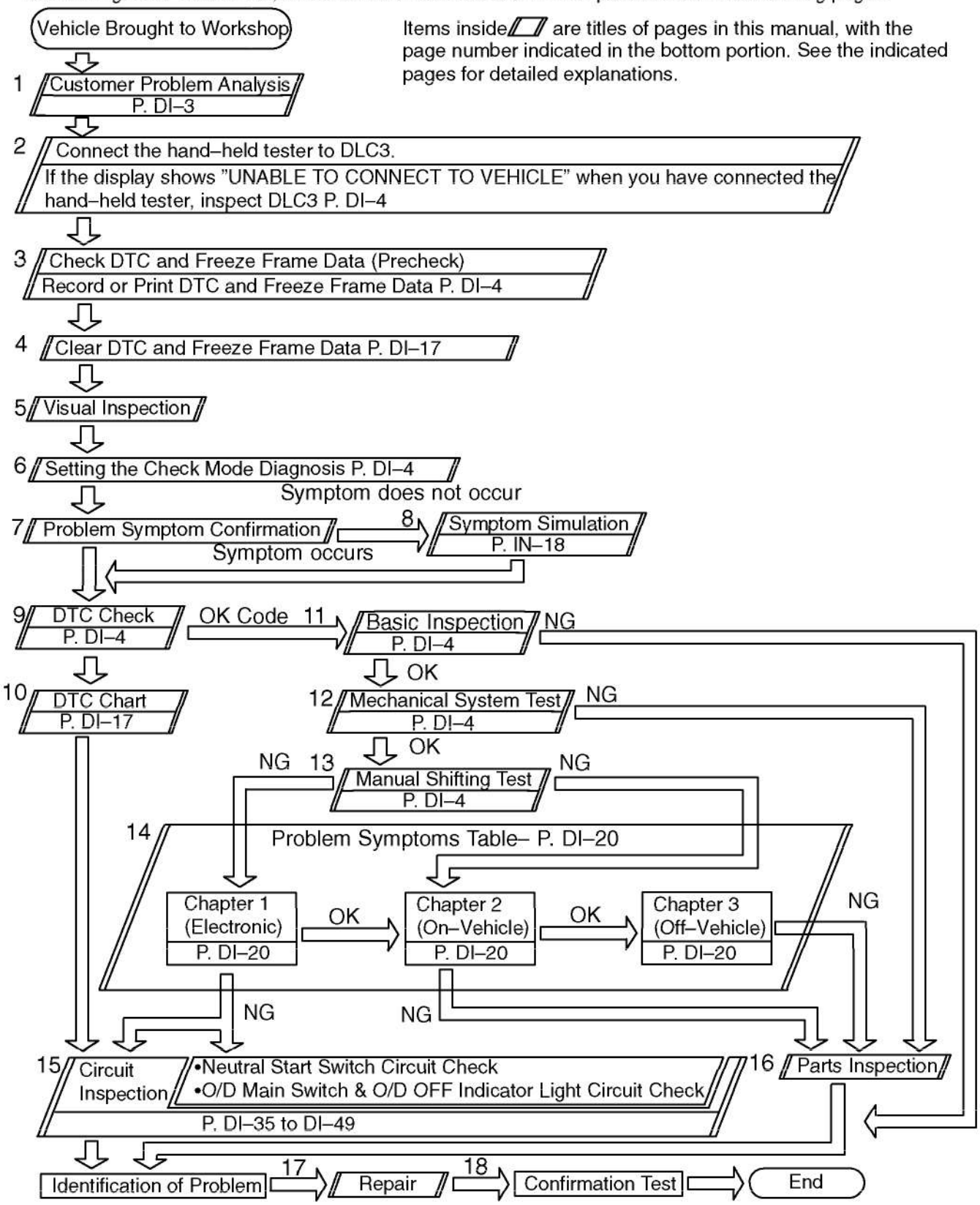
AUTOMATIC TRANSAXLE (A241E)

HOW TO PROCEED WITH TROUBLESHOOTING

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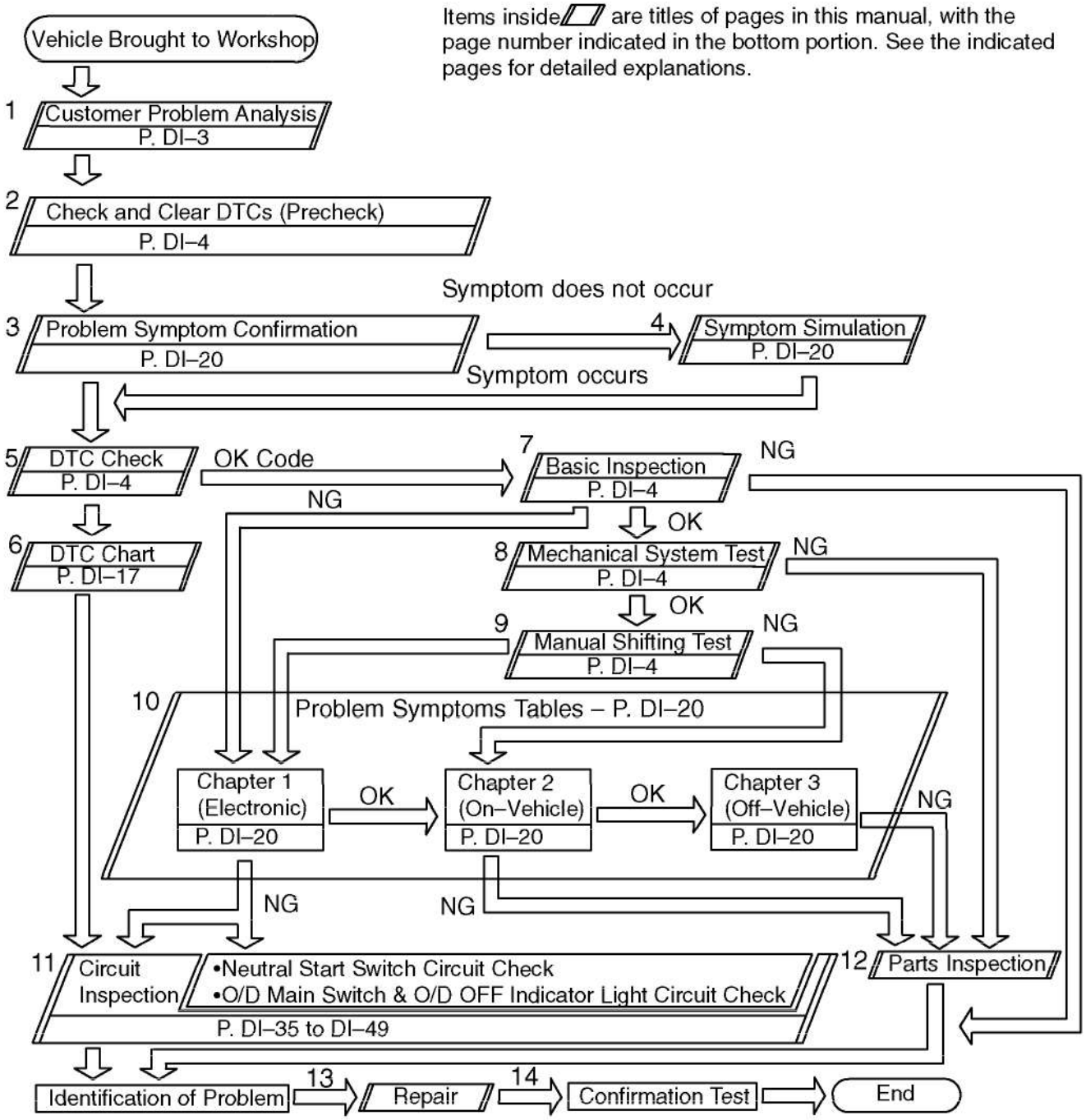
When using hand–held tester, troubleshoot in accordance with the procedure on the following pages.

Items inside ▱ are titles of pages in this manual, with the page number indicated in the bottom portion. See the indicated pages for detailed explanations.



When not using hand–held tester, troubleshoot in accordance with the procedure on the following pages.

Items inside ▱ are titles of pages in this manual, with the page number indicated in the bottom portion. See the indicated pages for detailed explanations.



DI1FO-02

CUSTOMER PROBLEM ANALYSIS CHECK

Transaxle Control System Check Sheet	Inspector's Name :

Customer' Name		Registration No.	
		Registration Year	/ /
		Frame No.	
Date Vehicle Brought In	/ /	Odometer Reading	km mile

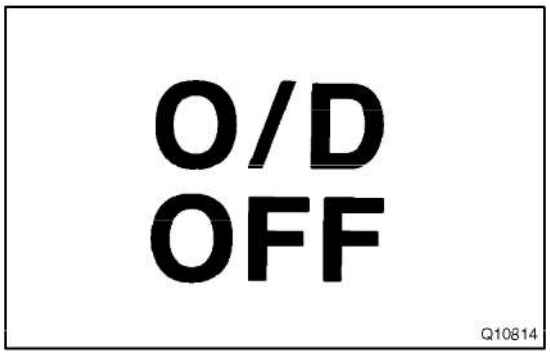
Date Problem Occurred	/ /
Frequency Problem Occurs?	☐ Continuous ☐ Intermittent (times a day)

Symptoms	☐ Vehicle does not move (☐ Any range ☐ Particular range)
	☐ No up–shift (☐ 1st → 2nd ☐ 2nd → 3rd ☐ 3rd → O/D)
	☐ No down–shift (☐ O/D → 3rd ☐ 3rd → 2nd ☐ 2nd → 1st)
	☐ Lock–up malfunction
	☐ Shift point too high or too low
	☐ Harsh engagement (☐ N → D ☐ Lock–up ☐ Any drive range)
	☐ Slip or shudder
	☐ No kick–down
	☐ Others ( )

Check Item	Malfunction Indicator Lamp	☐ Normal	☐ Remains ON

DTC Check	1st Time	☐ Normal	☐ Malfunction code (Code)
	2nd Time	☐ Normal	☐ Malfunction code (Code)

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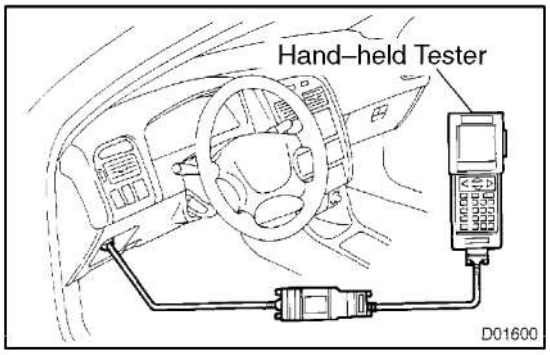


PRE–CHECK

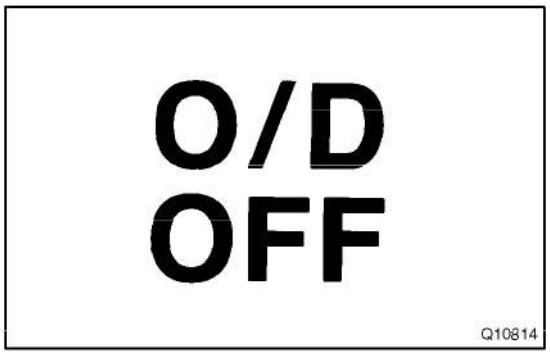
1. DIAGNOSIS SYSTEM

Description

- When troubleshooting Multiplex (M–OBD) vehicles, the only difference from the usual troubleshooting procedure is that you connect the hand–held tester to the vehicle, and read off various data output from the vehicle's Engine and ECT ECU.
  The vehicle's on– board computer lights up the O/D OFF Indicator Light on the instrument panel when the computer detects a malfunction in the computer itself or in drive system components. In addition to the O/D OFF indicator light lighting up when a malfunction is detected, the applicable DTCs are recorded in the Engine and ECT ECU memory
  (See page DI–17).
  If the malfunction only occurs in 3 trips, the O/D OFF indicator light goes off but the DTCs remain recorded in the Engine and ECT ECU memory.



- To check the DTCs, connect a hand–held tester to DLC3 on the vehicle or read the number of blinks of the O/D OFF indicator light when TC and CG terminals on the DLC3 are connected. The hand–held tester also enables you to erase the DTCs and activate the several actuators and check freeze frame data and various forms of engine data (For instruction book).
- The diagnosis system operates in normal mode during normal vehicle use, and also has a check (test) mode for technicians to simulate malfunction symptoms and perform troubleshooting. Most DTCs use 2–trip detection logic (*) to prevent erroneous detection and ensure thorough malfunction detection. By switching the Engine and ECT ECU to check (test) mode using hand–held tester when troubleshooting, the technician can cause the O/D OFF indicator light to light up for a malfunction that is only detected once or momentarily.
- *2–trip detection logic:
  When a logic malfunction is first detected, the malfunction is temporarily stored in the Engine and ECT ECU memory.
  If the same malfunction is detected again during the 2nd test drive, this 2nd detection causes the O/D OFF indicator light to light up.



2. INSPECT DIAGNOSIS (NORMAL MODE)

(a) Check the O/D OFF indicator light.
  (1) Turn the ignition switch to ON.
  (2) Check that the O/D OFF indicator lights light up when the O/D main switch is pushed out to OFF and goes off when the O/D main switch is pushed in to ON.

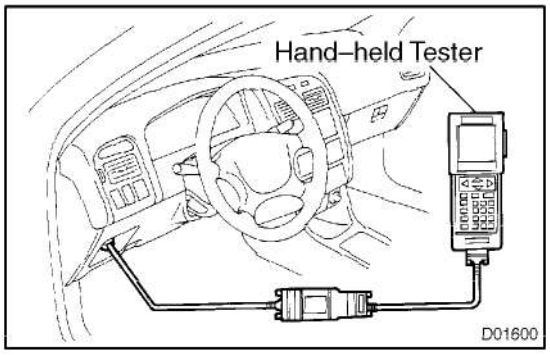
HINT:

- If the O/D OFF indicator light does not light up or stay on all the time, carry out the check for "O/D OFF Indicator Light Circuit" on page DI–42.
- If the O/D OFF indicator light blinks, a malfunction code is stored in the ECU memory.

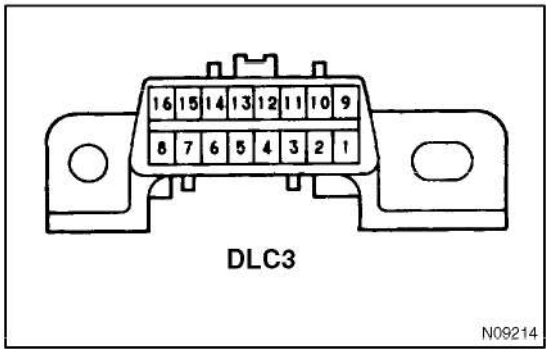
(b) Check the DTC (Using hand–held tester).

NOTICE:

When the diagnostic system is switched from normal mode to check (test) mode, it erases all DTCs and freeze frame data recorded in normal mode. So before switching modes, always check the DTCs and freeze frame data, and note them down.



  (1) Prepare hand–held tester.
  (2) Connect the hand–held tester to DLC3 at the lower of the instrument panel.
  (3) Turn the ignition switch ON and turn the hand–held tester switch ON.
  (4) Use the hand–held tester to check the DTCs and instructions, see the hand–held tester instruction book.
  (5) See page DI–4 to confirm the details of the DTCs.



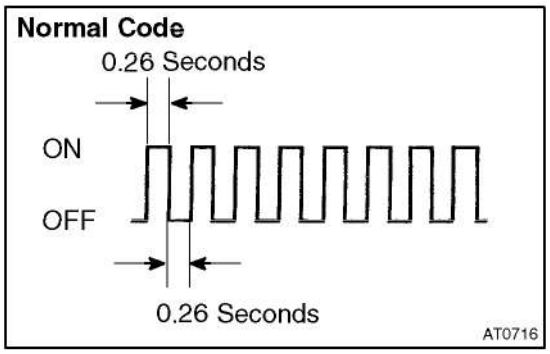
(c) Check the DTC (Not using hand–held tester).
  (1) Turn the ignition switch ON, but do not start the engine.
  (2) Push in the O/D main switch to ON.

HINT:

Warning and DTCs can be read only when the O/D main switch is ON. If it is OFF, the O/D OFF indicator light will light up continuously and will not blink.

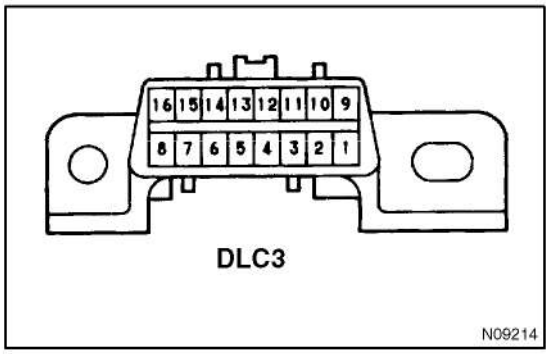
  (3) Using SST, connect terminals 13 (TC) and 4 (CG) of DLC3.

  SST 09843–18040



(4) Read the DTC indicated by the number of times the O/D OFF indicator light blinks.

HINT:
If the system is operating normally, the light will blink 2 times per second.

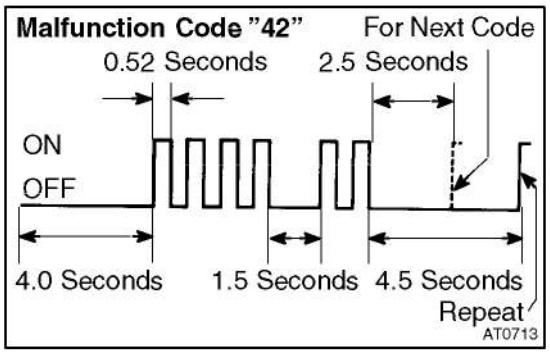


(d) Inspect the DLC3.
(1) The vehicle's Engine and ECT ECU uses ISO 14230 for communication. The terminal arrangement of DLC3 complies with SAE J1962 and matches the ISO 14230 format.

Terminal No.	Connection	Voltage or Resistance	Condition
7	Bus ⊕ Line	Pulse generation	During transaxle
4	Chassis Ground	↔ Body Ground / 1 Ω or less	Always
16	Battery Positive	↔ Body Ground / 9 ~ 14 V	Always

HINT:
If your display shows "UNABLE TO CONNECT TO VEHICLE" when you have connected the cable of hand–held tester to DLC3, turned the ignition switch ON and operated the hand–held tester, there is a problem on the vehicle side or tool side.

- If communication is normal when the tool is connected to another vehicle, inspect DLC3 on the original vehicle.
- If communication is still not possible when the tool is connected to another vehicle, the problem is probably in the tool itself, so consult the Service Department listed in the tool's instruction manual.



(2) The malfunction code is indicated, as shown in the chart on the left (DTC "42" is shown as an example).

HINT:
When 2 or more malfunction codes are stored in memory, the lower–numbered code is displayed first.

3. INSPECT DIAGNOSIS (CHECK MODE)

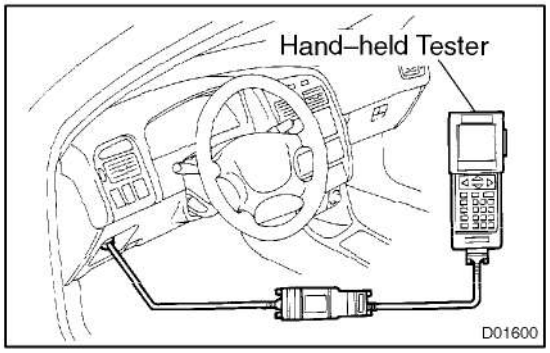
HINT:
Hand–held tester only: Compared to the normal mode, the check mode has high sensing ability to detect malfunctions. Furthermore, the same diagnostic items which are detected in Normal mode can also be detected in check mode.

(a) Check DTC.

(1) Check the initial conditions.
- Battery positive voltage 11 V or more
- Throttle valve fully closed
- Transmission in P range
- Air conditioning switched OFF

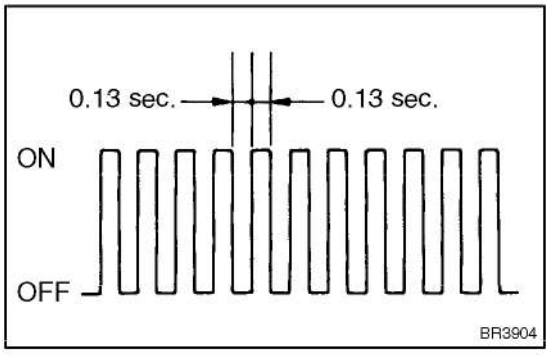
(2) Turn the ignition switch OFF.

(3) Prepare a hand–held tester.



(4) Connect the hand–held tester to DLC3 at the lower part of the instrument panel.

(5) Turn the ignition switch ON and switch the hand–held tester ON.



(6) Switch the hand–held tester from Normal mode to Check mode (Check that the O/D OFF indicator light flashes).

(7) Start the engine (O/D OFF indicator light goes out after the engine starts).

(8) Simulate the conditions of the malfunction described by the customer.

NOTICE:
Leave the ignition switch ON until you have checked the DTCs, etc.

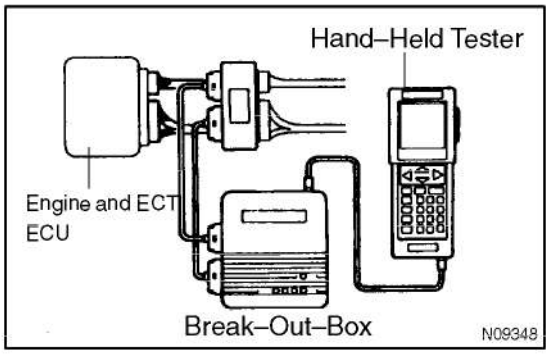
(9) After simulating the malfunction conditions, use the hand–held tester diagnosis selector to check the DTCs and freeze frame data, etc.

HINT:
Take care not to turn the ignition switch OFF, as turning it off switches the diagnosis system from Check mode to Normal mode, all DTCs etc. are erased.

(10) After checking the DTC, inspect the applicable circuit.

(b) When using hand–held tester:
Clear the DTC.
The following operation will erase the DTC and freeze frame data. Operate a hand–held tester to erase the codes.

(c) When not using hand–held tester:
Clear the DTC.
Remove the EFI fuse from engine room J/B for 10 seconds or more.



4. ENGINE and ECT ECU STANDARD VALUES MEASUREMENT USING BREAK–OUT–BOX AND HAND–HELD TESTER

(a) Hook up the break–out–box and hand–held tester to the vehicle.

(b) Read the Engine and ECT ECU input/output values by following the prompts on the tester screen.

HINT:
Hand–held tester has "Snapshot" function. This records the measured values and is effective in the diagnosis of intermittent problems. Please refer to the hand–held tester/break–out–box operator's manual for further details.

5. PROBLEM SYMPTOM CONFIRMATION

Taking into consideration the results of the customer problem analysis, try to reproduce the symptoms of the trouble. If the problem is that the transaxle does not shift up, shift down, or the shift point is too high or too low conduct the following road test referring to the automatic shift schedule and simulate the problem symptoms.

6. ROAD TEST

NOTICE:

Conduct the test at normal operating ATF temperature 50 – 80 °C (122 – 176 °F).

(a) D range test

Shift into the D range and fully depress the accelerator pedal and check the following points:

(1) Check up–shift operation.

Check to see that 1 → 2, 2 → 3 and 3 → O/D up–shift takes place, and that the shift points conform to the automatic shift schedule (See page SS–12).

HINT:

- O/D Gear Up–shift Prohibition Control (1. Water temp. is 60 °C (140 °F) or less. 2. If there is a 10 km/h (6 mph) difference between the set cruise control speed and vehicle speed.)
- O/D Gear Lock–up Prohibition Control (1. Brake pedal is depressed. 2. Water temp. is 60 °C (140 °F) or lower)

(2) Check for shift shock and slip.

Check for shock and slip at the 1 → 2, 2 → 3 and 3 → O/D up–shift.

(3) Check for abnormal noises and vibration.

Run in D range lock–up or O/D gear and check for abnormal noises and vibration.

HINT:

The check for the cause of abnormal noises and vibration must be done very thoroughly as it could also be sure to loss of balance in the differential, torque converter, etc.

(4) Check kick–down operation.

While running in the D range, 2nd, 3rd and O/D gears, check to see that the possible kick–down vehicle speed limits for 2 → 1, 3 → 2 and O/D → 3 kick–downs conform to those indicated in the automatic shift schedule (See page SS–12).

(5) Check abnormal shock and slip at kick–down.

(6) Check the lock–up mechanism.

- Drive in D range O/D gear, at a steady speed (lock–up ON) of about 60 km/h (37 mph).
- Lightly depress the accelerator pedal and check that the engine speed does not change abruptly.

If there is a big jump in engine speed, there is no lock–up.

(b) 2 range test

Shift into the 2 range and fully depress the accelerator pedal and check the following points:

(1) Check up–shift operation.

Check to see that the 1 → 2 up–shift takes place and that the shift point conforms to the automatic shift schedule (See page SS–12).

HINT:

There is no O/D up–shift and lock–up in the 2 range.

(2) Check engine braking.

While running in the 2 range and 2nd gear, release the accelerator pedal and check the engine braking effect.

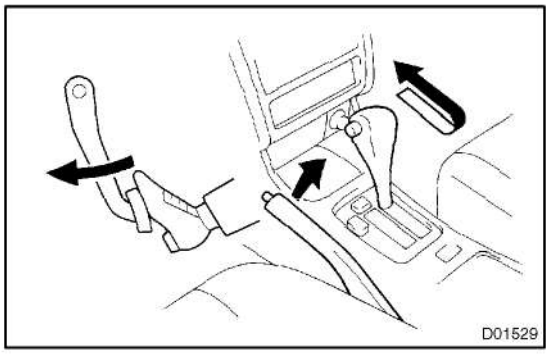
(3) Check for abnormal noises during acceleration and deceleration, and for shock at up–shift and down–shift.

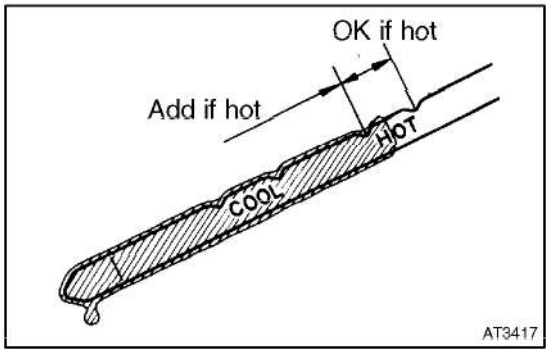
(c) L range test
Shift into the L range and fully depress the accelerator pedal and check the following points:
(1) Check no up–shift.
While running in the L range, check that there is no up–shift to 2nd gear.
(2) Check engine braking.
While running in the L range, release the accelerator pedal and check the engine braking effect.
(3) Check for abnormal noises during acceleration and deceleration.

(d) R range test
Shift into the R range and fully depress the accelerator pedal and check for slipping.

CAUTION:
Before conducting this test ensure that the test area is free from people and obstruction.

(e) P range test.
Stop the vehicle on a grade (more than 5°) and after shifting into the P range, release the parking brake. Then, check to see that the parking lock pawl holds the vehicle in place.





7. BASIC INSPECTION

(a) Check the fluid level.

HINT:

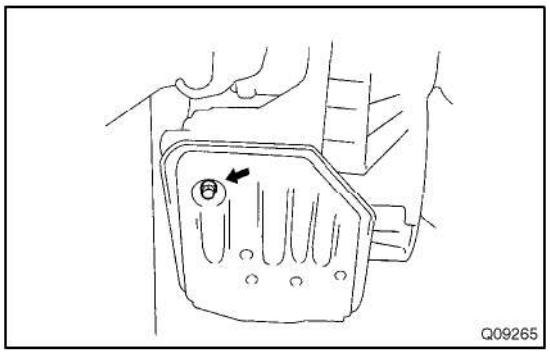
- Drive the vehicle so that the engine and transaxle are at normal operating temperature.
  Fluid temperature: 70 – 80 °C (158 – 176 °F)

(1) Park the vehicle on a level surface and set the parking brake.
(2) With the engine idling and the brake pedal depressed, shift the shift lever into all ranges from P to L range and return to P range.
(3) Pull out the dipstick and wipe it clean.
(4) Push it back fully into the pipe.
(5) Pull it out and check that the fluid level is in the HOT range.

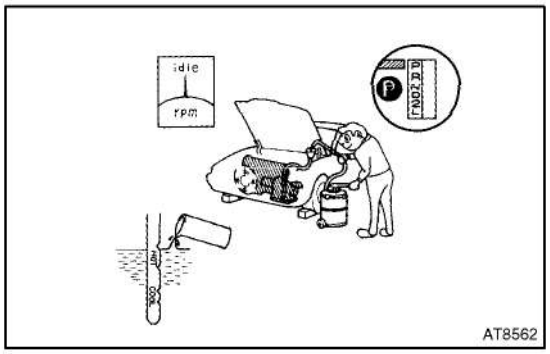
If the level is not within the range, add new fluid.
Fluid type: ATF D–II or DEXRON®III (DEXRON®II)

NOTICE:
Do not overfill.

(b) Check the fluid condition.
If the fluid smells burnt or is black, replace it.



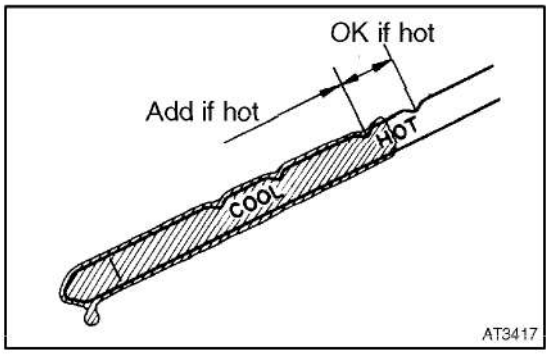
(c) Replace the ATF.
(1) Remove the drain plug and drain the fluid.
(2) Reinstall the drain plug securely.



(3) With the engine OFF add new fluid through the oil filler pipe.

Fluid type: ATF D–II or DEXRON®III (DEXRON®II)
Capacity: 3.3 liters (3.5 US qts, 2.9 Imp.qts)

(4) Start the engine and shift the shift lever into all ranges from P to L range and then shift into P range.

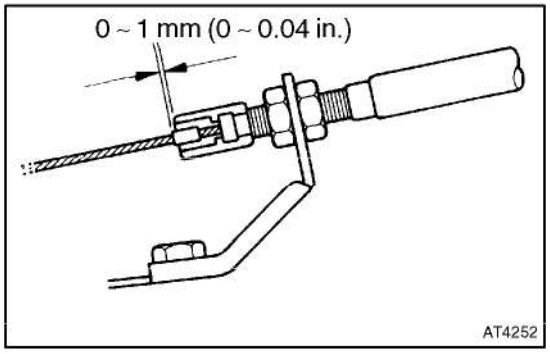


(5) With the engine idling, check the fluid level. Add fluid up to the COOL level on the dipstick.
(6) Check the fluid level at the normal operating temperature, 70 – 80 °C (158 – 176 °F), and add as necessary.

NOTICE:
Do not overfill.

(d) Check the fluid leaks.
Check for leaks in the transaxle.

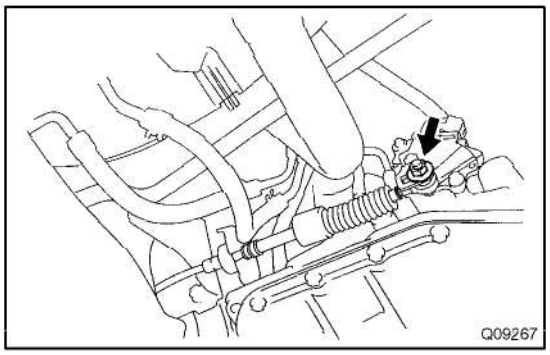
If there are leaks, it is necessary to repair or replace O–rings, FIPGs, oil seals, plugs or other parts.

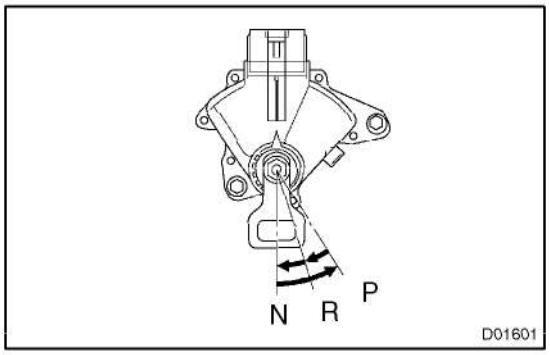


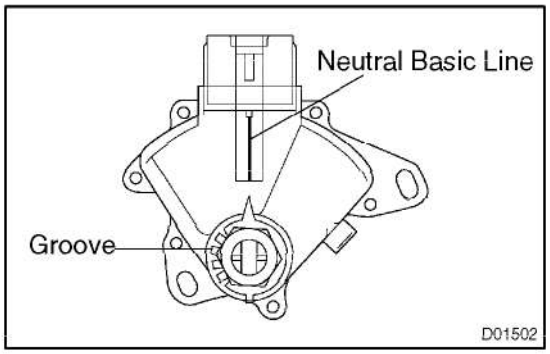
(e) Inspect and adjust the throttle cable.
(1) Check the accelerator pedal is fully released.
(2) Check that the inner cable is not slack.
(3) Measure the distance between the outer cable end and stopper on the cable.

Standard distance: 0 ~ 1 mm (0 ~ 0.04 in.)

If the distance is not the standard, adjust the cable by rotating the adjusting nuts.







(f) Inspect and adjust the shift lever position.

- When shifting the shift lever from the N range to other ranges, check that the lever can be shifted smoothly and accurately to each range and that the position indicator is aligned with the correct position.

If the indicator is not aligned with the correct position, carry out the following adjustment procedures.

- Loosen the nut on the shift lever.
- Push the control shaft fully rearward.
- Return the control shaft lever 2 notches to N range.
- Set the shift lever to N range.
- While holding the shift lever lightly toward the R range side, tighten the shift lever nut.

Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)

- Start the engine and make sure that the vehicle moves forward when shifting the lever from the N to D range and reverses when shifting it to the R range.

(g) Inspect and adjust the neutral start switch.

Check that the engine can be started with the shift lever only in the N or P range, but not in other ranges.

If it is not as stated above, carry out the following adjustment procedures.

- Loosen the neutral start switch bolt and set the shift lever to the N range.
- Align the groove and neutral basic line.
- Hold the switch in position and tighten the bolt.

Torque: 13 N·m (130 kgf·cm, 10 ft·lbf)

- For continuity inspection of the neutral start switch, see page DI–35.

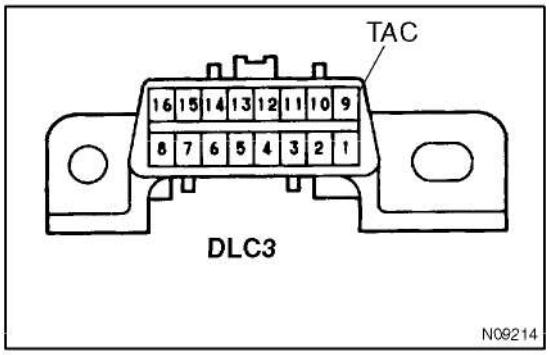
8. MECHANICAL SYSTEM TESTS

(a) Measure the stall speed.

The object of this test is to check the overall performance of the transaxle and engine by measuring the stall speeds in the D and R ranges.

NOTICE:

- **Do the test at normal operating ATF temperature 50 – 80 °C (122 – 176 °F).**
- **Do not continuously run this test for longer than 5 seconds.**
- **To ensure safety, do this test in a wide, clear level area which provides good traction.**
- **The stall test should always be carried out in pairs. One technician should observe the conditions of wheels or wheel stoppers outside the vehicle while the other is doing the test.**



- Chock the 2 wheels.
- Connect a hand–held tester to DLC3 or tachometer to terminal TAC of DLC3 with SST.

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- Fully apply the parking brake.
- Keep your left foot pressing firmly on the brake pedal.
- Start the engine.
- Shift into the D range. Press all the way down on the accelerator pedal with your right foot.
- Quickly read the stall speed at this time.

Stall speed: 2,050 – 2,500 rpm

- Do the same test in the R range.

Stall speed: 2,050 – 2,500 rpm

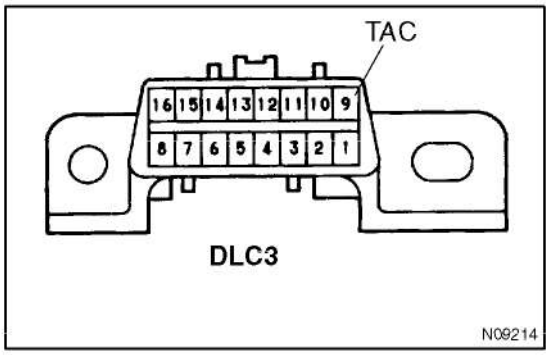
Evaluation:

Problem	Possible cause
(a) Stall speed low in D and R ranges	• Engine output may be insufficient • Stator one–way clutch is operating properly HINT: If more than 600 rpm below the specified value, the torque converter could be faulty.
(b) Stall speed high in D range	• Line pressure too low • Forward clutch slipping • No.2 one–way clutch not operating properly • U/D one–way clutch not operating properly
(c) Stall speed high in R range	• Line pressure too low • Direct clutch slipping • 1st & reverse brake slipping • U/D one–way clutch not operating properly
(d) Stall speed high in D and R ranges	• Line pressure too low • Improper fluid level • U/D one–way clutch not operating properly

(b) Measure the time lag.
When the shift lever is shifted while the engine is idling, there will be a certain time lapse or lag before the shock can be felt. This is used for checking the condition of the O/D direct clutch, forward clutch, and 1st and reverse brake.

NOTICE:

- **Do the test at normal operating ATF temperature 50 – 80 °C (122 – 176 °F).**
- **Be sure to allow 1 minute interval between tests.**
- **Take 3 measurements and take the average value.**



- Chock the 4 wheels.
- Connect a hand–held tester to DLC3 or tachometer to terminal TAC of DLC3 with SST.

SST 09843–18030

- Start engine and check idle speed.

Idle speed: 750 ± 50 rpm (In N range and A/C OFF)

- Shift the lever from N to D range. Using a stop watch, measure the time from when the lever is shifted until the shock is felt.

Time lag: N → D less than 1.2 seconds

- In the same way, measure the time lag for N → R.

Time lag: N → R less than 1.5 seconds

Evaluation (If N → D or N → R time lag is longer than the specified):

Problem	Possible cause
N → D time lag is longer	• Line pressure too low • Forward clutch worn • U/D one–way clutch not operating properly
N → R time lag is longer	• Line pressure too low • Direct clutch worn • 1st & reverse brake worn • U/D one–way clutch not operating properly

9. HYDRAULIC TEST

(a) Measure the line pressure.

NOTICE:

- **Do the test at normal operation ATF temperature 50 – 80 °C (122 – 176 °F).**
- **The line pressure test should always be carried out in pairs. One technician should observe the conditions of wheels or wheel stopper outside the vehicle while the other is doing the test.**
- **Be careful to prevent SST's hose from interfering with the exhaust pipe.**

(1) Warm up the ATF.

(2) Remove the test plug on the right side of the transaxle case and connect SST.
(See page AX–30 for the location to connect SST)

SST 09992–00095 (09992– 00231, 09992–00271)

(3) Fully apply the parking brake and chock the 4 wheels.

(4) Connect a hand–held tester to DLC3.

(5) Start the engine and check idling speed.

(6) Keep your left foot pressing firmly on the brake pedal and shift into D range.

(7) Measure the line pressure when the engine is idling.

(8) Depress the accelerator pedal all the way down. Quickly read the highest line pressure when engine speed reaches stall speed.

(9) In the same way, do the test in R range.

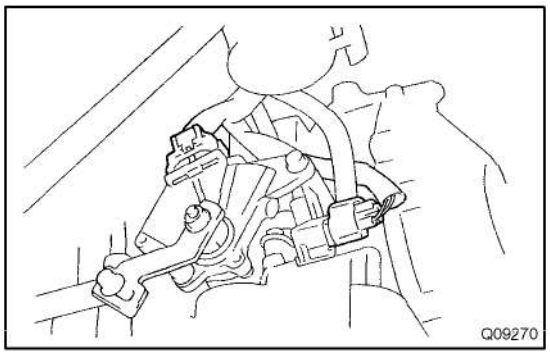
Specified line pressure:

Condition	D range kPa (kgf / cm^2, psi)	R range kPa (kgf / cm^2, psi)
Idling	372 – 422 (3.8 – 4.3, 54 – 61)	637 – 795 (6.5 – 8.1, 92 – 115)
Stall	715 – 863 (7.3 – 8.8, 103 – 125)	1333 – 1579 (13.6 – 16.1, 194 – 229)

If the measured pressure is not up to the specified value, recheck the throttle cable adjustment and retest.

Evaluation:

Problem	Possible cause
If the measured values at all ranges are higher	• Throttle cable out of adjustment • Throttle valve defective • Regulator valve detective
If the measured values at all ranges are lower	• Throttle cable out of adjustment • Throttle valve defective • Regulator valve defective • Oil pump defective • U/D direct clutch defective
If pressure is low in the D range only	• D range circuit fluid leakage • Forward clutch defective
If pressure is low in the R range only	• R range circuit fluid leakage • Direct clutch defective • 1st & reverse brake defective



10. MANUAL SHIFTING TEST

HINT:

By this test, it can be determined whether the trouble is within the electrical circuit or is a mechanical problem in the transaxle.

(a) Disconnect the solenoid wire.

(b) Inspect the manual driving operation.
Check that the shift and gear positions correspond to the table below.
While driving, shift through the L, 2 and D ranges.
Check that the gear change corresponds to the shift range.

Shift range	Gear position
D	O/D
2	3rd
L	1st
R	Reverse
P	Pawl Lock

HINT:

If the L, 2 and D range gear positions are difficult to distinguish, do the above read test.

If any abnormality is found in the above test, the problem is in the transaxle itself.

(c) Connect the solenoid wire.

(d) Cancel out DTC.

DI1FQ-02

DIAGNOSTIC TROUBLE CODE CHART

If a DTC is displayed during the DTC check, check the circuit listed for that code in the table below and proceed to the page given.

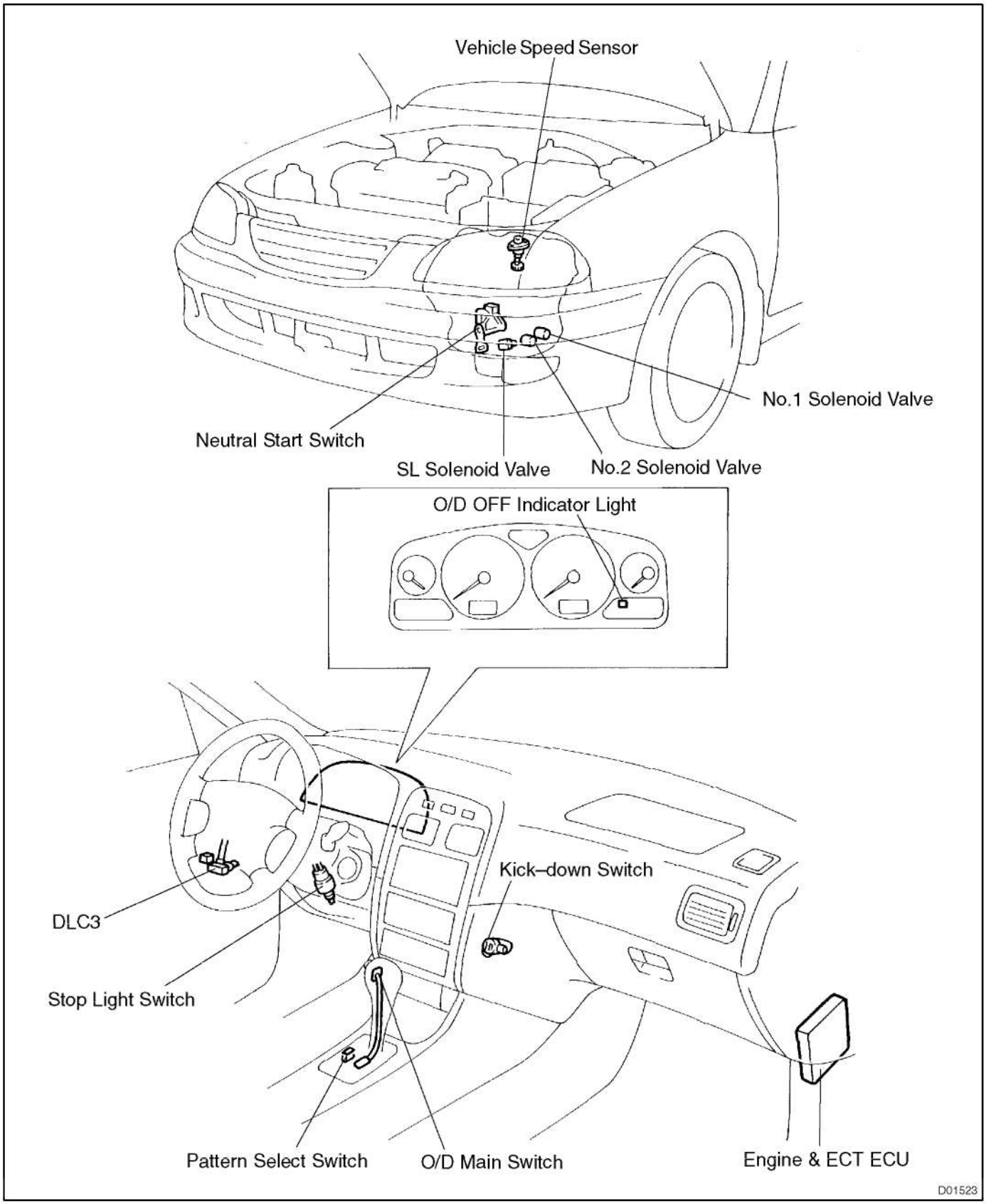
DTC No. (See Page)	Detection Item	Trouble Area	O/D OFF Indicator Light Blink*1	Memory*2
P0500/42 (DI–25)	Vehicle speed sensor malfunction (Vehicle Speed Sensor)	• Open or short in vehicle speed sensor circuit • Vehicle speed sensor • Combination meter • Engine and ECT ECU	○	○
P0753/62 (DI–28)	Shift solenoid "A" electrical malfunction (No.1 solenoid valve)	• Open or short in No.1 solenoid valve circuit • No.1 solenoid valve • Engine and ECT ECU	○	○
P0758/63 (DI–28)	Shift solenoid "B" electrical malfunction (No.2 solenoid valve)	• Open or short in No.2 solenoid valve circuit • No.2 solenoid valve • Engine and ECT ECU	○	○
P0773/64 (DI–32)	Shift solenoid "E" electrical malfunction (SL solenoid valve)	• Open or short in SL solenoid valve circuit • SL solenoid valve • Engine and ECT ECU	X	○

*1: "○" mark means O/D OFF indicator light blinks once every 2 seconds.
"X" mark means O/D OFF indicator light never blinks.

*2: "○" mark means the Engine and ECT ECU memorizes the malfunction code if the Engine and ECT ECU detects the DTC detection condition.

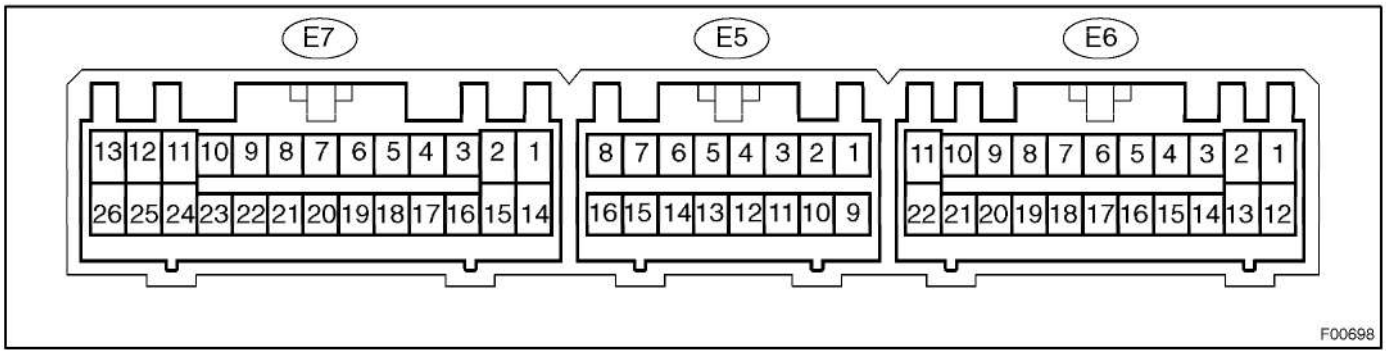
DI027-01

PARTS LOCATION



DI02U-01

TERMINALS OF ECU



Symbols (Terminals No.)	Wiring Color	Condition	STD Voltage (V)
S1 (E7 – 23) – E1 (E7 – 14)	LG–R ↔ BR	IG ON	9 – 14
		1st or 2nd gear	9 – 14
		3rd or O/D gear	Below 1.5
S2 (E7 – 22) – E1 (E7 – 14)	V–W ↔ BR	IG ON	Below 1.5
		2nd or 3rd gear	9 – 14
		1st or O/D gear	Below 1.5
SL (E7 – 21) – E1 (E7 – 14)	G ↔ BR	IG ON	Below 1.5
		Vehicle driving under lock–up position	9 – 14
NSW (E7 – 1) – E1 (E7 – 14)	B–W ↔ BR	IG ON and shift lever P or N range	Below 3
		IG ON and shift lever other than P or N range	9 – 14
OD2 (E6 – 22) – E1 (E7 – 14)	L ↔ BR	IG ON and O/D main switch ON (O/D OFF)	9 – 14
		IG ON and O/D main switch OFF (O/D ON)	Below 3
SPD (E6 – 9) – E1 (E7 – 14)	G ↔ BR	IG ON and vehicle stationary	Below 1.5
		IG ON and turn one front wheel slowly	Pulse signal is output Below 1.5 ↔ 4 – 6
L (E6 – 19) – E1 (E7 – 14)	Y–G ↔ BR	IG ON and shift lever L range	9 – 14
		IG ON and shift lever other than L range	Below 1.5
2 (E6 – 18) – E1 (E7 – 14)	O ↔ BR	IG ON and shift lever 2 range	9 – 14
		IG ON and shift lever other than 2 range	Below 1.5
B/K (E6 – 4) – E1 (E7 – 14)	G–W ↔ BR	IG ON and brake pedal is depressed	9 – 14
		IG ON and brake pedal is released	Below 1.5
KD (E6 – 17) – E1 (E7 – 14)	Y ↔ BR	IG ON and accelerator pedal is fully depressed	Below 1.5
		IG ON and accelerator pedal is released	9 –14
P (E7 – 3) – E1 (E7 – 14)	P ↔ BR	IG ON and pattern select switch: PWR	9 – 14
		IG ON and pattern select switch: NORM	Below 1.5
SNOWI (E7 – 18) – E1 (E7 – 14)	P–B ↔ BR	IG ON and SNOW mode switch: ON	9 – 14
		IG ON and SNOW mode switch: OFF	Below 1.5

DI1FT-02

PROBLEM SYMPTOMS TABLE

If a normal code is displayed during the DTC check but the trouble still occurs, check the circuits for each symptom in the order given in the charts on the following pages and proceed to the page given for trouble-shooting.

HINT:

The Matrix Chart is divided into 3 chapters.

Chapter 1: Electronic Circuit Matrix Chart

Chapter 2: On–vehicle Repair Matrix Chart

Chapter 3: Off–vehicle Repair Matrix Chart

- If the instruction "Proceed to next circuit inspection shown in matrix chart" is given in the flow chart for each circuit, proceed to the circuit with the next highest number in the table to continue the check.
- If the trouble still occurs even though there are no abnormalities in any of the other circuits, then check and replace the Engine and ECT ECU.

1. Chapter 1: Electronic Circuit Matrix Chart

Symptom	Suspect Area	See page
No up–shift (A particular gear, from 1st to 3rd gear, is not up–shifted)	Engine and ECT ECU	IN–28
No up–shift (3rd → O/D)	1. O/D main switch and O/D OFF indicator light circuit 3. Engine and ECT ECU	DI–42 IN–28
No down–shift (A particular gear, from 1st to 3rd gear, is not up–shifted)	Engine and ECT ECU	IN–28
No down–shift (O/D → 3rd)	1. O/D main switch and O/D OFF indicator light circuit 3. Engine and ECT ECU	DI–42 IN–28
No lock–up	Engine and ECT ECU	IN–28
No lock–up OFF	Engine and ECT ECU	IN–28
Shift point too high or too low	Engine and ECT ECU	IN–28
Up–shift to O/D from 3rd while O/D main switch is OFF	1. O/D main switch and O/D OFF indicator light circuit 2. Engine and ECT ECU	DI–42 IN–28
Up–shift to O/D from 3rd while engine is cold	Engine and ECT ECU	IN–28
No kick–down	1. Kick–down switch 2. Engine and ECT ECU	IN–28 DI–49
Engine stalls when starting off or stopping	Engine and ECT ECU	IN–28

2. Chapter 2: On–vehicle Repair (★ : A241L, A241E AUTOMATIC TRANSAXLE Repair Manual Pub. No. RM177E)

Symptom	Suspect Area	See page
Does not move in any forward ranges	Off–vehicle matrix chart	–
Does not move in reverse range	Off–vehicle matrix chart	–
Does not move in any ranges	1. Primary regulator valve 2. Manual valve 3. Throttle valve 4. Off–vehicle matrix chart	★ ★ ★ –
No–up shift (1st → 2nd)	1. 1 – 2 shift valve 2. Off–vehicle matrix chart	★ –
No–up shift (2nd → 3rd)	1. 2 – 3 shift valve 2. Off–vehicle matrix chart	★ –
No–up shift (3rd → O/D)	1. 3 – 4 shift valve 2. Off–vehicle matrix chart	★ –
No–down shift (O/D → 3rd)	1. 3 – 4 shift valve 2. Off–vehicle matrix chart	★ –
No–down shift (3rd → 2nd)	1. 2 – 3 shift valve 2. Off–vehicle matrix chart	★ –
No–down shift (2nd → 1st)	1. 1 – 2 shift valve 2. Off–vehicle matrix chart	★ –
Harsh engagement (N → R)	1. C_2 accumulator 2. Off–vehicle matrix chart	★ –
Harsh engagement (N → D)	1. C_1 accumulator 2. Off–vehicle matrix chart	★ –
Harsh engagement (N → L)	1. C_1 accumulator 2. Low coast modulator valve 3. Off–vehicle matrix chart	★ ★ –
Harsh engagement (1st → 2nd "D" range)	1. Accumulator control valve 2. B_2 accumulator 3. Off–vehicle matrix chart	★ ★ –
Harsh engagement (1st → 2nd "2" range)	1. B_2 accumulator 2. Accumulator control valve 3. 2nd coast modulator control 4. Off–vehicle matrix chart	★ ★ ★ –
Harsh engagement (1st → 2nd → 3rd → O/D)	1. Throttle valve 2. Primary regulator valve	★ ★
Harsh engagement (2nd → 3rd)	1. C_2 accumulator 2. Accumulator control valve 3. Off–vehicle matrix chart	★ ★ –
Harsh engagement (3rd → O/D)	1. B_2 accumulator 2. C_3 accumulator 3. Off–vehicle matrix chart	★ ★ –
Harsh engagement (O/D → 3rd)	1. B_4 accumulator 2. Off–vehicle matrix chart	★ –
Harsh engagement (3rd → 2nd)	1. C_2 accumulator 2. Off–vehicle matrix chart	★ –
Slip (Forward and Reverse)	1. Primary regulator valve 2. Oil strainer 3. Off–vehicle matrix chart	★ ★ –
Slip ("R" range, 1st, 2nd, 3rd, O/D)	Off–vehicle matrix chart	–

Symptom	Suspect Area	See page
No engine braking (1st "L" range)	1. Low coast modulator valve 2. Off–vehicle matrix chart	★ –
No engine braking (2nd "2" range)	1. 2nd coast modulator valve 2. Off–vehicle matrix chart	★ –
No kick down	1. 1 – 2 shift valve 2. 2 – 3 shift valve 3. 3 – 4 shift valve	★ ★ ★
Poor acceleration	1. Primary regulator valve 2. Off–vehicle matrix chart	★ –
No lock–up	1. Lock–up relay valve 2. Off–vehicle matrix chart	★ –

3. Chapter 3: Off–vehicle Repair (★ : A241L, A241E AUTOMATIC TRANSAXLE Repair Manual Pub. No. RM177E)

Symptom	Suspect Area	See page
Does not move in any forward ranges	Forward clutch (C_1)	★
Does not move in reverse range	1. Direct clutch (C_2) 2. 1st & reverse brake (B_3) 3. U/D brake (B_4)	★ ★ ★
Does not move in any ranges	1. Torque converter 2. Oil pump 3. U/D one–way clutch (F_3) 4. Front planetary gear 5. Rear planetary gear	AX–36 ★ ★ ★ ★
No–up shift (1st → 2nd)	1. 2nd brake (B_2) 2. No.1 one–way clutch (F_1)	★ ★
No–up shift (2nd → 3rd)	Direct clutch (C_2)	★
No–up shift (3rd → O/D)	U/D clutch (C_3)	★
No–down shift (O/D → 3rd)	1. U/D brake (B_4) 2. U/D one–way clutch (F_3)	★ ★
No–down shift (3rd → 2nd)	No.1 one–way clutch (F_1)	★
No–down shift (2nd → 1st)	No.2 one–way clutch (F_2)	★
Harsh engagement (N → R)	1. Direct clutch (C_2) 2. 1st & reverse brake (B_3)	★ ★
Harsh engagement (N → D)	Forward clutch (C_1)	★
Harsh engagement (N → L)	Forward clutch (C_1)	★
Harsh engagement (1st → 2nd "D" range)	1. 2nd brake (B_2) 2. No.1 one–way clutch (F_1)	★ ★
Harsh engagement (1st → 2nd "2" range)	1. 2nd coast brake (B_1) 2. 2nd brake (B_2) 3. No.1 one–way clutch (F_1)	★ ★ ★
Harsh engagement (2nd → 3rd)	Direct clutch (C_2)	★
Harsh engagement (3rd → O/D)	U/D clutch (C_3)	★
Harsh engagement (O/D → 3rd)	U/D brake (B_4)	★
Harsh engagement (3rd → 2nd)	Direct clutch (C_2)	★
Slip (Forward and Reverse)	1. Torque converter 2. Oil pump 3. On–vehicle matrix chart	AX–36 ★ –
Slip ("R" range)	1. Direct clutch (C_2) 2. 1st & reverse brake (B_3)	★ ★
Slip (1st)	1. Forward clutch (C_1) 2. No.2 one–way clutch (F_2) 3. U/D one–way clutch (F_3)	★ ★ ★

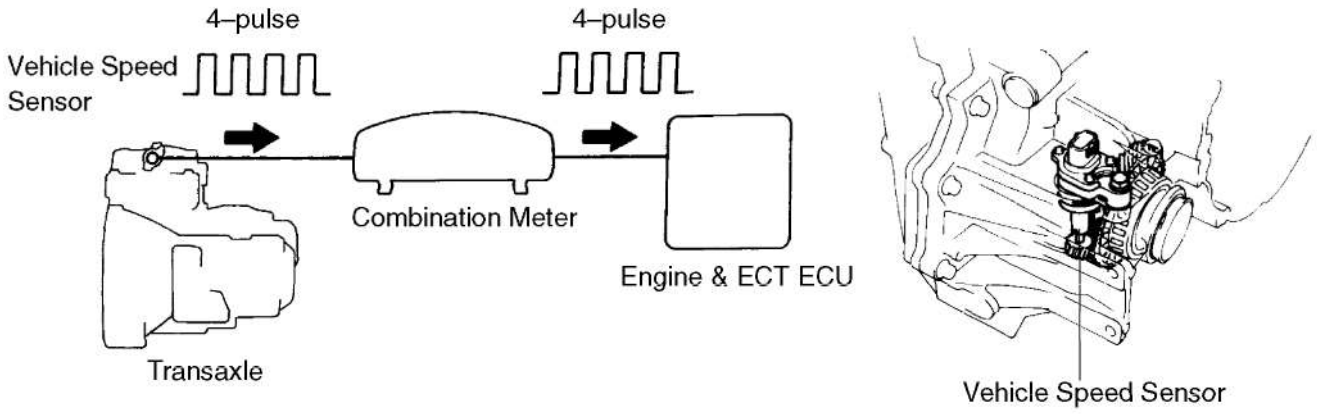
Slip (2nd)	1. Forward clutch (C_1) 2. 2nd brake (B_2) 3. No.1 one–way clutch (F_1) 4. U/D one–way clutch (F_3)	★ ★ ★ ★
Slip (3rd)	1. Forward clutch (C_1) 2. Direct clutch (C_2) 3. U/D one–way clutch (F_3)	★ ★ ★
Slip (O/D)	1. Forward clutch (C_1) 2. Direct clutch (C_2) 3. U/D clutch (C_3)	★ ★ ★
No engine braking (1st "L" range)	1st & reverse brake (B_3)	★
No engine braking (2nd "2" range)	2nd coast brake (B_1)	★
Poor acceleration	1. Torque converter 2. Forward clutch (C_1)	AX–36 ★
No lock–up	Torque converter	AX–36
Engine stalls when starting off or stopping	Torque converter	AX–36

DI02V–01

CIRCUIT INSPECTION

DTC	P0500/42	Vehicle Speed Sensor Malfunction

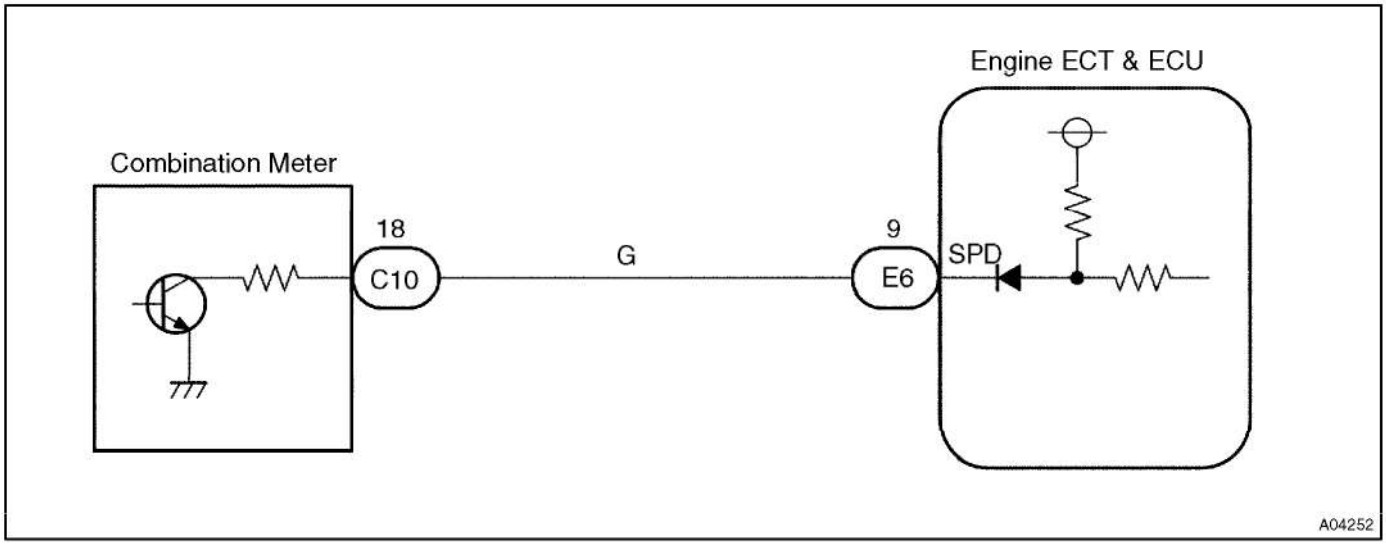
The vehicle speed sensor outputs a 4–pulse signal for every revolution of the rotor shaft, which is rotated by the transmission output shaft via the driven gear. After this signal is converted into a more precise rectangular waveform by the waveform shaping circuit inside the combination meter, it is then transmitted to the Engine & ECT ECU. The Engine & ECT ECU determines the vehicle speed sensor based on the frequency of these pulse signals.



D02245

DTC No.	DTC Detecting Condition	Trouble Area
P0500/42	• No vehicle speed sensor signal to Engine & ECT ECU under conditions (a) and (b): (1–trip detection logic) (a) Neutral start switch OFF (b) Vehicle is being driven • Clutch or brake slips or gear is broken. (1–trip detection logic)	• Open or short in vehicle speed sensor circuit • Vehicle speed sensor • Combination meter • Engine & ECT ECU • Automatic transaxle (clutch, brake or gear etc.)

WIRING DIAGRAM



A04252

INSPECTION PROCEDURE

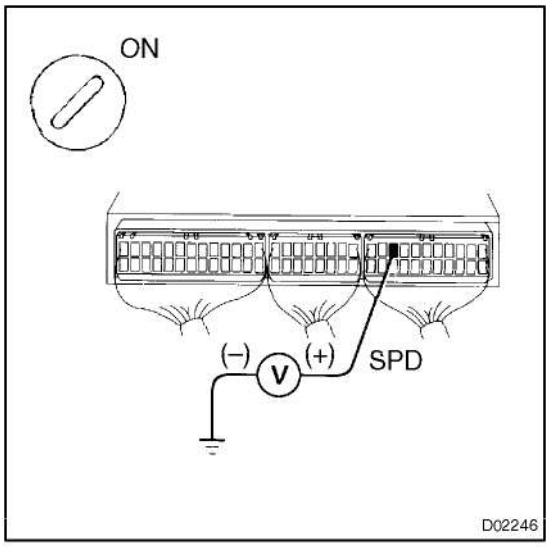
1	**Check operation of speedometer.**

CHECK:
Drive the vehicle and check if the operation of the speedometer in the combination meter is normal.
HINT:
The vehicle speed sensor is operating normally if the speedometer display is normal.

NG → **Check speedometer circuit. See combination meter troubleshooting. (See page BE–63)**

OK

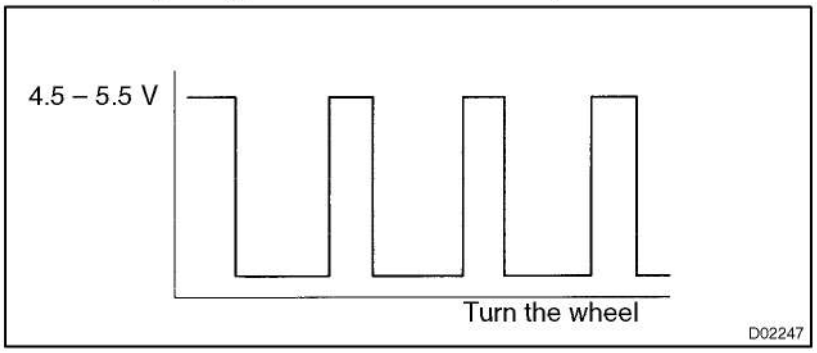
2	**Check voltage between terminal SPD of Engine & ECT ECU connector and body ground.**



PREPARATION:
(a) Turn up the floor mat on the passenger side.
(b) Remove the 2 bolts for Engine & ECT ECU.
(c) Shift the shift lever to N range or neutral.
(d) Jack up one of the front wheels.
(e) Turn ignition switch ON.

CHECK:
Measure voltage between terminal SPD of Engine & ECT ECU connector and body ground when the wheel is turned slowly.

OK:
Voltage is generated intermittently.



NG → **Check and repair harness and connector between combination meter and Engine & ECT ECU. (See page IN–28)**

OK

3	Check Engine & ECT ECU (See page IN–28).

NG → Replace Engine & ECT ECU.

OK →

Check repair transaxle (clutch, brake or gear etc.).

DTC	P0753/62,P0758/63	Shift Solenoid A/B Electrical Malfunction (No.1/No.2 Solenoid Valve)

CIRCUIT DESCRIPTION

Shifting from 1st to O/D is performed in combination with ON and OFF of the No.1 and No.2 solenoid valves controlled by Engine & ECT ECU. If an open or short circuit occurs in either of the solenoid valves, the Engine & ECT ECU controls the remaining normal solenoid valve to allow the vehicle to be operated smoothly (Fail safe function).

Range	NORMAL			NO.1 SOLENOID MALFUNCTIONING			NO.2 SOLENOID MALFUNCTIONING			BOTH SOLENOIDS MALFUNCTIONING
	Solenoid valve		Gear	Solenoid valve		Gear	Solenoid valve		Gear	Gear when shift selector is manually operated
	No.1	No.2		No.1	No.2		No.1	No.2		
D	ON	OFF	1st	X	ON	3rd	ON	X	1st	O/D
	ON	ON	2nd	X	ON	3rd	OFF	X	O/D	O/D
	OFF	ON	3rd	X	ON	3rd	OFF	X	O/D	O/D
	OFF	OFF	O/D	X	OFF	O/D	OFF	X	O/D	O/D
2	ON	OFF	1st	X	ON	3rd	ON	X	1st	3rd
	ON	ON	2nd	X	ON	3rd	OFF	X	3rd	3rd
	OFF	ON	3rd	X	ON	3rd	OFF	X	3rd	3rd
L	ON	OFF	1st	X	OFF	1st	ON	X	1st	1st
	ON	ON	2nd	X	ON	2nd	ON	X	1st	1st

X: Malfunctions

HINT:

Check the No.1 solenoid valve when DTC P0753/62 is output and check the No.2 solenoid valve when DTC P0758/63 is output.

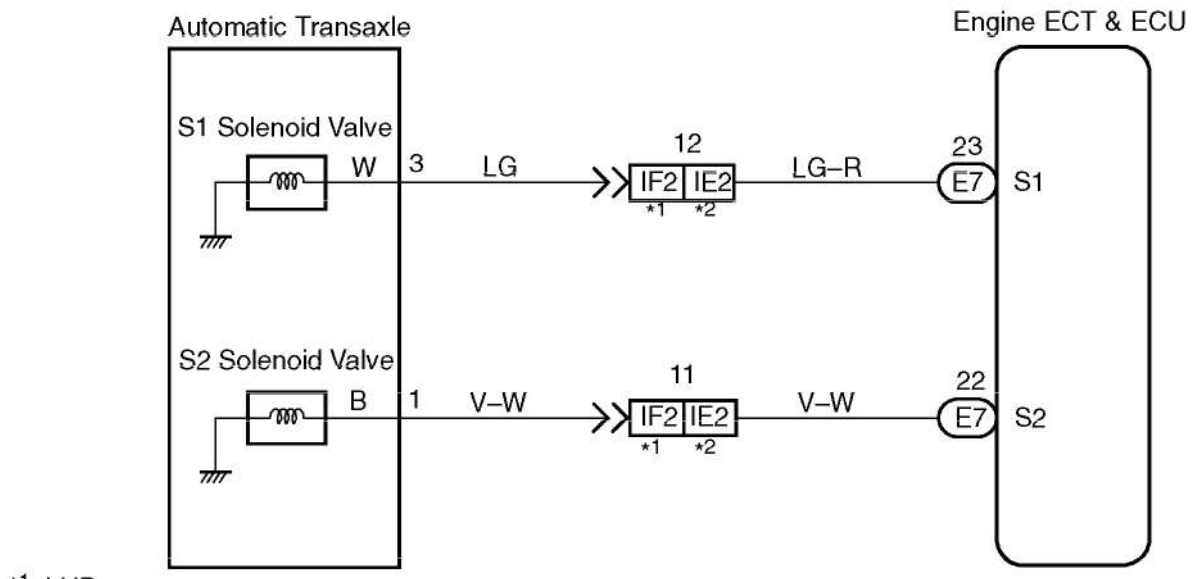
DTC No.	DTC Detecting Condition	Trouble Area
P0753/62 P0758/63	The Engine & ECT ECU checks for an open or short circuit in the No.1 or No.2 solenoid valve circuit when it changes. The Engine & ECT ECU records DTC P0753/62 or P0758/63 if condition (a) or (b) is detected once, but it does not blink the O/D OFF indicator light. After Engine & ECT ECU detects condition (a) or (b) continuously 8 times or more in one–trip, it causes the O/D OFF indicator light to light up until condition (a) or (b) disappears. After that, if the Engine & ECT ECU detects condition (a) or (b) once, it starts lighting up O/D OFF indicator light again. (a) Solenoid resistance is 8 Ω or less (short circuit) when the solenoid is energized. (b) Solenoid resistance is 100 kΩ or more (open circuit) when the solenoid is not energized.	• Open or short in No.1/No.2 solenoid valve circuit • No.1/No.2 solenoid valve • Engine & ECT ECU

Fail Safe Function:

If either of the solenoid valve circuits develops an open or short, the Engine & ECT ECU turns the other solenoid valve ON and OFF to shift to the gear positions shown in the table above. The Engine & ECT ECU also turns the SL solenoid valve OFF at the same time. If both solenoids malfunction, hydraulic control cannot be performed electronically and must be done manually.

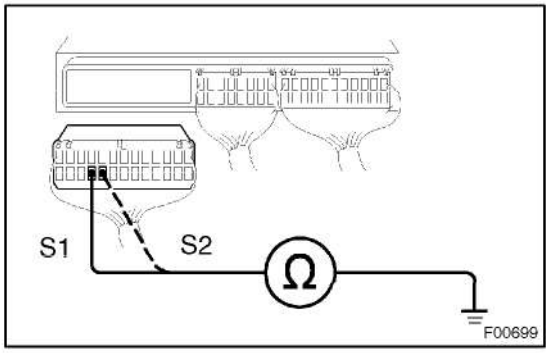
Manual shifting as shown in the above table must be done (In the case of a short circuit, the Engine & ECT ECU stops sending current to the short circuited solenoid).

WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Measure resistance between terminal S1 or S2 of Engine & ECT ECU and body ground.**

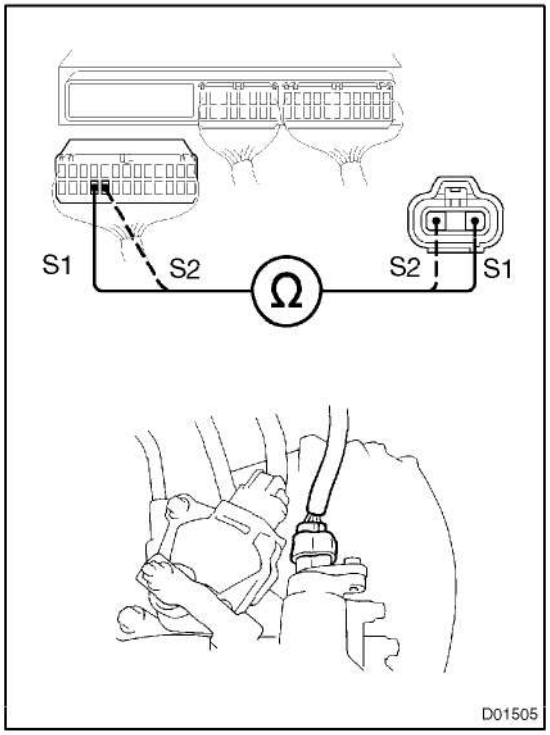


PREPARATION:
Disconnect the connector from Engine & ECT ECU.
CHECK:
Measure resistance between terminal S1 or S2 of Engine & ECT ECU and body ground.
OK:
Resistance: 11 ~ 15 Ω at 20 °C (68 °F)

OK	**Check and replace the Engine & ECT ECU (See page IN–28).**

NG

2	**Check harness and connector between Engine & ECT ECU and automatic transmission solenoid connector.**



PREPARATION:
Disconnect the solenoid connector from the automatic transmission.

CHECK:
Check the harness and connector between terminal S1 or S2 of Engine & ECT ECU and terminal S1 or S2 of solenoid connector.

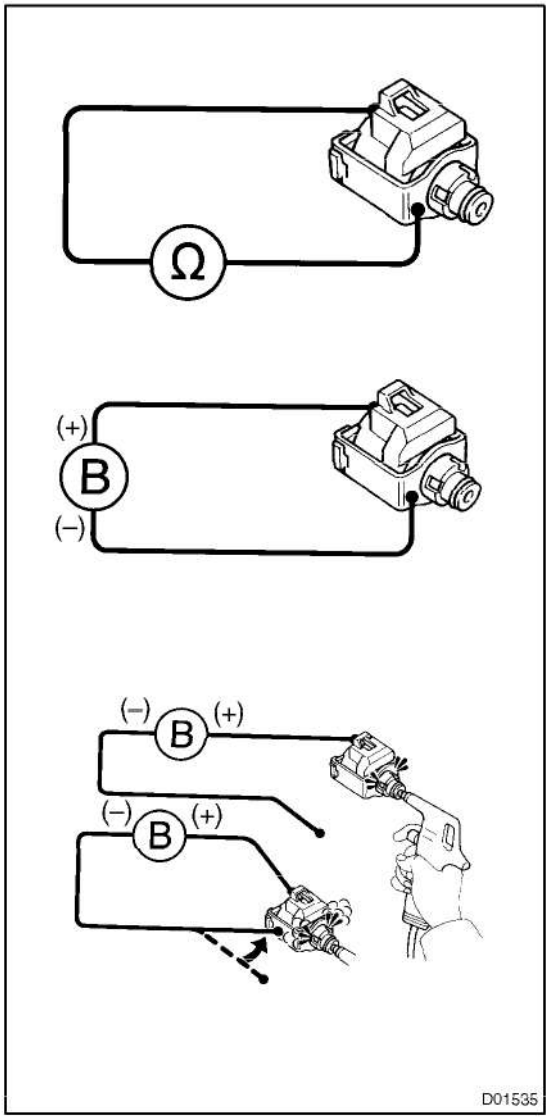
OK:

There is no open and short circuit.

NG → **Repair or replace the harness or connector (See page IN–28).**

OK →

3	Check No.1 or No.2 solenoid valve.



Electrical Check:

PREPARATION:

(a) Jack up the vehicle.
(b) Remove the oil pan.
(c) Disconnect the solenoid connector.
(d) Remove the No.1 or No.2 solenoid valve.

CHECK:

(a) Measure resistance between solenoid connector and body ground.
(b) Connect positive ⊕ lead of the battery to terminal of solenoid connector, negative ⊖ lead of the battery to solenoid body.

OK:

(a) Resistance: 11 ~ 15 Ω at 20 °C (68 °F)
(b) The solenoid makes an operating noise

Mechanical Check:

PREPARATION:

(a) Jack up the vehicle.
(b) Remove the oil pan.
(c) Disconnect the solenoid connector.
(d) Remove the No.1 or No.2 solenoid valve.

CHECK:

(a) Applying 490 kPa (5 kgf/cm^2, 71 psi) of compressed air, check that the solenoid valve does not leak air.
(b) When battery positive voltage is supplied to the solenoid valve, check that the valve opens.

OK:

(a) Solenoid valve does not leak air
(b) Solenoid valve opens

NG → **Replace the solenoid valve.**

OK

Repair or replace the solenoid wire.

DI02X–01

DTC	P0773/64	Shift Solenoid E Electrical Malfunction (SL Solenoid Valve)

CIRCUIT DESCRIPTION

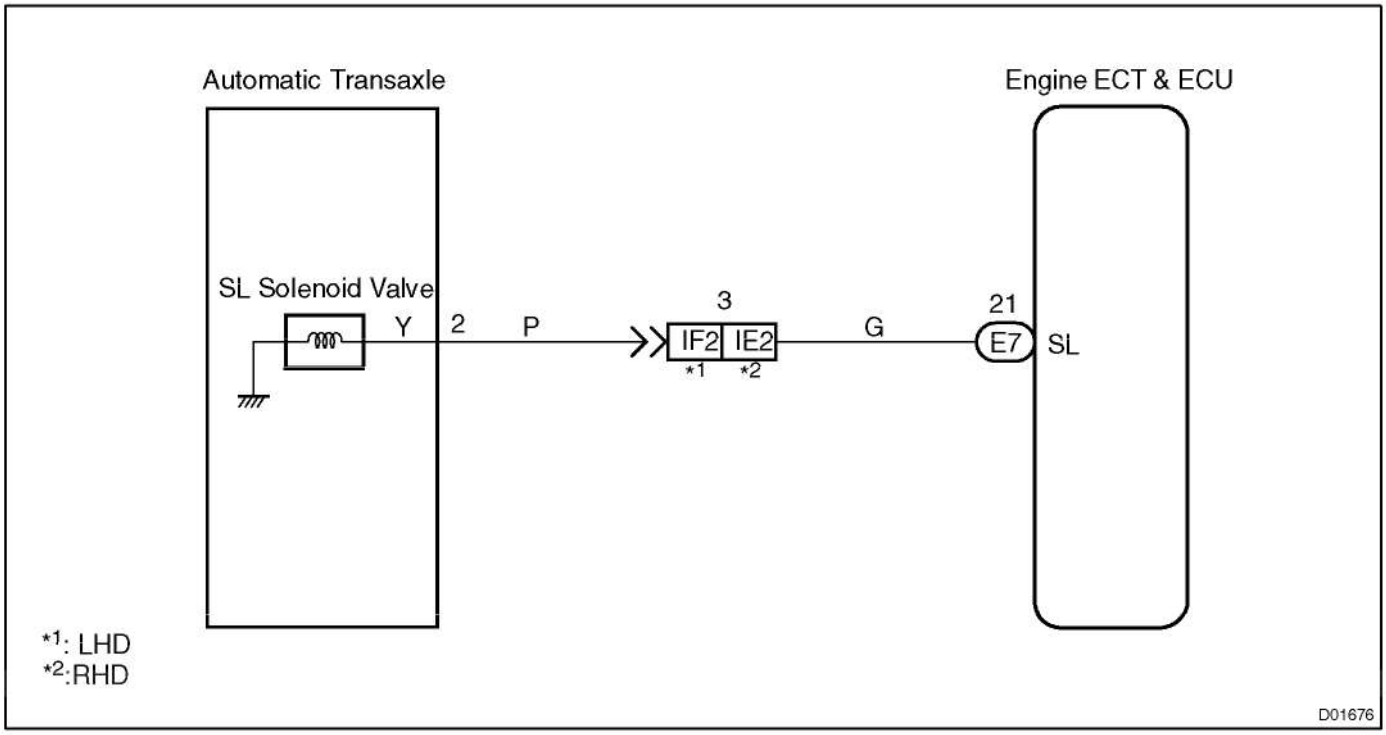
The SL solenoid valve is turned ON and OFF by signals from the Engine & ECT ECU to control the hydraulic pressure acting on the lock–up relay valve, which then controls operation of the lock–up clutch.

DTC No.	DTC Detecting Condition	Trouble Area
P0773/64	Either (a) or (b) is detected 1 time. (a) Solenoid resistance is 8 Ω or less (short circuit) when the solenoid is energized. (b) Solenoid resistance is 100 kΩ or more (open circuit) when the solenoid is not energized.	• Open or short in SL solenoid valve circuit • SL solenoid valve • Engine & ECT ECU

Fail safe function

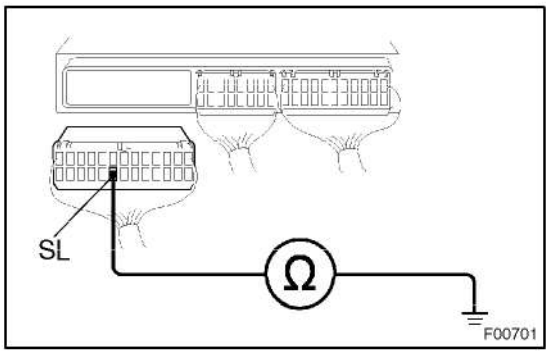
If the Engine & ECT ECU detects a malfunction, it turns the SL solenoid valve OFF.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Measure resistance between terminal SL of Engine & ECT ECU and body ground.**



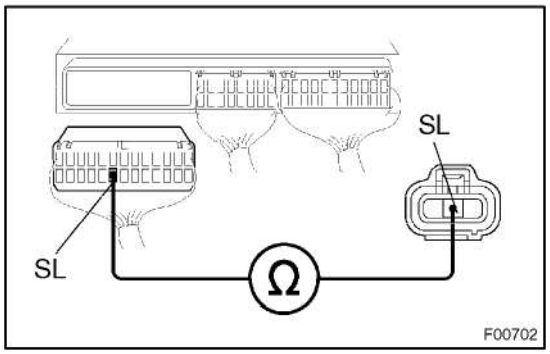
PREPARATION:
Disconnect the connector from Engine & ECT ECU.
CHECK:
Measure resistance between terminal SL of Engine & ECT ECU and body ground.
OK:

Resistance: 11 ~ 15 Ω at 20 °C (68 °F)

OK → **Check and replace the Engine & ECT ECU (See page IN–28).**

NG

2	**Check harness and connector between Engine & ECT ECU and automatic transaxle solenoid connector.**



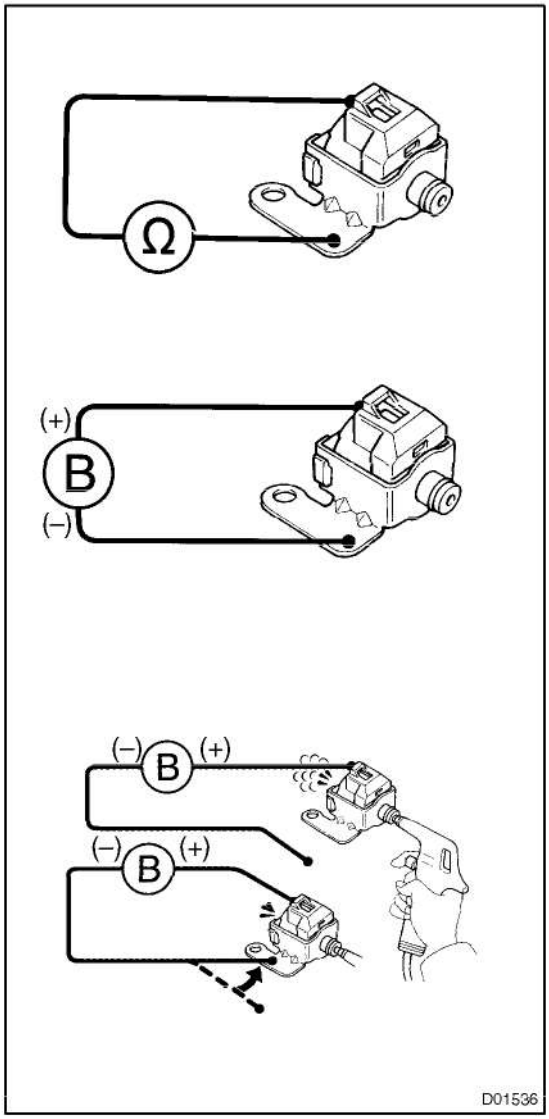
PREPARATION:
Disconnect the solenoid connector from the transaxle.
CHECK:
Check the harness between terminal SL of Engine & ECT ECU and terminal SL of transaxle solenoid connector.
OK:

There is no open or short circuit.

NG → **Repair or replace the harness or connector.**

OK

3	Check SL solenoid valve.



Electrical Check:

PREPARATION:

(a) Jack up the vehicle.
(b) Remove the oil pan.
(c) Disconnect the solenoid connector.
(d) Remove the SL solenoid valve.

CHECK:

(a) Measure resistance between terminal SL of solenoid valve and solenoid body.
(b) Connect positive ⊕ lead of the battery to terminal of solenoid connector, negative ⊖ lead of the battery to solenoid body.

OK:

(a) Resistance: 11 ~ 15 Ω at 20 °C (68 °F)
(b) The SL solenoid valve makes operating noise

Mechanical Check:

PREPARATION:

(a) Jack up the vehicle.
(b) Remove the oil pan.
(c) Disconnect the solenoid connector.
(d) Remove the SL solenoid valve.

CHECK:

(a) Applying 490 kPa (5 kgf/cm^2, 71 psi) of compressed air, check that the solenoid valve does not leak air.
(b) When battery positive voltage is supplied to the solenoid valve, check that the solenoid valve opens.

OK:

(a) Solenoid valve does not leak air
(b) Solenoid valve opens

NG → **Replace the SL solenoid valve.**

OK

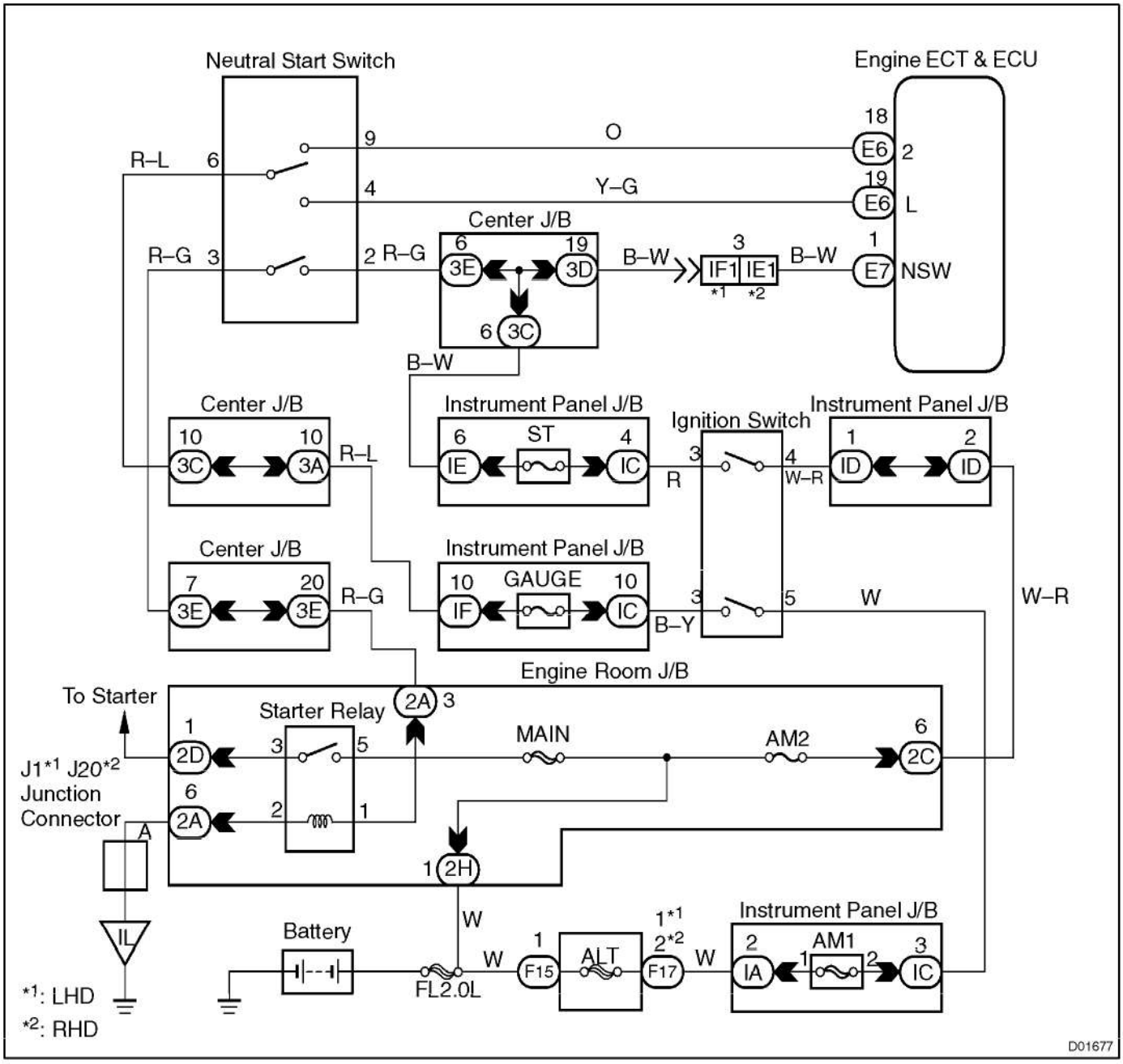
Repair or replace the solenoid wire.

Neutral Start Switch Malfunction

CIRCUIT DESCRIPTION

The neutral start switch detects the shift lever position and sends signals to the Engine & ECT ECU. The Engine & ECT ECU receives signals (NSW, R, 2 and L) from the neutral start switch. When the signal is not sent to the Engine & ECT ECU from the neutral start switch, the Engine & ECT ECU judges that the shift lever is in D range.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Read PNP SW, REVERSE, 2ND and LOW signals.**

When using hand–held tester:

PREPARATION:

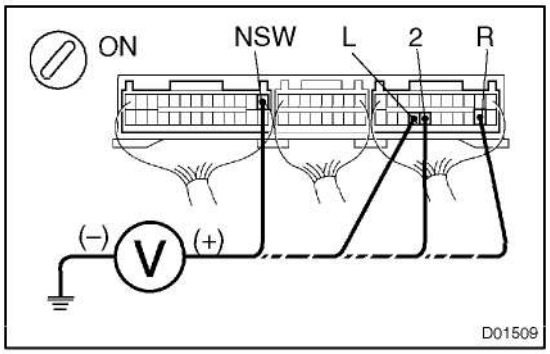
(a) Remove the DLC3 cover.
(b) Connect hand–held tester to the DLC3.
(c) Turn the ignition switch ON and hand–held tester main switch ON.

CHECK:

Shift lever into the P, R, N, 2 and L ranges, and read the PNP SW, REVERSE, 2ND and LOW signals on the hand–held tester.

OK:

Shift Range	Signal
2	2ND: OFF → ON
L	LOW: OFF → ON
R	REVERSE: OFF → ON
P, N	PNP SW: OFF → ON



When not using hand–held tester:

PREPARATION:

Turn the ignition switch ON.

CHECK:

Measure voltage between each of terminals NSW, 2, L and R of Engine & ECT ECU and body ground when the shift lever is shifted to the following ranges.

OK:

Range	NSW–Body ground	R–Body ground	2–Body ground	L–Body ground
P, N	0 V	0 V	0 V	0 V
R	9 ~ 14 V*	9 ~ 14 V*	0 V	0 V
D	9 ~ 14 V	0 V	0 V	0 V
2	9 ~ 14 V	0 V	9 ~ 14 V	0 V
L	9 ~ 14 V	0 V	0 V	9 ~ 14 V

HINT: The voltage will drop slightly due to lighting up of the back up light.

OK → **Check and replace the Engine & ECT ECU (See page IN–28).**

NG

2	Check neutral start switch.



D01546

PREPARATION:

(a) Jack up the vehicle.

(b) Disconnect the neutral start switch connector.

CHECK:

Check continuity between each terminal shown below when the shift lever is moved to each position.

OK:

Shift Range	Terminal No. to continuity	Terminal No. to continuity
P	6 – 1	2 – 3
R	6 – 5	–
N	6 – 7	2 – 3
D	6 – 8	–
2	6 – 9	–
L	6 – 4	–

NG → **Replace the neutral start switch.**

OK →

Repair or replace harness and connector between battery and neutral start switch, neutral start switch and Engine & ECT ECU (See page IN–28).

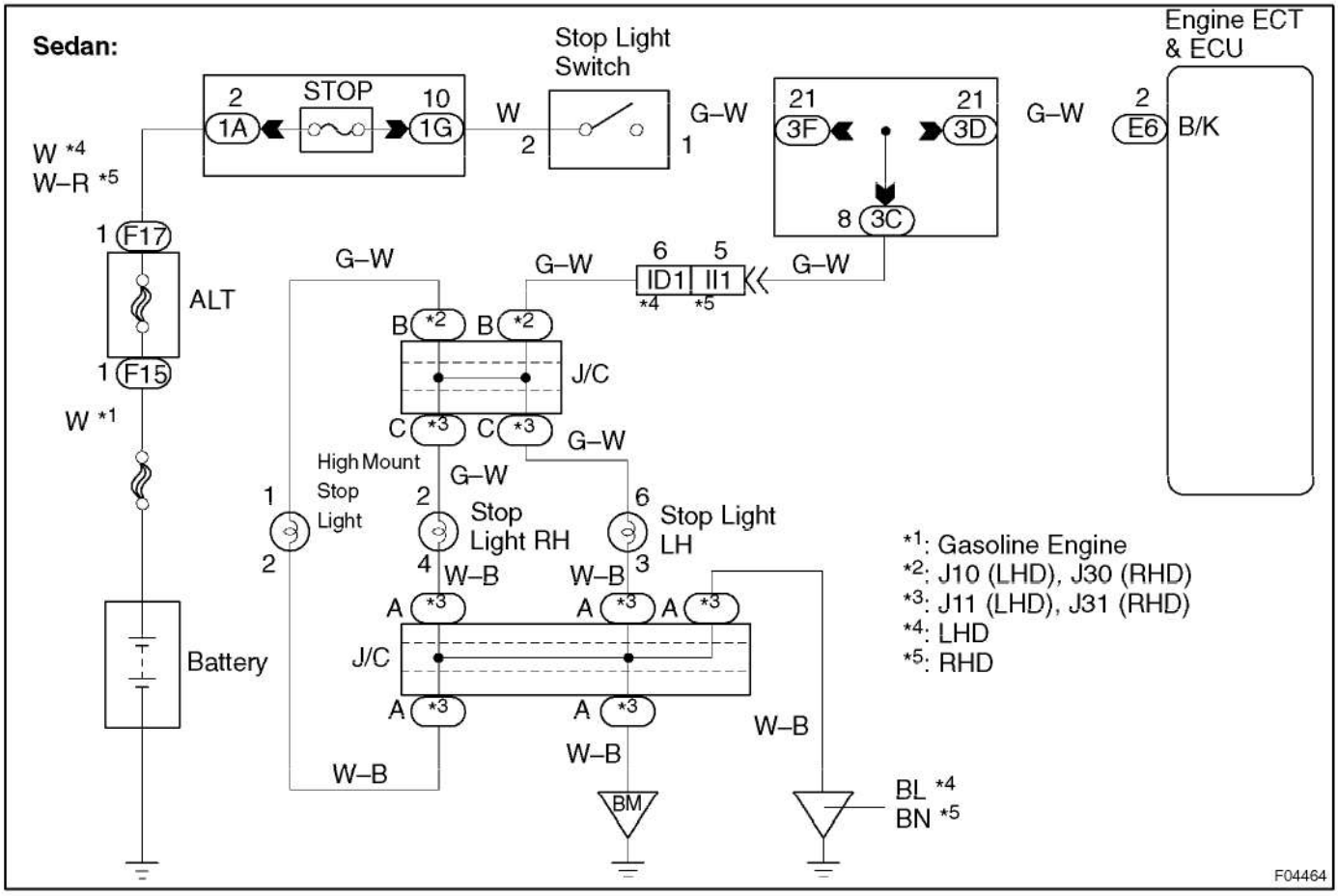
DI034–01

Stop Light Switch Signal Malfunction

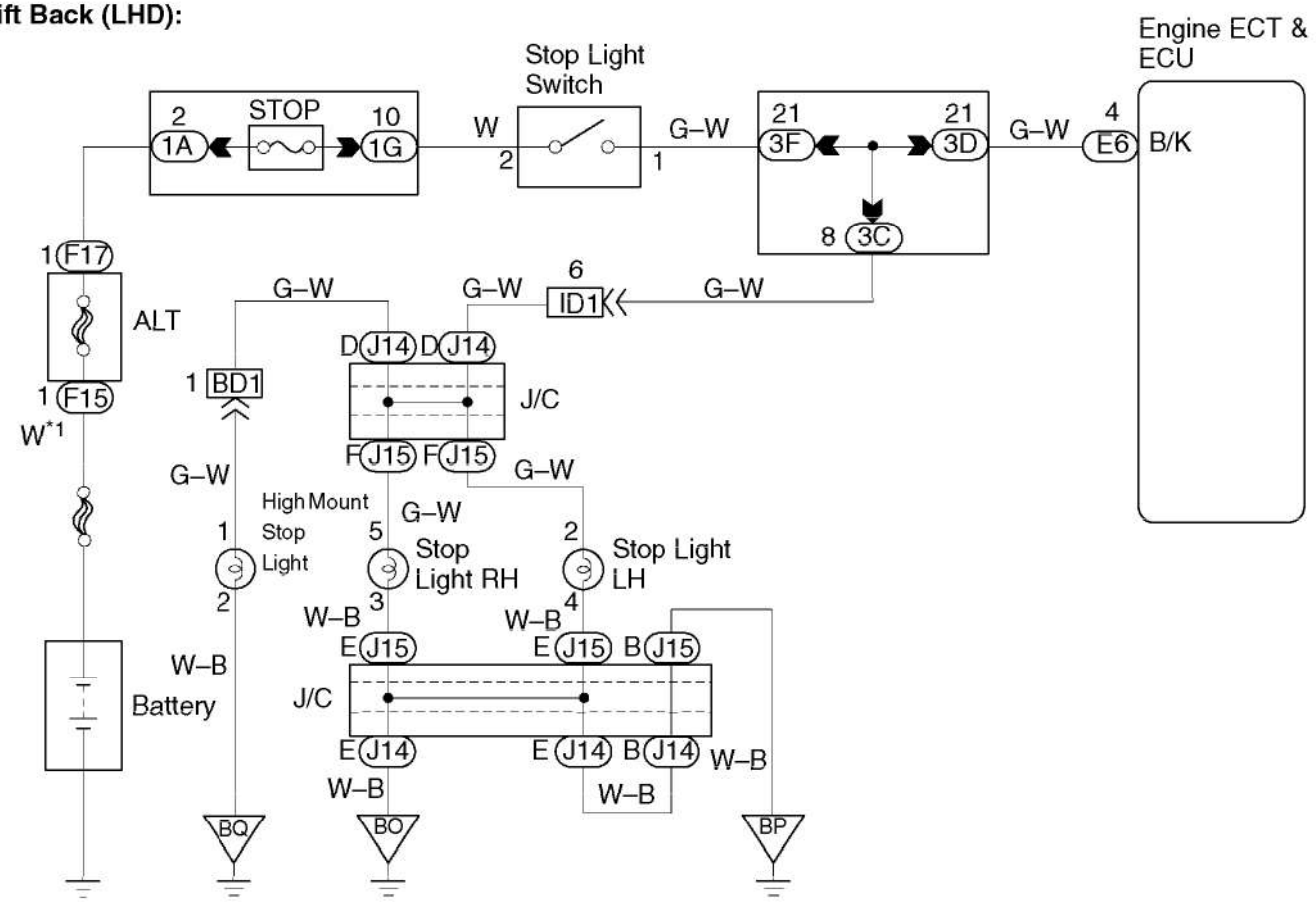
CIRCUIT DESCRIPTION

The object of this circuit is to prevent the engine from stalling, while driving in lock–up condition, when brakes are suddenly applied.
When the brake pedal is operated, this switch sends a signal to Engine & ECT ECU. Then the Engine & ECT ECU cancels operation of the lock–up clutch while braking is in progress.

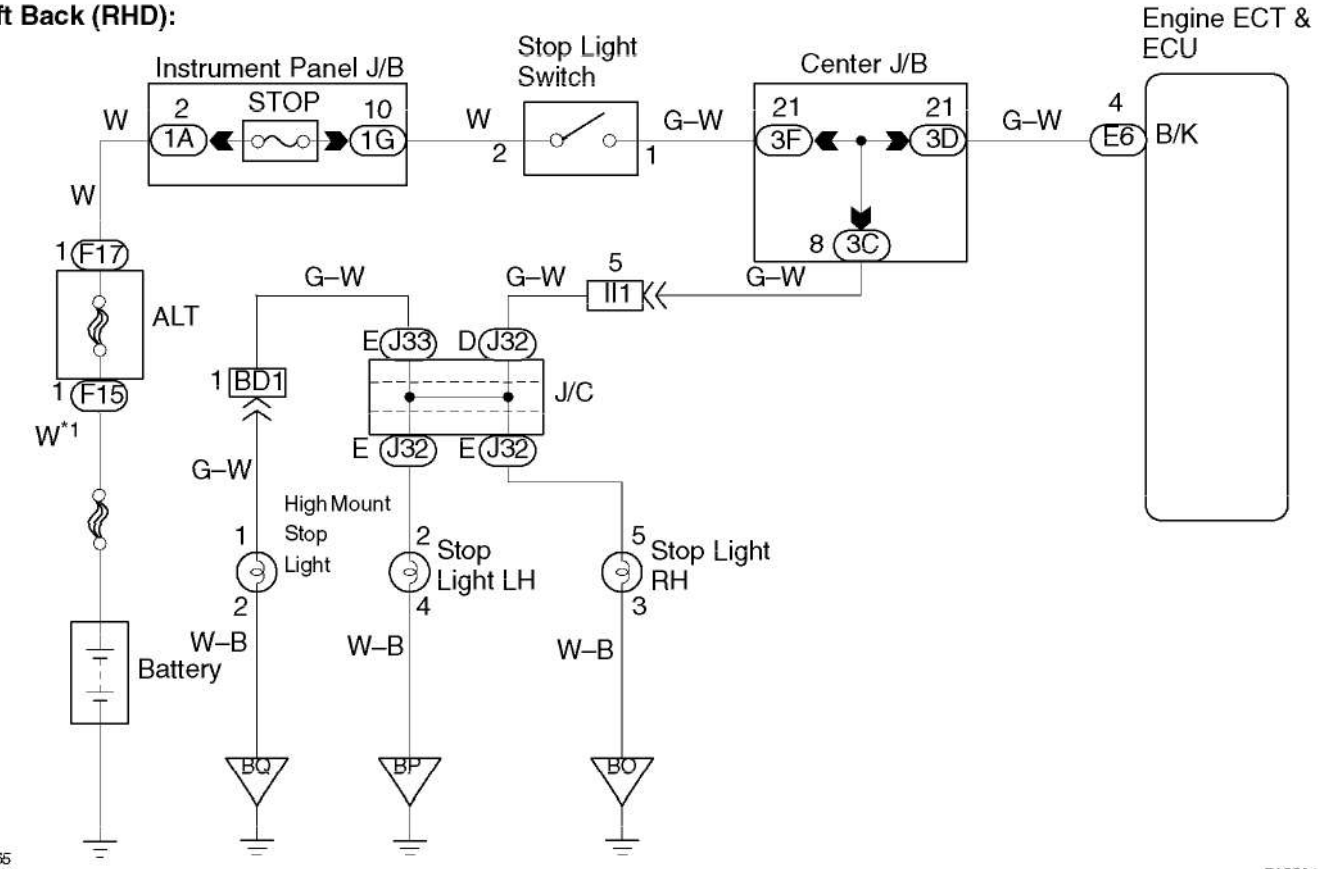
WIRING DIAGRAM



Lift Back (LHD):

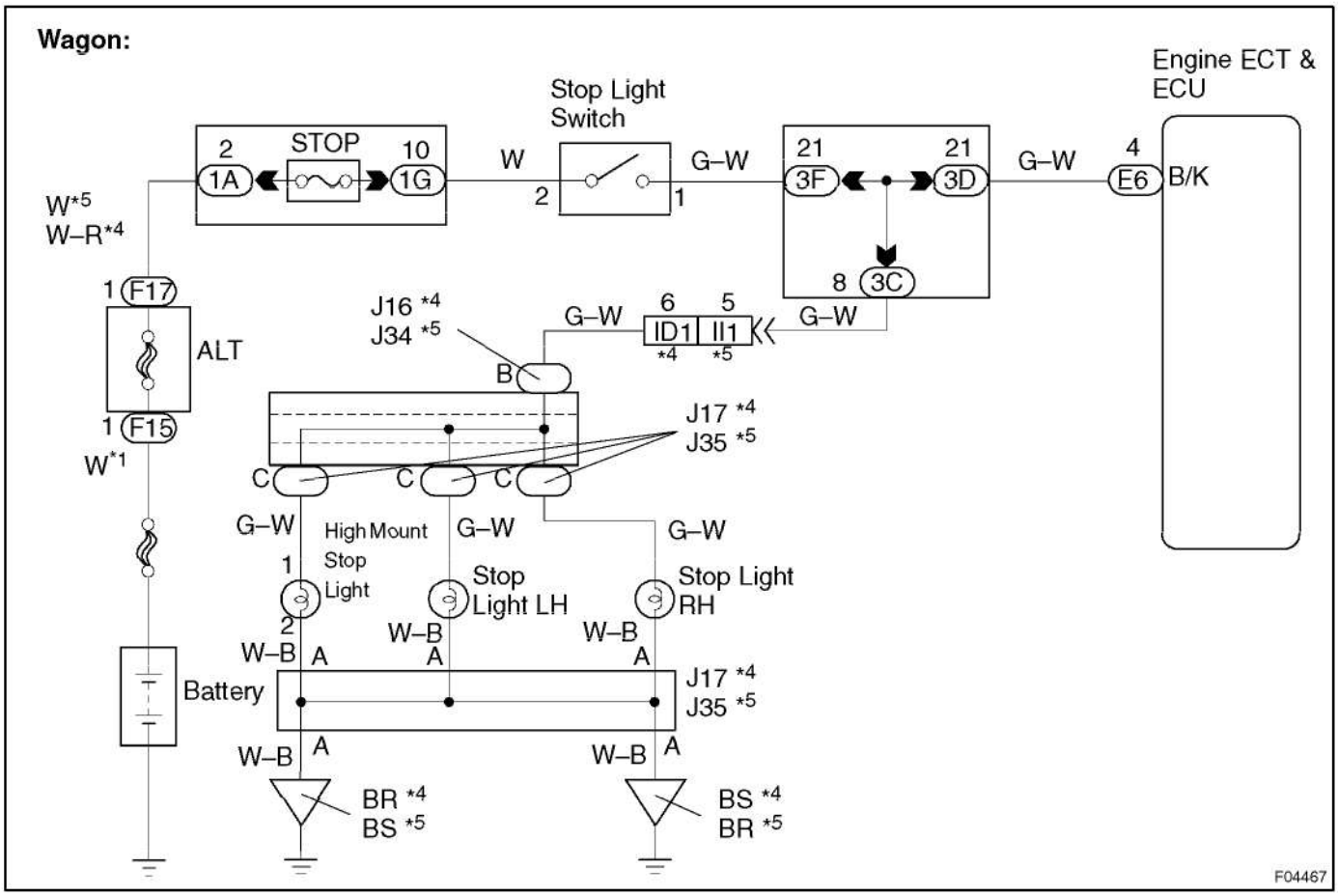


Lift Back (RHD):



F04465
F04466

F05531



INSPECTION PROCEDURE

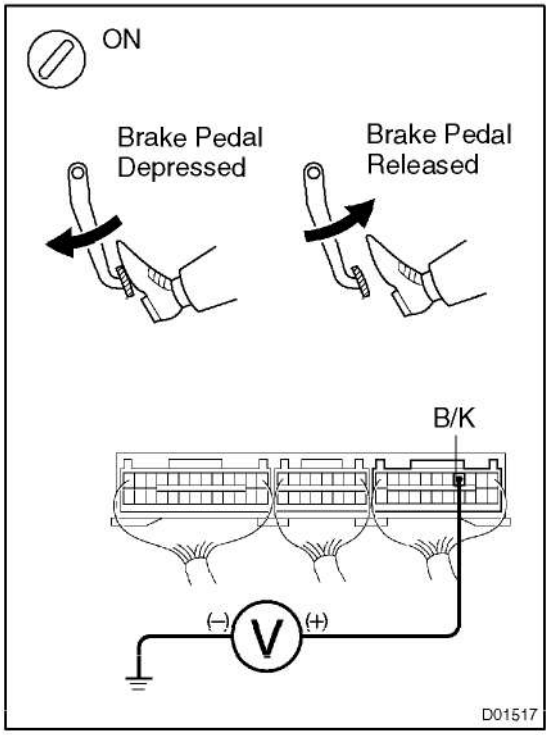
1	**Check operation of stop light.**

CHECK:
Check if the stop lights go on and off normally when the brake pedal is depressed and released.

NG	**Check and repair stop light circuit.**

OK

2	Check STP signal.



When using hand –held tester:

PREPARATION:

(a) Connect the hand–held tester to the DLC3.

(b) Turn the ignition switch ON and turn the hand–held tester main switch ON.

CHECK:

Read the STP signal on the hand–held tester.

OK:

Brake pedal is depressed: STP....ON

Brake pedal is released: STP....OFF

When not using hand –held tester:

PREPARATION:

Turn the ignition switch ON.

CHECK:

Check voltage between terminal B/K of Engine & ECT ECU and body ground.

OK:

Brake pedal	Voltage
Depressed	7.5–14 V
Released	Below 1.5 V

OK → **Proceed to next circuit inspection shown in problem symptoms table (See page DI–20).**

NG

3	Check harness and connector between Engine & ECT ECU and stop light switch (See page IN–28).

NG → **Repair or replace harness or connector.**

OK

Check and replace Engine & ECT ECU (See page IN–28).

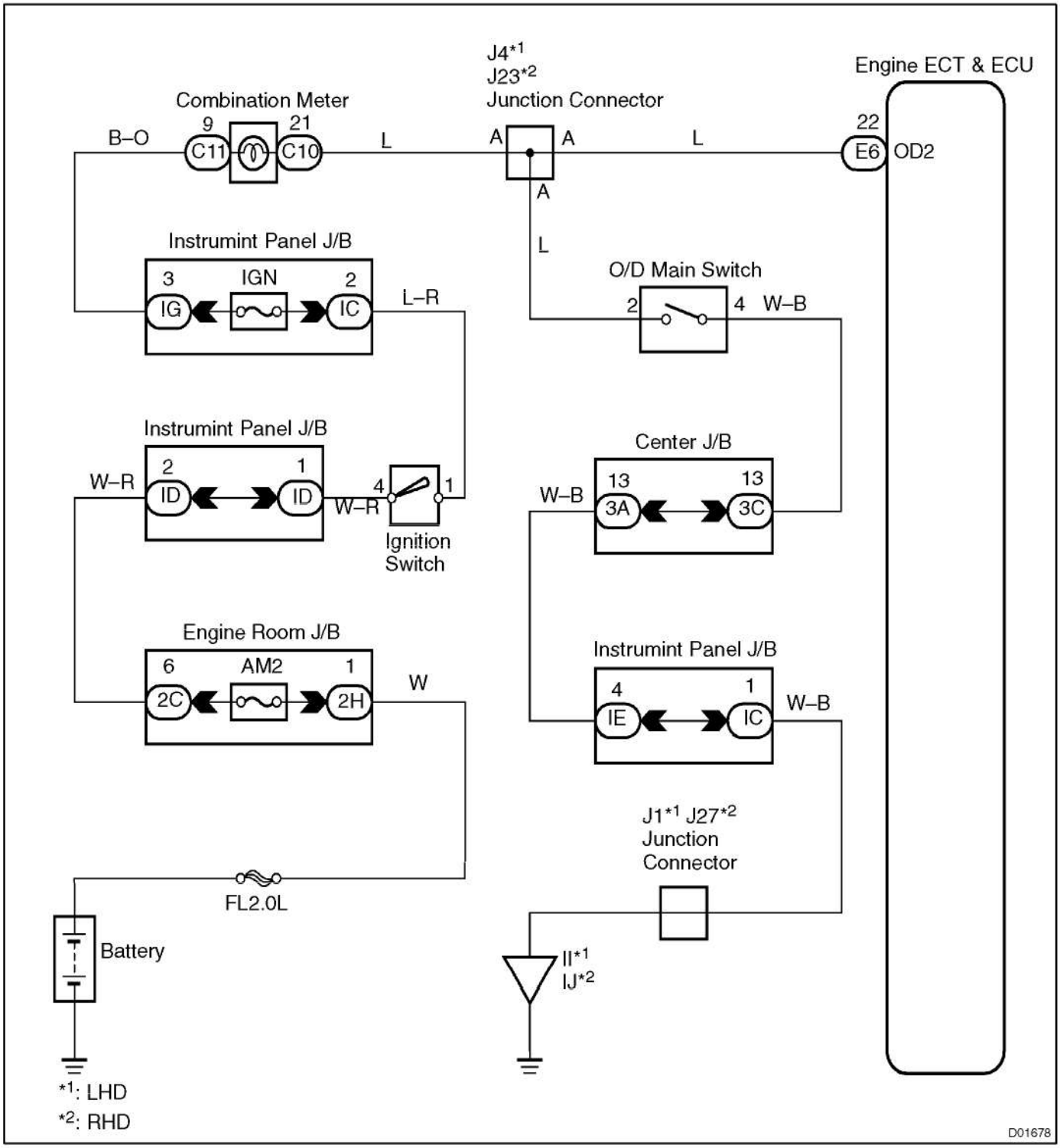
DIGE-04

O/D Main Switch & O/D OFF Indicator Light Circuit

CIRCUIT DESCRIPTION

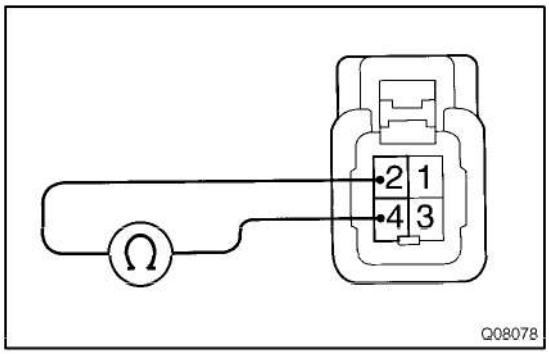
The O/D main switch contacts go open when the switch is pushed in and go closed when it is pushed out. When O/D main switch is in OFF position, the O/D OFF indicator light lights up, and the Engine & ECT ECU prohibits shifting O/D.

WIRING DIAGRAM



INSPECTION PROCEDURE
O/D OFF indicator light does not light up

1	**Check O/D main switch.**



PREPARATION:
Disconnect the O/D main switch connector.
CHECK:
Check continuity between terminals 2 and 4 of O/D main switch connector.
OK:

O/D main switch	Specified condition
ON	No continuity
OFF	Continuity

NG → **Replace the O/D main switch.**

OK ↓

2	**Check and replace combination meter (See page BE–63).**

NG → **Replace the combination meter.**

OK ↓

3	Check OVRDRIVE CUT SW2 signal.

When using hand–held tester:

PREPARATION:

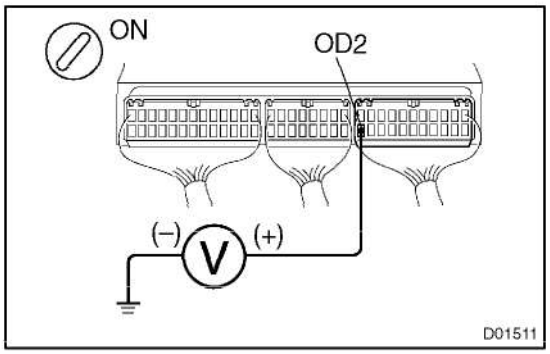
(a) Remove the DLC3 cover.
(b) Connect hand–held tester to the DLC3.
(c) Turn the ignition switch ON and hand–held tester main switch ON.

CHECK:

Read the OVRDRIVE CUT SW2 signal on the hand–held tester.

OK:

O/D main switch condition	OVRDRIVE CUT SW2 signal
O/D ON (Pushed in)	OFF
O/D OFF (Pushed once again)	ON



When not using hand–held tester:

PREPARATION:

Turn the ignition switch ON.

CHECK:

Check voltage between terminal OD2 of Engine & ECT ECU and body ground.

OK:

O/D main switch condition	Voltage
O/D ON (Pushed in)	9 ~ 14
O/D OFF (Pushed once again)	Below 3 V

OK → **Check and replace the Engine & ECT ECU (See page IN–28).**

NG

4	Check harness and connector between O/D OFF indicator light and Engine & ECT ECU (See page IN–28).

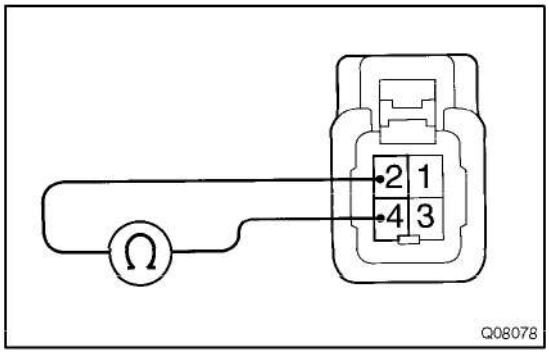
NG → **Repair or replace the harness or connector.**

OK

Check and replace the Engine & ECT ECU (See page IN–28).

O/D OFF indicator light remains ON

1	**Check O/D main switch.**



PREPARATION:
Disconnect the O/D main switch connector.

CHECK:
Check continuity between the terminals 2 and 4 of O/D main switch connector.

OK:

O/D main switch	Specified condition
ON	No continuity
OFF	Continuity

NG → **Replace the O/D main switch.**

OK ↓

2	**Check harness and connector between O/D OFF indicator light and O/D main switch, O/D OFF indicator light and Engine & ECT ECU (See page IN–28).**

NG → **Repair or replace the harness or connector.**

OK ↓

Check and replace the Engine & ECT ECU (See page IN–28).

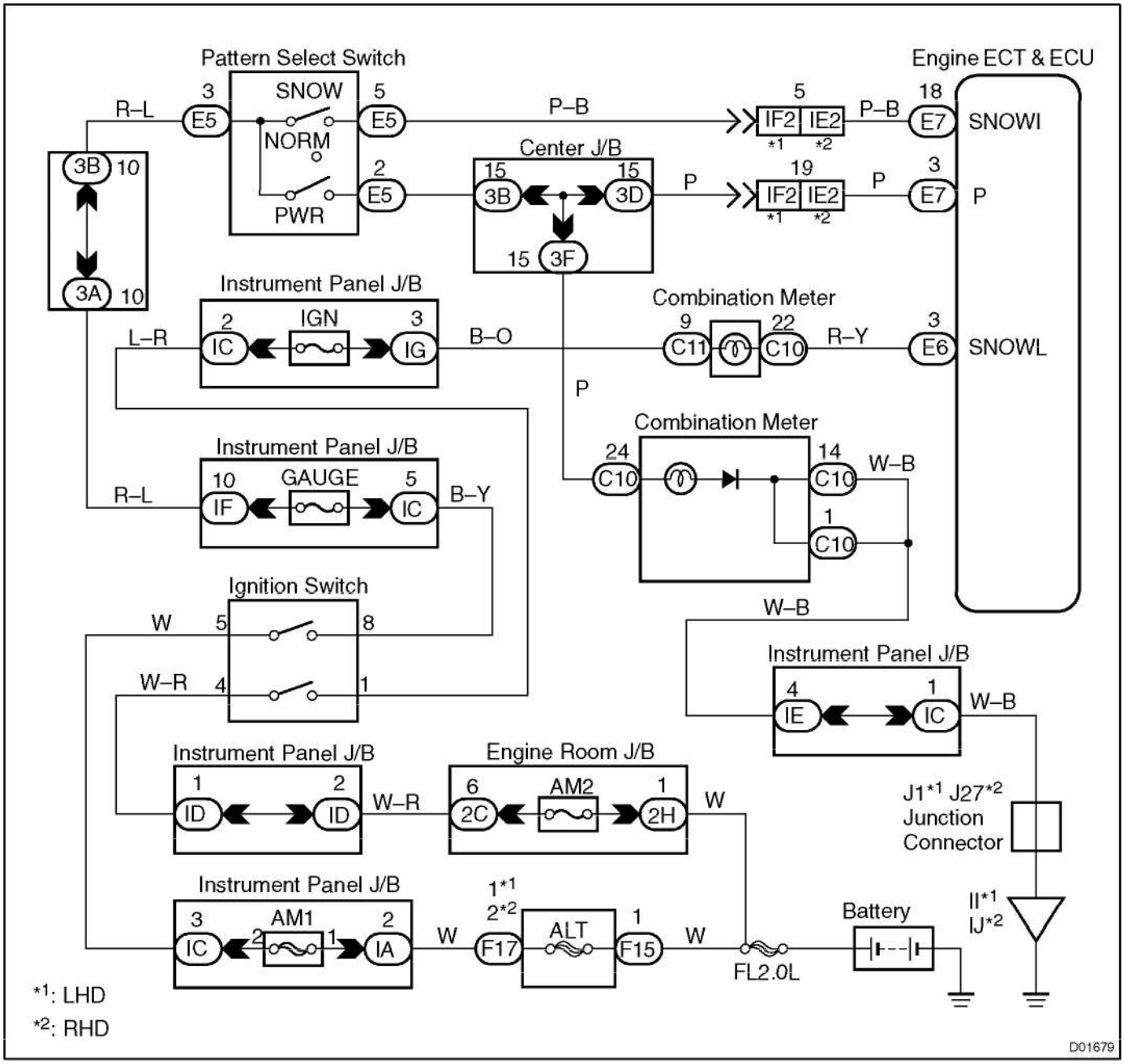
DI336–01

Pattern Select Switch Circuit

CIRCUIT DESCRIPTION

The Engine & ECT ECU memory contains the shift programs for the NORMAL, POWER and SNOW (w/ SNOW mode) patterns, 2 range, L range and the lock–up patterns. By following the programs corresponding to the signals from the pattern select switch, the neutral start switch and other various sensors, the Engine & ECT ECT switches the solenoid valves ON and OFF, and controls the transaxle gear change and the lock–up clutch operation.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Check PATTERN SEL SW signal.**

When using hand–held tester:

PREPARATION:

(a) Remove the DLC3 cover.
(b) Connect a hand–held tester to the DLC3.
(c) Turn the ignition switch ON and hand–held tester main switch ON.

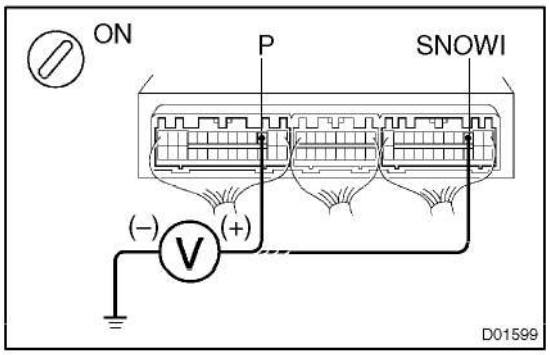
CHECK:

Read the PATTERN SEL SW signal on the hand–held tester.

OK:

Pattern select switch	PATTERN SEL SW signal
POWER	ON
NORM	OFF
SNOW (w/SONW mode)	OFF

When not using hand–held tester:



PREPARATION:

Turn the ignition switch ON.

CHECK:

Measure voltage between terminal each of P, SNOWI of Engine & ECT ECU and body ground when the pattern select switch is set to the PWR (POWER), NORM (NORMAL) or SNOW (w/ SNOW mode) position.

OK:

Switch position	Tester connection	Specified condition
PWR	P – Body ground	9 – 14 V
	SNOWI – Body ground	Below 1.5 V
NORM	P – Body ground	Below 1.5 V
	SNOWI – Body ground	Below 1.5 V
SNOW	P – Body ground	Below 1.5 V
	SNOWI – Body ground	9 – 14 V

HINT:

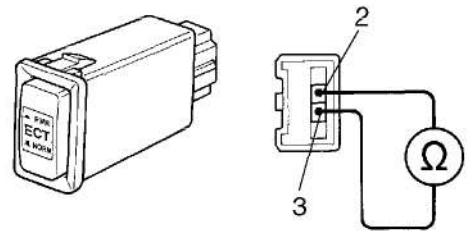
The Engine & ECT ECU uses the normal pattern signal if the P and SNOW1 signals are not input.

OK → **Proceed to next circuit inspection shown in symptom problems table (See page DI–20).**

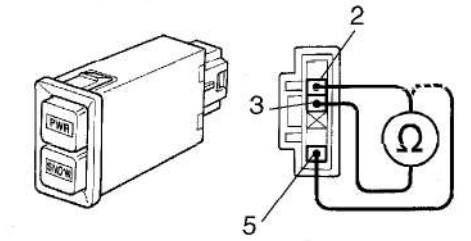
NG

2	Check pattern select switch

w/o SNOW MODE:



w/ SNOW MODE:



D01534

w/o SNOW mode:

PREPARATION:

Disconnect the pattern select switch connector.

CHECK:

Check continuity between terminals 2 and 3 of pattern select switch connector when the select switch is set to PWR or NORM position.

OK:

Switch position	Tester connection	Specified condition
PWR	2 – 3	Continuity
NORM	2 – 3	No continuity

w/ SNOW mode:

PREPARATION:

Disconnect the pattern select switch connector.

CHECK:

Check continuity between terminals 2 and 3 (PWR, NORM), 3 and 5 (SNOW) of pattern select switch connector when the select switch is set to PWR, NORM or SNOW position.

OK:

Switch position	Tester connection	Specified condition
PWR	2 – 3	Continuity
NORM	2 – 3, 3 – 5	No continuity
SNOW	3 – 5	Continuity

NG → **Replace the pattern select switch.**

OK

3	Check harness and connector between battery and pattern select switch, pattern select switch and Engine & ECT ECU (See page IN–28).

NG → **Repair or replace the harness or connector.**

OK

Check and replace the Engine & ECT ECU (See page IN–28).

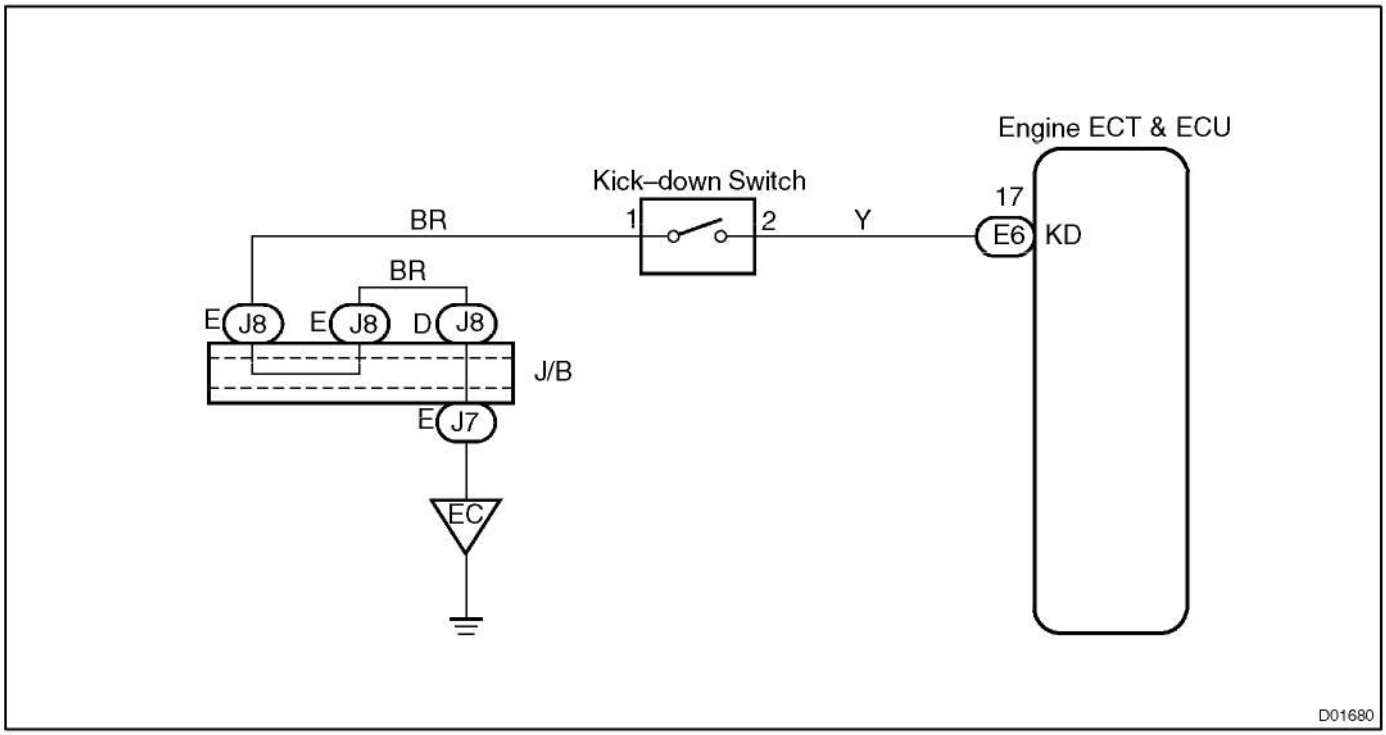
D02Y–01

Kick–down Switch Circuit

CIRCUIT DESCRIPTION

The kick–down switch is turned ON when the accelerator pedal is depressed to the full throttle and sends signals to Engine & ECT ECU.
When the kick–down switch is turned ON, the Engine & ECT ECU controls gear shifting according to the programmed shift diagrams.
If a short circuit develops in the kick–down switch, the Engine & ECT ECU disregards the kick–down signals and controls shifting at the normal shift points.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Check KICK DOWN SW signal.**

When using hannd–held tester:

PREPARATION:

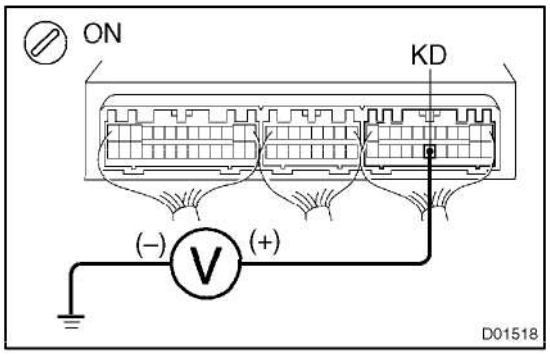
(a) Remove the DLC3 cover.
(b) Connect a hand–held tester to the DLC3.
(c) Turn the ignition switch ON and hand–held tester main switch ON.

CHECK:

Read the KICK DOWN SW signal on the hand–held tester.

OK:

Accelerator Pedal	KICK DOWN SW signal
Fully depressed (kick–down SW is ON)	ON
Released (kick–down SW is OFF)	OFF



When not using hand–held tester:

PREPARATION:

Turn the ignition switch ON.

CHECK:

Measure voltage between terminal KD of Engine & ECT ECU connector and body ground when accelerator pedal is fully depressed or not.

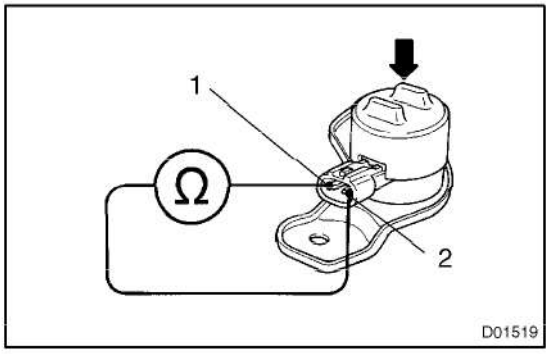
OK:

Accelerator Pedal	Voltage
Fully depressed (kick–down SW is ON)	Below 1 V
Released (kick–down SW is OFF)	10 – 14 V

OK → **Proceed to next circuit inspection shown in problem symproms table (See page DI–20).**

NG

2	Check kick–down switch.



PREPARATION:
Disconnect the kick–down switch connector.
CHECK:
Check continuity at each terminal of kick–down switch connector.
OK:

Kick–down Switch	Specified condition
ON	No continuity
OFF	Continuity

NG → **Replace kick–down switch**

OK

3	Check harness and connector between Engine & ECT ECU and kick–down switch, kick–down switch and body ground (See page IN–28).

NG → **Repair or replace the harness or connector.**

OK

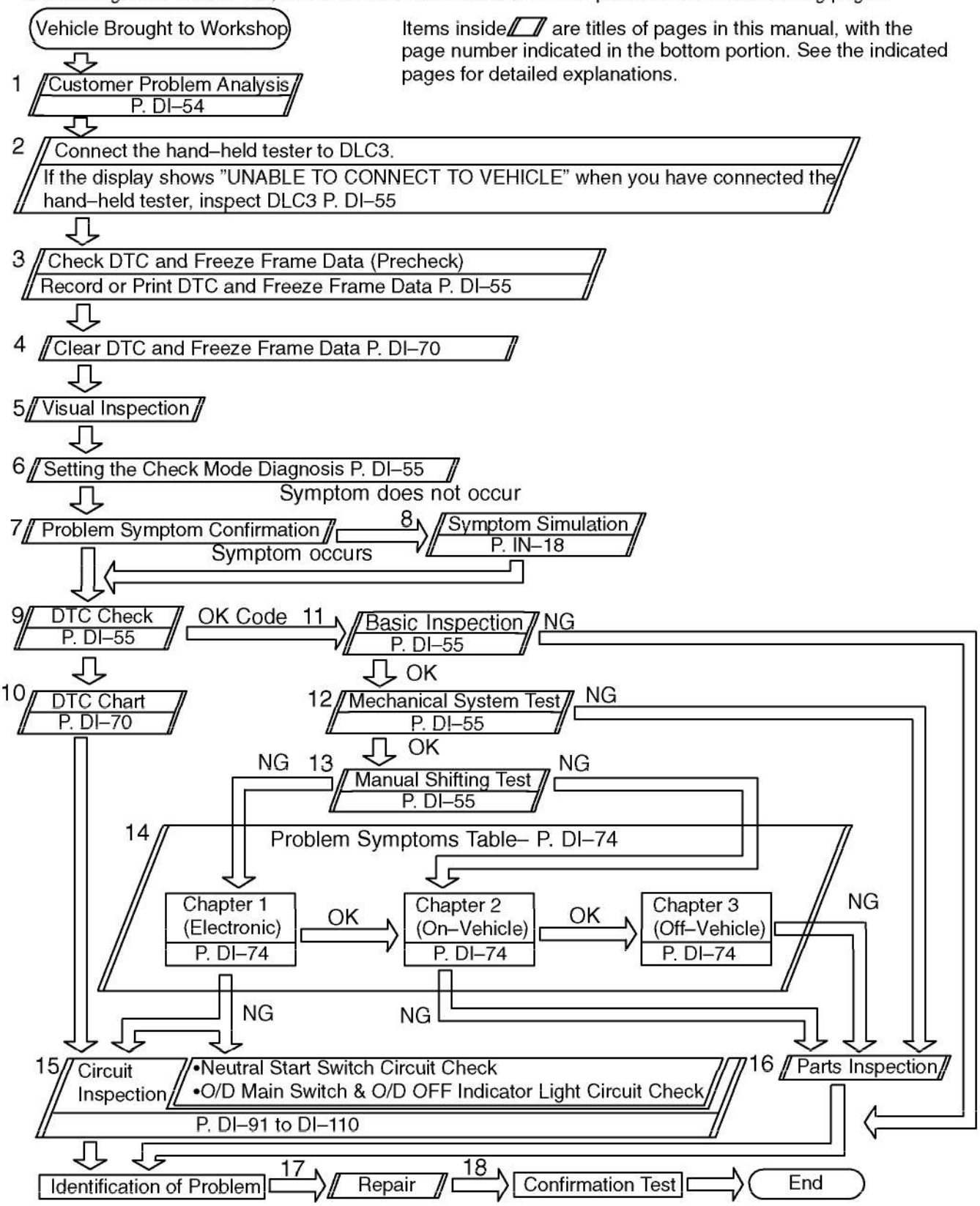
Check and replace Engine & ECT ECU (See page IN–28).

AUTOMATIC TRANSAXLE (A245E, A246E)

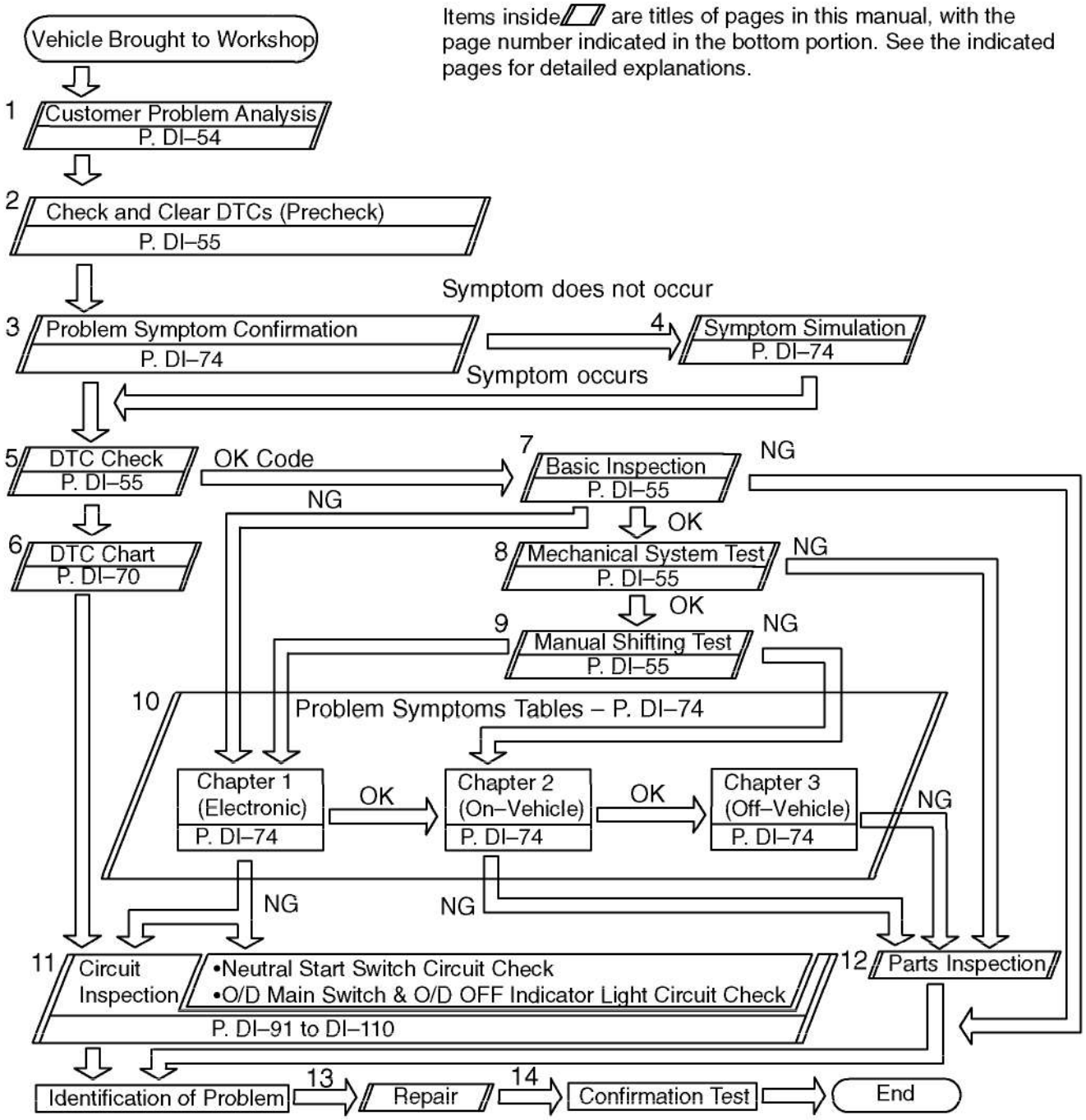
HOW TO PROCEED WITH TROUBLESHOOTING

DI0SL–10

When using hand–held tester, troubleshoot in accordance with the procedure on the following pages.



When not using hand–held tester, troubleshoot in accordance with the procedure on the following pages.



DI0SM–09

CUSTOMER PROBLEM ANALYSIS CHECK

Transaxle Control System Check Sheet	Inspector's Name :

Customer's Name		Registration No.	
		Registration Year	/ /
		Frame No.	
Date Vehicle Brought In	/ /	Odometer Reading	km mile

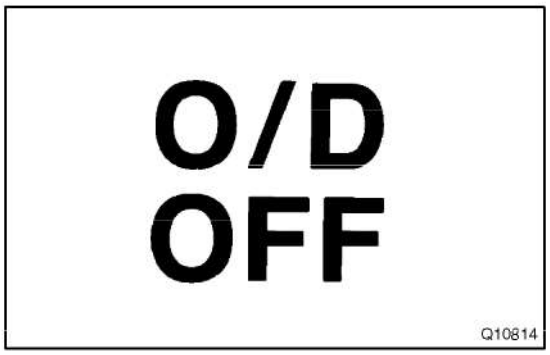
Date Problem Occurred	/ /
Frequency Problem occurs?	☐ Continuous ☐ Intermittent (times a day)

Symptoms	☐ Vehicle does not move (☐ Any range ☐ Particular range)
	☐ No up–shift (☐ 1st → 2nd ☐ 2nd → 3rd ☐ 3rd → O/D)
	☐ No down–shift (☐ O/D → 3rd ☐ 3rd → 2nd ☐ 2nd → 1st)
	☐ Lock–up malfunction
	☐ Shift point too high or too low
	☐ Harsh engagement (☐ N → D ☐ Lock–up ☐ Any drive range)
	☐ Slip or shudder
	☐ No kick–down
	☐ Others ( )

Check Item	Malfunction Indicator Lamp	☐ Normal	☐ Remains ON

DTC Check	1st Time	☐ Normal code	☐ Malfunction code (Code)
	2nd Time	☐ Normal code	☐ Malfunction code (Code)

DI02Z-01



PRE–CHECK

1. A245E:

DIAGNOSIS SYSTEM

The automatic transaxle has built–in silt–diagnostic functions. If a malfunction occurs in the system, the Engine and ECT ECU stores the trouble code in memory and the O/D OFF Indicator light blinks to inform the driver. The DTC stored in memory can be read out by the following procedure.

HINT:

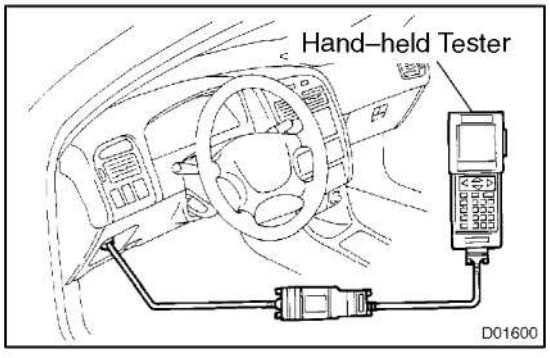
Warning and DTC can be read only when the O/D main switch is ON. If OFF, the O/D OFF Indicator light will light up continuous and will not blink.

2. A246E:

DIAGNOSIS SYSTEM

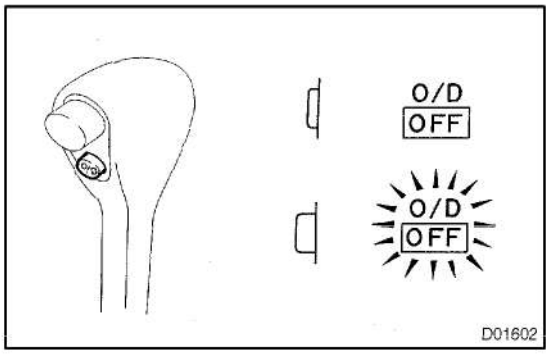
Description

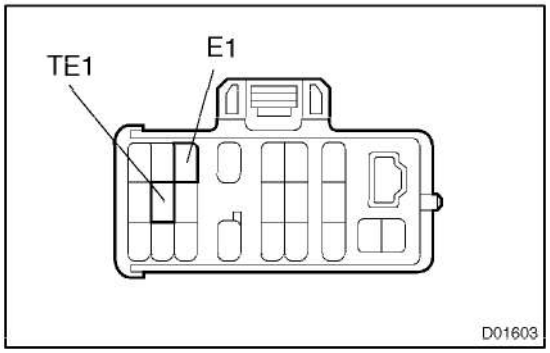
- When troubleshooting Multiplex (M–OBD) vehicles, the only difference from the usual troubleshooting procedure is that you connect the hand–held tester to the vehicle, and read off various data output from the vehicle's Engine and ECT ECU.
  The vehicle's on– board computer lights up the O/D OFF Indicator Light on the instrument panel when the computer detects a malfunction in the computer itself or in drive system components. In addition to the O/D OFF indicator light lighting up when a malfunction is detected, the applicable DTCs are recorded in the Engine and ECT ECU memory
  (See page DI–70).
  If the malfunction only occurs in 3 trips, the O/D OFF indicator light goes off but the DTCs remain recorded in the Engine and ECT ECU memory.



- To check the DTCs, connect a hand–held tester to DLC3 on the vehicle or read the number of blinks of the O/D OFF indicator light when TC and CG terminals on the DLC3 are connected. The hand–held tester also enables you to erase the DTCs and activate the several actuators and check freeze frame data and various forms of engine data (For instruction book).

- The diagnosis system operates in normal mode during normal vehicle use, and also has a check (test) mode for technicians to simulate malfunction symptoms and perform troubleshooting. Most DTCs use 2–trip detection logic (*) to prevent erroneous detection and ensure thorough malfunction detection. By switching the Engine and ECT ECU to check (test) mode using hand–held tester when troubleshooting, the technician can cause the O/D OFF indicator light to light up for a malfunction that is only detected once or momentarily.
- *2 trip detection logic:
  When a logic malfunction is first detected, the malfunction is temporarily stored in the Engine and ECT ECU memory.
  If the same malfunction is detected again during the 2nd test drive, this 2nd detection causes the O/D OFF indicator light to light up.





3. A245E:
INSPECT DIAGNOSIS

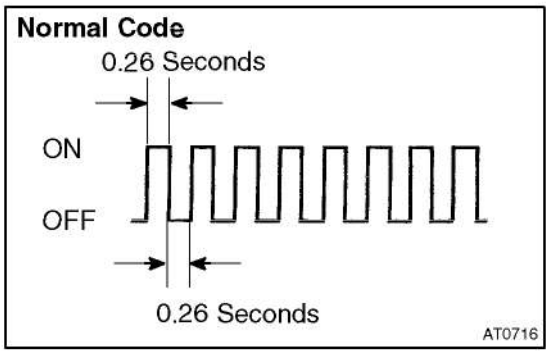
(a) Check the O/D OFF indicator light.
  (1) Turn the ignition switch ON.
  (2) Check if the O/D OFF indicator light to lights up when the O/D main switch is pushed in to ON.

HINT:
If the O/D OFF indicator light does not light up or stay on all the time, carry out the check for "O/D OFF Indicator Light Circuit" on page DI–100

(b) Check the DTC (Not using hand–held tester).
  (1) Turn the ignition switch ON, but do not start the engine.
  (2) Push in the O/D main switch to ON.

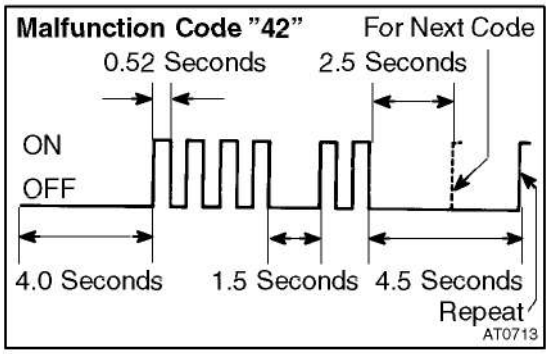
HINT:
Warning and DTCs can be read only when the O/D main switch is On. If it is OFF, the O/D OFF indicator light up will light continuously and will not blink.

  (3) Using SST, connect terminals TE1 and E1 of the check connector.
  SST 09843–18020



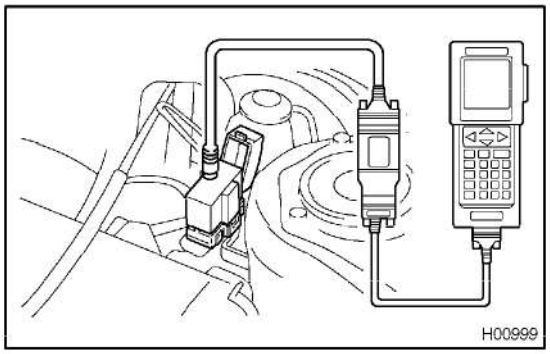
(4) Read the DTC indicated by the number of times the O/D OFF indicator light blinks.

HINT:
If the system is operating normally, the light will blink 2 times per second.



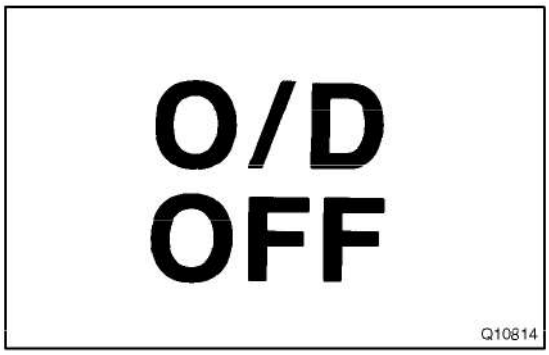
(5) The DTC is indicated as shown in the illustration at left (DTC "42" is shown as an example).

HINT:
When 2 or more DTCs are stored in memory, the lower numbered code is displayed first.
If on DTC is output, or if a DTC is output even though no DTC output operation is performed, check the TE1 terminal circuit on page DI–100.



(c) Check the DTC (Using hand–held tester).
  (1) Hook up the hand–held tester to the check connector.
  (2) Read the DTCs by following the prompts on the tester screen.
  (3) Please refer to the hand–held tester operator's manual for further details.

(d) Clearance the DTC.
  (1) After repairing of the trouble area, the DTc retained in the Engine and ECT ECU memory must be canceled out by removing the EFI fuse for 10 seconds or more, with the ignition switch OFF.
  (2) Check that the normal code is output after connecting the fuse.



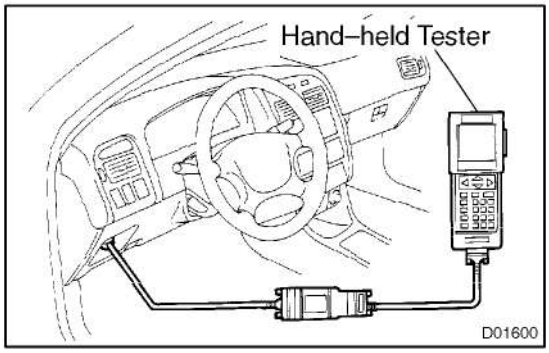
4. A246E:
INSPECT DIAGNOSIS (NORMAL MODE)

(a) Check the O/D OFF indicator light.
  (1) Turn the ignition switch ON.
  (2) Check that the O/D OFF indicator lights light up when the O/D main switch is pushed out to OFF and goes off when the O/D main switch is pushed in to ON.

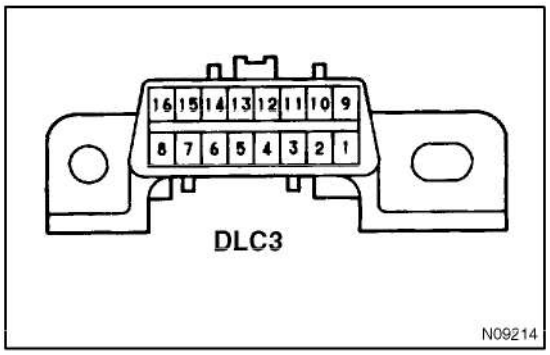
HINT:
- If the O/D OFF indicator light does not light up or stay on all the time, carry out the check for "O/D OFF Indicator Light Circuit" on page DI–100.
- If the O/D OFF indicator light blinks, a malfunction code is stored in the ECU memory.

(b) Check the DTC (Using hand–held tester).

NOTICE:
When the diagnostic system is switched from normal mode to check (test) mode, it erases all DTCs and freeze frame data recorded in normal mode. So before switching modes, always check the DTCs and freeze frame data, and note them down.



  (1) Prepare hand–held tester.
  (2) Connect the hand–held tester to DLC3 at the lower part of the instrument panel.
  (3) Turn the ignition switch ON and turn the hand–held tester switch ON.
  (4) Use the hand–held tester to check the DTCs and instructions, see the hand–held tester instruction book.
  (5) See page DI–55 to confirm the details of the DTCs.



(c) Check the DTC (Not using hand–held tester).

(1) Turn the ignition switch ON, but do not start the engine.

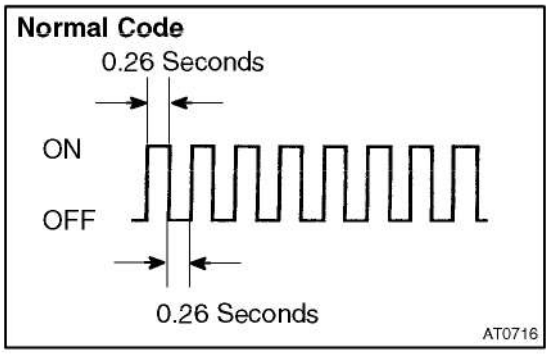
(2) Push in the O/D main switch to ON.

HINT:

Warning and DTCs can be read only when the O/D main switch is ON. If it is OFF, the O/D OFF indicator light will light up continuously and will not blink.

(3) Using SST, connect terminals 13 (TC) and 4 (CG) of DLC3.

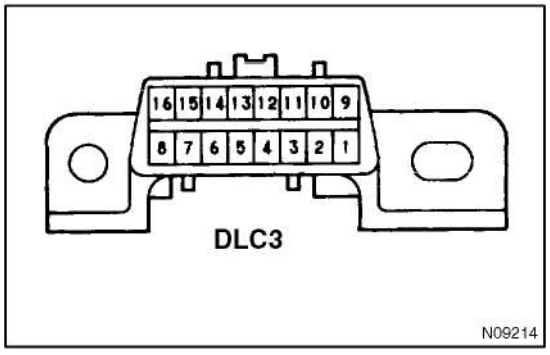
SST 09843–18040



(4) Read the DTC indicated by the number of times the O/D OFF indicator light blinks.

HINT:

If the system is operating normally, the light will blink 2 times per second.



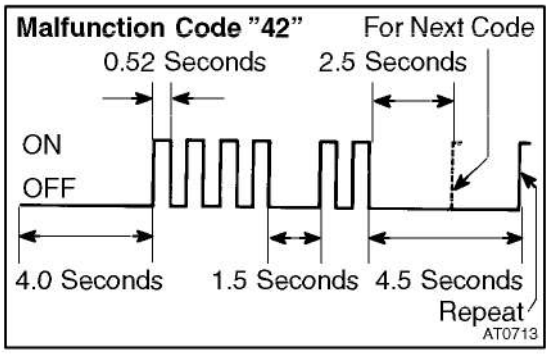
(d) Inspect the DLC3.

(1) The vehicle's Engine and ECT ECU uses ISO 14230 for communication. The terminal arrangement of DLC3 complies with SAE J1962 and matches the ISO 14230 format.

Terminal No.	Connection	Voltage or Resistance	Condition
7	Bus ⊕ Line	Pulse generation	During transmission
4	Chassis Ground	↔ Body Ground / 1 Ω or less	Always
16	Battery Positive	↔ Body Ground / 9 ~ 14 V	Always

HINT:
If your display shows "UNABLE TO CONNECT TO VEHICLE" when you have connected the cable of hand–held tester to DLC3, turned the ignition switch ON and operated the hand–held tester, there is a problem on the vehicle side or tool side.

- If communication is normal when the tool is connected to another vehicle, inspect DLC3 on the original vehicle.
- If communication is still not possible when the tool is connected to another vehicle, the problem is probably in the tool itself, so consult the Service Department listed in the tool's instruction manual.



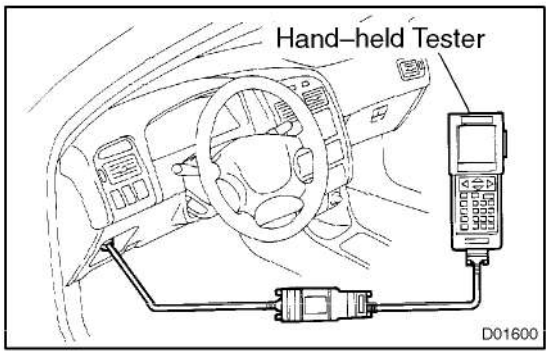
(2) The malfunction code is indicated, as shown in the chart on the left (DTC "42" is shown as an example).

HINT:
When 2 or more malfunction codes are stored in memory, the lower–numbered code is displayed first.

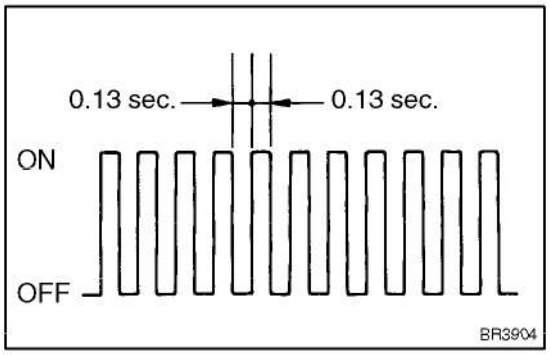
5. A246E:
INSPECT DIAGNOSIS (CHECK MODE)

HINT:
Hand–held tester only: Compared to the Normal mode, the Check mode has high sensing ability to detect malfunctions. Furthermore, the same diagnostic items which are detected in normal mode can also be detected in Check mode.

(a) Check DTC.
  (1) Check the initial conditions.
    - Battery positive voltage 11 V or more
    - Throttle valve fully closed
    - Transmission in P range
    - Air conditioning switched off
  (2) Turn the ignition switch OFF.
  (3) Prepare a hand–held tester.



(4) Connect the hand–held tester to DLC3 at the lower part of the instrument panel.
(5) Turn the ignition switch ON and switch the hand–held tester ON.



(6) Switch the hand–held tester from Normal mode to Check mode (Check that the O/D OFF indicator light flashes).
(7) Start the engine (O/D OFF indicator light goes out after the engine starts).
(8) Simulate the conditions of the malfunction described by the customer.

NOTICE:

Leave the ignition switch ON until you have checked the DTCs, etc.

(9) After simulating the malfunction conditions, use the hand–held tester diagnosis selector to check the DTCs and freeze frame data, etc.

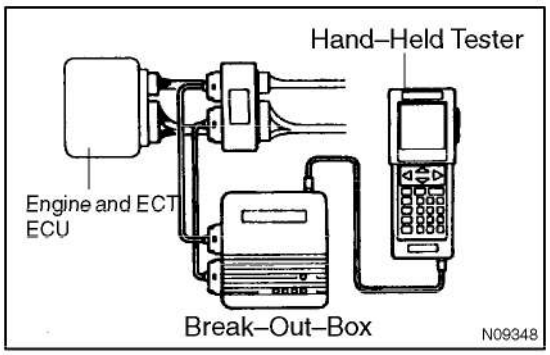
HINT:

Take care not to turn the ignition switch OFF, as turning it off switches the diagnosis system from Check mode to Normal mode, all DTCs etc. are erased.

(10) After checking the DTC, inspect the applicable circuit.

(b) When using hand–held tester:
Clear the DTC.
The following actions will erase the DTC and freeze frame data. Operate a hand–held tester to erase the codes.

(c) When not using hand–held tester:
Clear the DTC.
Remove the EFI fuse from engine room J/B for 10 seconds or more.



6. ENGINE and ECT ECU STANDARD VALUES MEASUREMENT USING BREAK–OUT–BOX AND HAND–HELD TESTER

(a) Hook up the break–out–box and hand–held tester to the vehicle.

(b) Read the Engine and ECT ECU input/output values by following the prompts on the tester screen.

HINT:

Hand–held tester has "Snapshot" function. This records the measured values and is effective in the diagnosis of intermittent problems. Please refer to the hand–held tester/break–out–box operator's manual for further details.

7. PROBLEM SYMPTOM CONFIRMATION

Taking into consideration the results of the customer problem analysis, try to reproduce the symptoms of the trouble. If the problem is that the transaxle does not shift up, shift down, or the shift point is too high or too low conduct the following road test referring to the automatic shift schedule and simulate the problem symptoms.

8. ROAD TEST

NOTICE:

Perform the test at normal operating ATF temperature 50 – 80 °C (122 – 176 °F).

(a) D range test

Shift into the D range and fully depress the accelerator pedal and check the following points:

(1) Check up–shift operation.

Check to see that 1 → 2, 2 → 3 and 3 → O/D up–shift takes place, and that the shift points conform to the automatic shift schedule (See page SS–17).

HINT:

- O/D Gear Up–shift Prohibition Control (1. Water temp. is 60 °C (140 °F) or less. 2. If there is a 10 km/h (6 mph) difference between the set cruise control speed and vehicle speed.)
- O/D Gear Lock–up Prohibition Control (1. Brake pedal is depressed. 2.Water temp. is 60 °C (140 °F) or lower)

(2) Check for shift shock and slip.

Check for shock and slip at the 1 → 2, 2 → 3 and 3 → O/D up–shift.

(3) Check for abnormal noises and vibration.

Drive in D range lock–up or O/D gear and check for abnormal noises and vibration.

HINT:

The check for the cause of abnormal noises and vibration must be done very thoroughly as it could also be due to loss of balance in the differential, torque converter, etc.

(4) Check kick–down operation.

While running in the D range, 2nd, 3rd and O/D gears, check to see that the possible kick–down vehicle speed limits for 2 → 1, 3 → 2 and O/D → 3 kick–downs conform to those indicated in the automatic shift schedule (See page SS–17).

(5) Check abnormal shock and slip at kick–down.

(6) Check the lock–up mechanism.

- Drive in D range O/D gear, at a steady speed (lock–up ON) of about 60 km/h (37 mph).
- Lightly depress the accelerator pedal and check that the engine speed does not change abruptly.

If there is a big jump in engine speed, there is no lock–up.

(b) 2 range test

Shift into the 2 range and fully depress the accelerator pedal and check the following points:

(1) Check up–shift operation.

Check to see that the 1 → 2 up–shift takes place and that the shift point conforms to the automatic shift schedule (See page SS–17).

HINT:

There is no O/D up–shift and lock–up in the 2 range.

(2) Check engine braking.

While running in the 2 range and 2nd gear, release the accelerator pedal and check the engine braking effect.

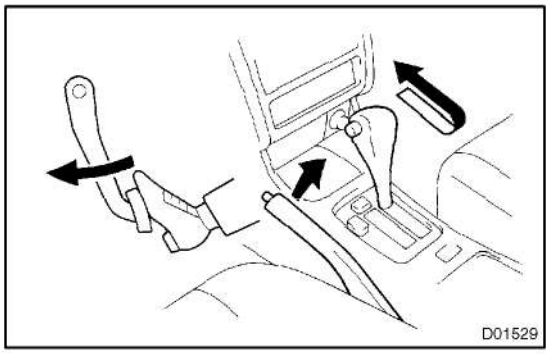
(3) Check for abnormal noises during acceleration and deceleration, and for shock at up–shift and down–shift.

(c) L range test
Shift into the L range and fully depress the accelerator pedal and check the following points:
(1) Check no up–shift.
While running in the L range, check that there is no up–shift to 2nd gear.
(2) Check engine braking.
While running in the L range, release the accelerator pedal and check the engine braking effect.
(3) Check for abnormal noises during acceleration and deceleration.

(d) R range test
Shift into the R range and fully depress the accelerator pedal and check for slipping.

CAUTION:
Before conducting this test ensure that the test area is free from people and obstruction.

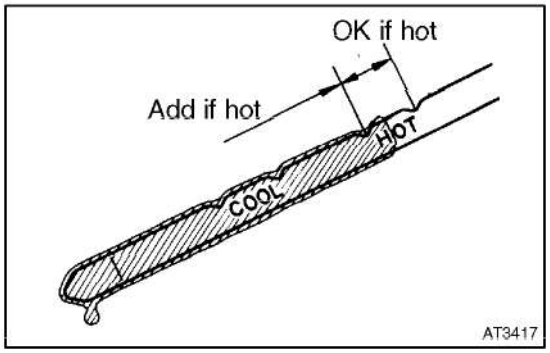
(e) P range test.
Stop the vehicle on a grade (more than 5°) and after shifting into the P range, release the parking brake. Then, check to see that the parking lock pawl holds the vehicle in place.


D01529

9. BASIC INSPECTION

(a) Check the fluid level.

HINT:
Drive the vehicle so that the engine and transaxle are at normal operating temperature.
Fluid temperature: 70 – 80 °C (158 – 176 °F)



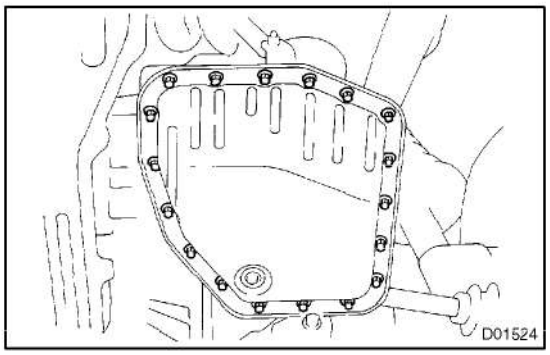
AT3417

(1) Park the vehicle on a level surface and set the parking brake.
(2) With the engine idling and the brake pedal depressed, shift the shift lever into all ranges from P to L range and return to P range.
(3) Pull out the dipstick and wipe it clean.
(4) Push it back fully into the pipe.
(5) Pull it out and check that the fluid level is in the HOT range.

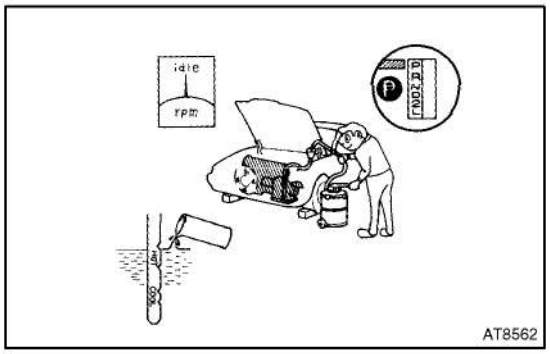
If the level is not within the range, add new fluid.
Fluid type: ATF D–II or DEXRON®III (DEXRON®II)

NOTICE:
Do not overfill.

(b) Check the fluid condition.
If the fluid smells burnt or is black, replace it.



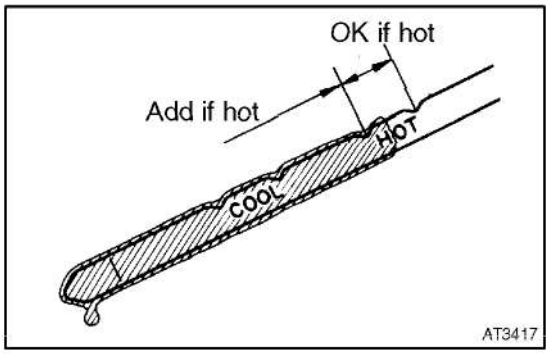
(c) Replace the ATF.
(1) Remove the drain plug and drain the fluid.
(2) Reinstall the drain plug securely.



(3) With the engine OFF add new fluid through the oil filler pipe.

Fluid type: ATF D–II or DEXRON®III (DEXRON®II)
Capacity: 3.1 liters (3.3 US qts, 2.7 Imp.qts)

(4) Start the engine and shift the shift lever into all ranges from P to L range and then shift into P range.

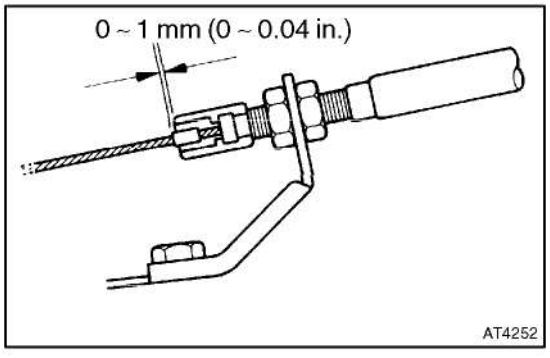


(5) With the engine idling, check the fluid level. Add fluid up to the COOL level on the dipstick.
(6) Check the fluid level at the normal operating temperature, 70 – 80 °C (158 – 176 °F), and add as necessary.

NOTICE:
Do not overfill.

(d) Check the fluid leaks.
Check for leaks in the transaxle.

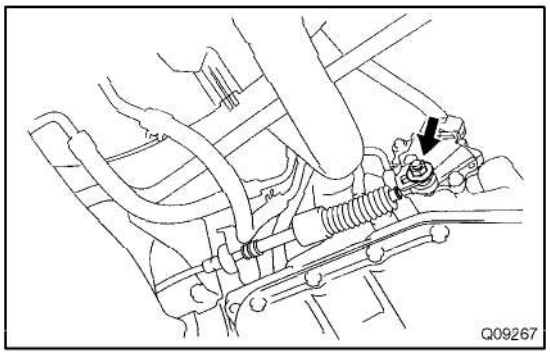
If there are leaks, it is necessary to repair or replace O–rings, gasket, oil seals, plugs or other parts.



(e) Inspect and adjust the throttle cable.
(1) Check the accelerator pedal is fully released.
(2) Check that the inner cable is not slack.
(3) Measure the distance between the outer cable end and stopper on the cable.

Standard distance: 0 ~ 1 mm (0 ~ 0.04 in.)

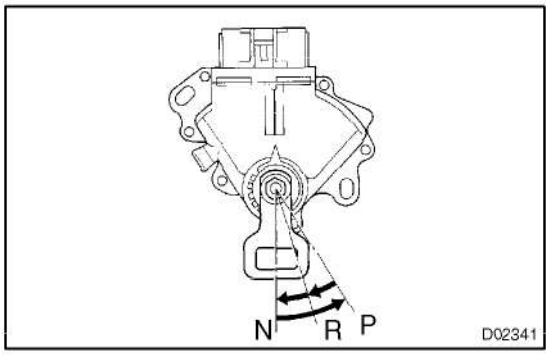
If the distance is not the standard, adjust the cable by rotating the adjusting nuts.



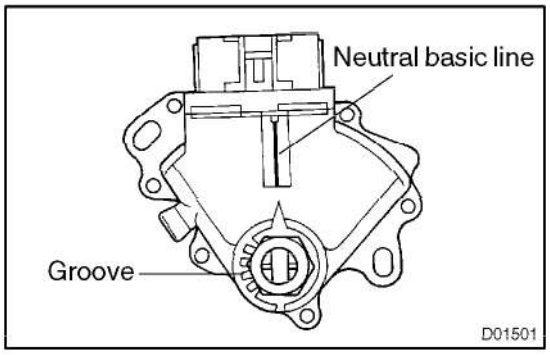
(f) Inspect and adjust the shift lever position.
When shifting the shift lever from the N range to other ranges, check that the lever can be shifted smoothly and accurately to each range and that the position indicator is aligned with the correct position.

If the indicator is not aligned with the correct position, carry out the following adjustment procedures.

(1) Loosen the nut on the shift lever.
(2) Push the control shaft fully rearward.



(3) Return the control shaft lever 2 notches to N range.
(4) Set the shift lever to N range.
(5) While holding the shift lever lightly toward the R range side, tighten the shift lever nut.
Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)
(6) Start the engine and make sure that the vehicle moves forward when shifting the lever from the N to D range and reverses when shifting it to the R range.



(g) Inspect and adjust the neutral start switch.
Check that the engine can be started with the shift lever only in the N or P range, but not in other ranges.

If it is not as stated above, carry out the following adjustment procedures.

(1) Loosen the neutral start switch bolt and set the shift lever to the N range.
(2) Align the groove with neutral basic line.
(3) Hold the switch in position and tighten the bolt.
Torque: 13 N·m (130 kgf·cm, 10 ft·lbf)

For continuity inspection of the neutral start switch, see page DI–74.

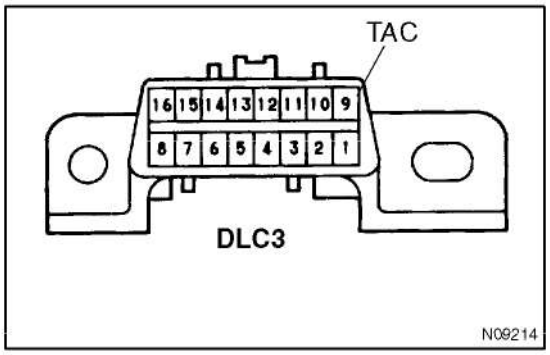
10. MECHANICAL SYSTEM TESTS

(a) Measure the stall speed.

The object of this test is to check the overall performance of the transaxle and engine by measuring the stall speeds in the D and R ranges.

NOTICE:

- **Do the test at normal operating ATF temperature 50 – 80 °C (122 – 176 °F).**
- **Do not continuously run this test for longer than 5 seconds.**
- **To ensure safety, do this test in a wide, clear level area which provides good traction.**
- **The stall test should always be carried out in pairs. One technician should observe the conditions of wheels or wheel stoppers outside the vehicle while the other is doing the test.**



(1) Chock the 2 wheels.

(2) Connect a hand–held tester to DLC3 or tachometer to terminal TAC of DLC3 with SST.

SST 09843–18030

(3) Fully apply the parking brake.

(4) Keep your left foot depressing firmly on the brake pedal.

(5) Start the engine.

(6) Shift into the D range. Depress all the way down on the accelerator pedal with your right foot.
Quickly read the stall speed at this time.

Stall speed: 2,350 ± 150 rpm

(7) Do the same test in the R range.

Stall speed: 2,350 ± 150 rpm

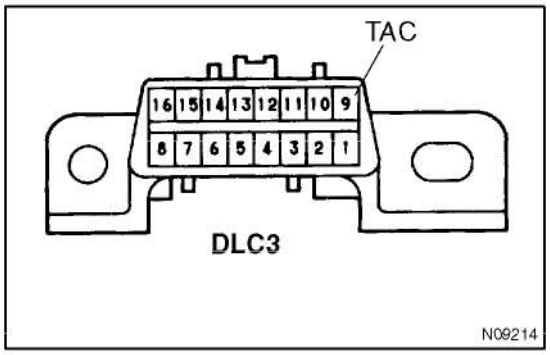
Evaluation:

Problem	Possible cause
(a) Stall speed low in D and R ranges	• Engine output may be insufficient • Stator one–way clutch is operating properly HINT: If more than 600 rpm below the specified value, the torque converter could be faulty.
(b) Stall speed high in D range	• Line pressure too low • Forward clutch slipping • No.2 one–way clutch not operating properly • U/D one–way clutch not operating properly
(c) Stall speed high in R range	• Line pressure too low • Direct clutch slipping • 1st & reverse brake slipping • U/D one–way clutch not operating properly
(d) Stall speed high in D and R ranges	• Line pressure too low • Improper fluid level • U/D one–way clutch not operating properly

(b) Measure the time lag.
When the shift lever is shifted while the engine is idling, there will be a certain time lapse or lag before the shock can be felt. This is used for checking the condition of the O/D direct clutch, forward clutch, and 1st & reverse brake.

NOTICE:

- **Do the test at normal operating ATF temperature 50 – 80 °C (122 – 176 °F).**
- **Be sure to allow 1 minute interval between tests.**
- **Take 3 measurements and take the average value.**



(1) Chock the 4 wheels.
(2) Connect a hand–held tester to DLC3 or tachometer to terminal TAC of DLC3 with SST.
SST 09843–18030
(3) Start engine and check idle speed.
Idle speed: 750 ± 50 rpm (In N range and A/C OFF)
(4) Shift the lever from N to D range. Using a stop watch, measure the time from when the lever is shifted until the shock is felt.
Time lag: N → D less than 1.2 seconds
In the same way, measure the time lag for N → R.
Time lag: N → R less than 1.5 seconds

Evaluation (If N → D or N → R time lag is longer than the specified):

Problem	Possible cause
N → D time lag is longer	• Line pressure too low • Forward clutch worn • U/D one–way clutch not operating properly
N → R time lag is longer	• Line pressure too low • Direct clutch worn • 1st & reverse brake worn • U/D one–way clutch not operating properly

11. HYDRAULIC TEST

(a) Measure the line pressure.

NOTICE:

- **Do the test at normal operation ATF temperature 50 – 80 °C (122 – 176 °F).**
- **The line pressure test should always be carried out in pairs. One technician should observe the conditions of wheels or wheel stopper outside the vehicle while the other is doing the test.**
- **Be careful to prevent SST's hose from interfering with the exhaust pipe.**

(1) Warm up the ATF.

(2) Remove the test plug on the right side of the transaxle case and connect SST.
(See page AX–28 for the location to connect SST)

SST 09992–00095 (09992– 00231, 09992–00271)

(3) Fully apply the parking brake and chock the 4 wheels.

(4) Connect a hand–held tester to DLC3.

(5) Start the engine and check idling speed.

(6) Keep your left foot depressing firmly on the brake pedal and shift into D range.

(7) Measure the line pressure when the engine is idling.

(8) Depress the accelerator pedal all the way down. Quickly read the highest line pressure when engine speed reaches stall speed.

(9) In the same way, do the test in R range.

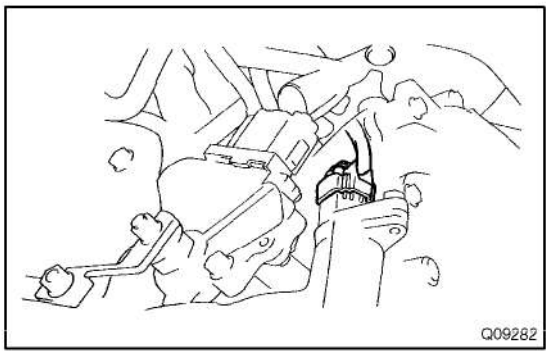
Specified line pressure:

Condition	D range kPa (kgf / cm^2, psi)	R range kPa (kgf / cm^2, psi)
Idling	373 – 441 (3.8 – 4.5, 54 – 64)	598 – 715 (6.1 – 7.3, 87 – 103)
Stall	981 –1,138 (10.6 – 11.6, 143 – 165)	1,392 – 1,716 (14.2 – 17.5, 202 – 249)

If the measured pressure is not up to the specified value, recheck the throttle cable adjustment and retest.

Evaluation

Problem	Possible cause
If the measured values at all ranges are higher	• Throttle cable out of adjustment • Throttle valve defect • Regulator valve detective
If the measured values at all ranges are lower	• Throttle cable out of adjustment • Throttle valve defect • Regulator valve defect • Oil pump defect • U/D direct clutch defect
If pressure is low in the D range only	• D range circuit fluid leakage • Forward clutch defect
If pressure is low in the R range only	• R range circuit fluid leakage • Direct clutch defect • 1st & reverse brake defect



12. MANUAL SHIFTING TEST

HINT:

By this test, it can be determined whether the trouble is within the electrical circuit or is a mechanical problem in the transaxle.

(a) Disconnect the solenoid wire.

(b) Inspect the manual driving operation.

Check that the shift and gear positions correspond to the table below.

While driving, shift through the L, 2 and D ranges.

Check that the gear change corresponds to the shift range.

Shift range	Gear position
D	O/D
2	3rd
L	1st
R	Reverse
P	Pawl Lock

HINT:

If the L, 2 and D range gear positions are difficult to distinguish, do the above read test.

If any abnormality is found in the above test, the problem is in the transaxle ifself.

(c) Connect the solenoid wire.

(d) Cancel out DTC.

DI1G9-02

DIAGNOSTIC TROUBLE CODE CHART

If a DTC is displayed during the DTC check, check the circuit listed for that code in the table below and proceed to the page given.

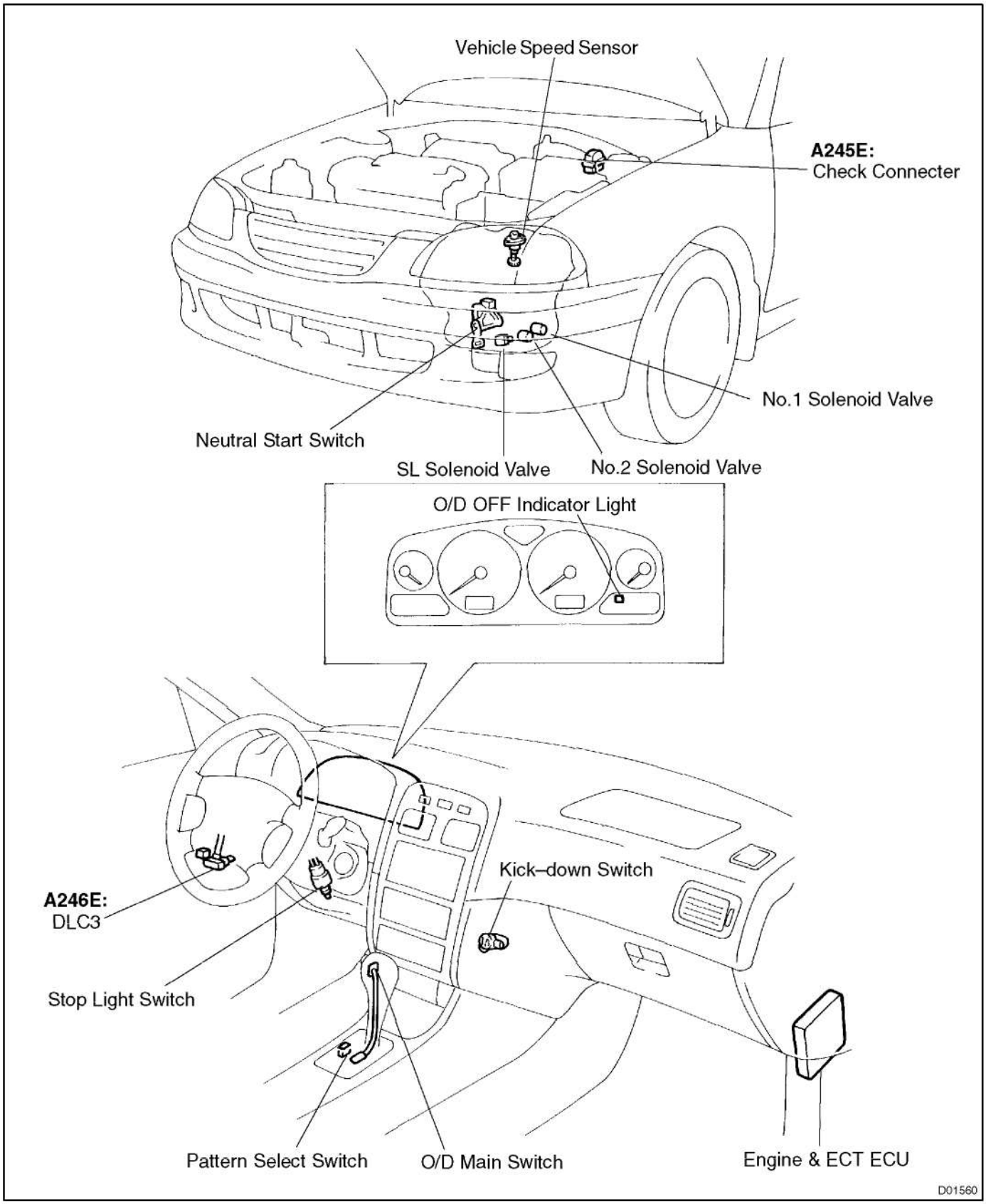
DTC No. (See Page)	Detection Item	Trouble Area	O/D OFF Indicator Light Blink *1	Memory *2
P0500/42 (DI–79)	Vehicle Speed Sensor Malfunction (Vehicle Speed Sensor)	• Open or short in vehicle speed sensor circuit • No.1 vehicle speed sensor • Combination meter • Engine and ECT ECU	○	○
P0753/62 (DI–82)	Shift Solenoid A Electrical Malfunction (No.1 Solenoid Valve)	• Open or short in shift solenoid valve No.1 circuit • No.1 solenoid valve • Engine and ECT ECU	○	○
P0758/63 (DI–82)	Shift Solenoid B Electrical Malfunction (No.2 Solenoid Valve)	• Open or short in shift solenoid valve No.2 circuit • No.2 solenoid valve • Engine and ECT ECU	○	○
P0773/64 (DI–87)	Shift Solenoid E Electrical Malfunction (SL Solenoid Valve)	• Open or short in shift solenoid valve SL circuit • SL solenoid valve • Engine and ECT ECU	X	○

*1: "○" mark means O/F OFF indicator light blinks once every 2 seconds.
"X" mark means O/F OFF indicator light never blinks.

*2: "○" mark means the Engine and ECT ECU memorizes the malfunction code if the Engine and ECT ECU detects the DTC detection condition.

DI330-01

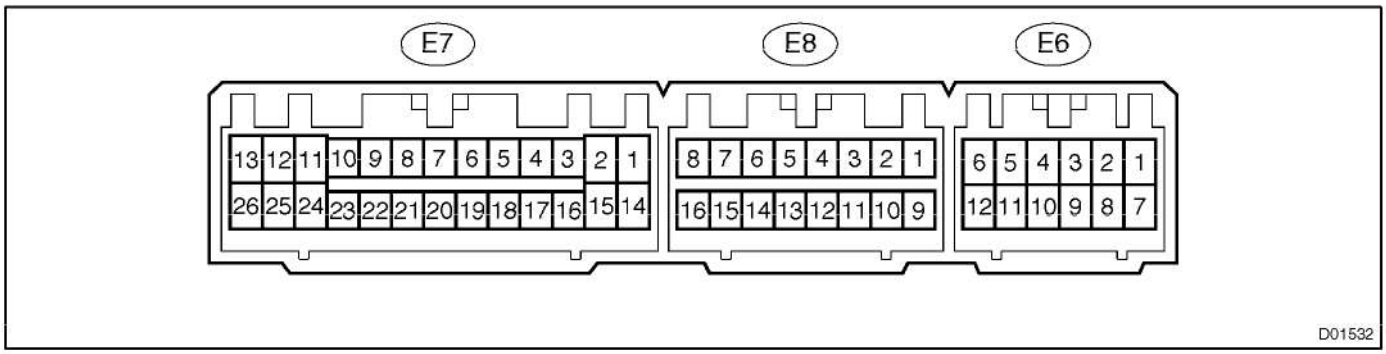
PARTS LOCATION



DI331-01

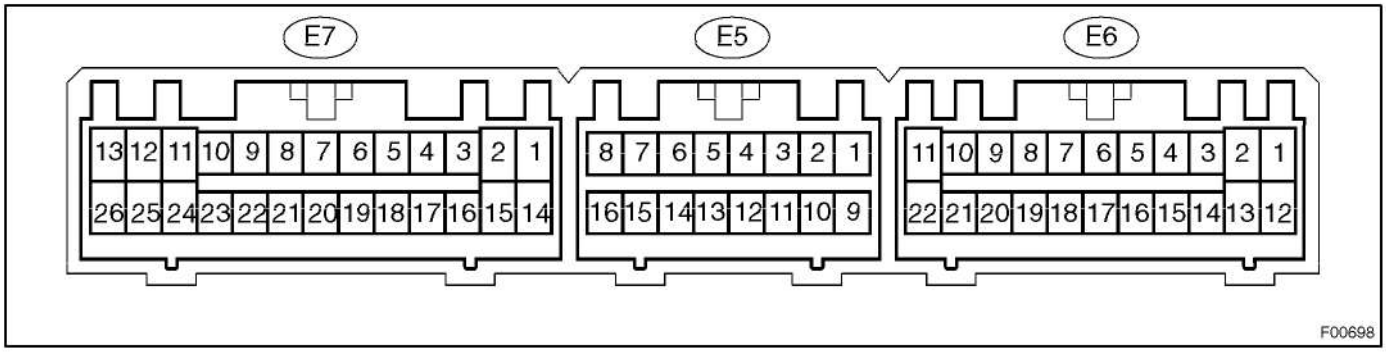
TERMINALS OF ECU

A245E:



Symbols (Terminals No.)	Wiring Color	Condition	STD Voltage (V)
S1 (E7 – 21) – E1 (E7 – 24)	LG ↔ BR	IG ON	9 – 14
		1st or 2nd gear	9 – 14
		3rd or O/D gear	Below 1.5
S2 (E7 – 8) – E1 (E7 – 24)	V–W ↔ BR	IG ON	Below 1.5
		2nd or 3rd gear	9 – 14
		1st or O/D gear	Below 1.5
SL (E7 – 7) – E1 (E7 – 24)	P ↔ BR	IG ON	Below 1.5
		Vehicle driving under lock–up position	9 – 14
NSW (E7 – 15) – E1 (E7 – 24)	B–W ↔ BR	IG ON and shift lever P or N range	Below 3
		IG ON and shift lever other than P or N range	9 – 14
OD2 (E7 – 1) – E1 (E7 – 24)	L ↔ BR	IG ON and O/D main switch ON (O/D OFF)	Below 3
		IG ON and O/D main switch OFF (O/D ON)	9 – 14
SPD (E6 – 11) – E1 (E7 – 24)	G ↔ BR	IG ON and vehicle stationary	Below 1.5
		IG ON and turn one rear wheel slowly	Pulse signal is output Below 1.5 ↔ 4 – 6
L (E7 – 6) – E1 (E7 – 24)	Y–G ↔ BR	IG ON and shift lever L range	9 – 14
		IG ON and shift lever other than L range	Below 1.5
2 (E7 – 20) – E1 (E7 – 24)	O ↔ BR	IG ON and shift lever 2 range	9 – 14
		IG ON and shift lever other than 2 range	Below 1.5
R (E7 – 19) – E1 (E7 – 24)	R–B ↔ BR	IG ON and shift lever R range	9 – 14
		IG ON and shift lever other than R range	Below 1.5
B/K (E6 – 1) – E1 (E7 – 24)	G–W ↔ BR	IG ON and brake pedal is depressed	9 – 14
		IG ON and brake pedal is released	Below 1.5
P (E8 – 5) – E1 (E7 – 24)	P ↔ BR	IG ON and pattern select switch: PWR	9 – 14
		IG ON and pattern select switch: NORM	Below 1.5

A246E:



Symbols (Terminals No.)	Wiring Color	Condition	STD Voltage (V)
S1 (E7 – 8) – E1 (E7 – 14)	LG ↔ BR	IG ON	9 – 14
		1st or 2nd gear	9 – 14
		3rd or O/D gear	Below 1.5
S2 (E7 – 7) – E1 (E7 – 14)	V–W ↔ BR	IG ON	Below 1.5
		2nd or 3rd gear	9 – 14
		1st or O/D gear	Below 1.5
SL (E7 – 6) – E1 (E7 – 14)	P ↔ BR	IG ON	Below 1.5
		Vehicle driving under lock–up position	9 – 14
NSW (E6 – 22) – E1 (E7 – 14)	B–W ↔ BR	IG ON and shift lever P or N range	Below 3
		IG ON and shift lever other than P or N range	9 – 14
OD2 (E6 – 7) – E1 (E7 – 14)	L ↔ BR	IG ON and O/D main switch ON (O/D OFF)	Below 3
		IG ON and O/D main switch OFF (O/D ON)	9 – 14
SPD (E6 – 4) – E1 (E7 – 14)	G ↔ BR	IG ON and vehicle stationary	Below 1.5
		IG ON and turn one rear wheel slowly	Pulse signal is output Below 1.5 ↔ 4 – 6
L (E6 – 19) – E1 (E7 – 14)	Y–G ↔ BR	IG ON and shift lever L range	9 – 14
		IG ON and shift lever other than L range	Below 1.5
2 (E6 – 18) – E1 (E7 – 14)	O ↔ BR	IG ON and shift lever 2 range	9 – 14
		IG ON and shift lever other than 2 range	Below 1.5
R (E6 – 20) – E1 (E7 – 14)	R–B ↔ BR	IG ON and shift lever R range	9 – 14
		IG ON and shift lever other than R range	Below 1.5
STP (E6 – 4) – E1 (E7 – 14)	G–W ↔ BR	IG ON and brake pedal is depressed	9 – 14
		IG ON and brake pedal is released	Below 1.5
KD (E6 – 3) – E1 (E7 – 14)	Y ↔ BR	IG ON and Accelerator pedal is fully dipressed	Below 1.5
		IG ON and Accelerator pedal is released	9 – 14
P (E6 – 6) – E1 (E7 – 14)	P ↔ BR	IG ON and pattern select switch: PWR	9 – 14
		IG ON and pattern select switch: NORM	Below 1.5
SNOWI (E6 – 17) – E1 (E7 – 14)	P–B ↔ BR	IG ON and SNOW mode switch: ON	9 – 14
		IG ON and SNOW mode switch: OFF	Below 1.5

DI1FT-03

PROBLEM SYMPTOMS TABLE

If a normal code is displayed during the diagnostic trouble code check but the trouble still occurs, check the circuits for each symptom in the order given in the charts on the following pages and proceed to the page given for troubleshooting.

HINT:
The Matrix Chart is divided into 3 chapters.
Chapter 1: Electronic Circuit Matrix Chart
Chapter 2: On–vehicle Repair Matrix Chart
Chapter 3: Off–vehicle Repair Matrix Chart

- If the instruction "Proceed to next circuit inspection shown in matrix chart" is given in the flow chart for eaxh circuit, proceed to the circuit with the next highest number in the table to continue the check.
- If the trouble still occurs even though there are no abnormalities in any of the other circuits, then check and replace the Engine and ECT ECU.

1. Chapter 1: Electronic Circuit Matrix Chart

Symptom	Suspect Area	See page
No up–shift (A particular gear, from 1st to 3rd gear, is not up–shifted)	Engine and ECT ECU	IN–28
No up–shift (3rd → O/D)	1. O/D main switch & O/D OFF indicator light circuit 3. Engine and ECT ECU	DI–100 IN–28
No down–shift (A particular gear, from 1st to 3rd gear, is not down–shifted)	Engine and ECT ECU	IN–28
No down–shift (O/D → 3rd)	1. O/D main switch & O/D OFF indicator light circuit 3. Engine and ECT ECU	DI–100 IN–28
No lock–up	Engine and ECT ECU	IN–28
No lock–up OFF	Engine and ECT ECU	IN–28
Shift point too high or too low	Engine and ECT ECU	IN–28
Up–shift to O/D from 3rd while O/D main switch is OFF	1. O/D main switch & O/D OFF indicator light circuit 2. Engine and ECT ECU	DI–100 IN–28
Up–shift to O/D from 3rd while engine is cold	Engine and ECT ECU	IN–28
No kick–down	1. Kick–down switch circuit 2. Engine and ECT ECU	DI–110 IN–28
Engine stalls when starting off or stopping	Engine and ECT ECU	IN–28

2. Chapter 2: On–vehicle Repair (★ : A245E AUTOMATIC TRASAXLE Repair Manual Pub. No. RM350E)

Symptom	Suspect Area	See page
Does not move in any forward ranges	Off–vehicle matrix chart	–
Does not move in reverse range	Off–vehicle matrix chart	–
Does not move in any ranges	1. Primary regulator valve 2. Manual valve 3. Throttle valve 4. Off–vehicle matrix chart	★ ★ ★ –
No–up shift (1st → 2nd)	1. 1 – 2 shift valve 2. Off–vehicle matrix chart	★ –
No–up shift (2nd → 3rd)	1. 2 – 3 shift valve 2. Off–vehicle matrix chart	★ –
No–up shift (3rd → O/D)	1. 3 – 4 shift valve 2. Off–vehicle matrix chart	★ –
No–down shift (O/D → 3rd)	1. 3 – 4 shift valve 2. Off–vehicle matrix chart	★ –
No–down shift (3rd → 2nd)	1. 2 – 3 shift valve 2. Off–vehicle matrix chart	★ –
No–down shift (2nd → 1st)	1. 1 – 2 shift valve 2. Off–vehicle matrix chart	★ –
Harsh engagement (N → R)	1. C2 accumulator 2. Off–vehicle matrix chart	★ –
Harsh engagement (N → D)	1. C1 accumulator 2. Off–vehicle matrix chart	★ –
Harsh engagement (N → L)	1. C1 accumulator 2. Low coast modulator valve 3. Off–vehicle matrix chart	★ ★ –
Harsh engagement (1st → 2nd "D" range)	1. Accumulator control valve 2. B2 accumulator 3. Off–vehicle matrix chart	★ ★ –
Harsh engagement (1st → 2nd "2" range)	1. B2 accumulator 2. Accumulator control valve 3. 2nd coast modulator control 4. Off–vehicle matrix chart	★ ★ ★ –
Harsh engagement (1st → 2nd → 3rd → O/D)	1. Throttle valve 2. Primary regulator valve	★ ★
Harsh engagement (2nd → 3rd)	1. C2 accumulator 2. Accumulator control valve 3. Off–vehicle matrix chart	★ ★ –
Harsh engagement (3rd → O/D)	1. B2 accumulator 2. C3 accumulator 3. Off–vehicle matrix chart	★ ★ –
Harsh engagement (O/D → 3rd)	1. B4 accumulator 2. Off–vehicle matrix chart	★ –
Harsh engagement (3rd → 2nd)	1. C2 accumulator 2. Off–vehicle matrix chart	★ –
Slip (Forward & Reverse)	1. Primary regulator valve 2. Oil strainer 3. Off–vehicle matrix chart	★ ★ –
Slip ("R" range, 1st, 2nd, 3rd, O/D)	Off–vehicle matrix chart	–

Symptom	Suspect Area	See page
No engine braking (1st "L" range)	1. Low coast modulator valve 2. Off–vehicle matrix chart	★ –
No engine braking (2nd "2" range)	1. 2nd coast modulator valve 2. Off–vehicle matrix chart	★ –
No kick down	1. 1 – 2 shift valve 2. 2 – 3 shift valve 3. 3 – 4 shift valve	★ ★ ★
Poor acceleration	1. Primary regulator valve 2. Off–vehicle matrix chart	★ –
No lock–up	1. Lock–up relay valve 2. Off–vehicle matrix chart	★ –

3. Chapter 3: Off–vehicle Repair (★ : A245E AUTOMATIC TRASAXLE Repair Manual Pub. No. RM350E)

Symptom	Suspect Area	See page
Does not move in any forward ranges	Forward clutch (C_1)	★
Does not move in reverse range	1. Direct clutch (C_2) 2. 1st & reverse brake (B_3) 3. U/D brake (B_4)	★ ★ ★
Does not move in any ranges	1. Torque converter 2. Oil pump 3. U/D one–way clutch (F_3) 4. Front planetary gear 5. Rear planetary gear	AX–36 ★ ★ ★ ★
No–up shift (1st → 2nd)	1. 2nd brake (B_2) 2. No.1 one–way clutch (F_1)	★ ★
No–up shift (2nd → 3rd)	Direct clutch (C_2)	★
No–up shift (3rd → O/D)	U/D clutch (C_3)	★
No–down shift (O/D → 3rd)	1. U/D brake (B_4) 2. U/D one–way clutch (F_3)	★ ★
No–down shift (3rd → 2nd)	No.1 one–way clutch (F_1)	★
No–down shift (2nd → 1st)	No.2 one–way clutch (F_2)	★
Harsh engagement (N → R)	1. Direct clutch (C_2) 2. 1st & reversebrake (B_3)	★ ★
Harsh engagement (N → D)	Forward clutch (C_1)	★
Harsh engagement (N → L)	Forward clutch (C_1)	★
Harsh engagement (1st → 2nd "D" range)	1. 2nd brake (B_2) 2. No.1 one–way clutch (F_1)	★ ★
Harsh engagement (1st → 2nd "2" range)	1. 2nd coast brake (B_1) 2. 2nd brake (B_2) 3. No.1 one–way clutch (F_1)	★ ★ ★
Harsh engagement (2nd → 3rd)	Direct clutch (C_2)	★
Harsh engagement (3rd → O/D)	U/D clutch (C_3)	★
Harsh engagement (O/D → 3rd)	U/D brake (B_4)	★
Harsh engagement (3rd → 2nd)	Direct clutch (C_2)	★
Slip (Forward & Reverse)	1. Torque converter 2. Oil pump	AX–36 ★
Slip ("R" range)	1. Direct clutch (C_2) 2. 1st & reverse brake (B_3)	★ ★
Slip (1st)	1. Forward clutch (C_1) 2. No.2 one–way clutch (F_2) 3. U/D one–way clutch (F_3)	★ ★ ★

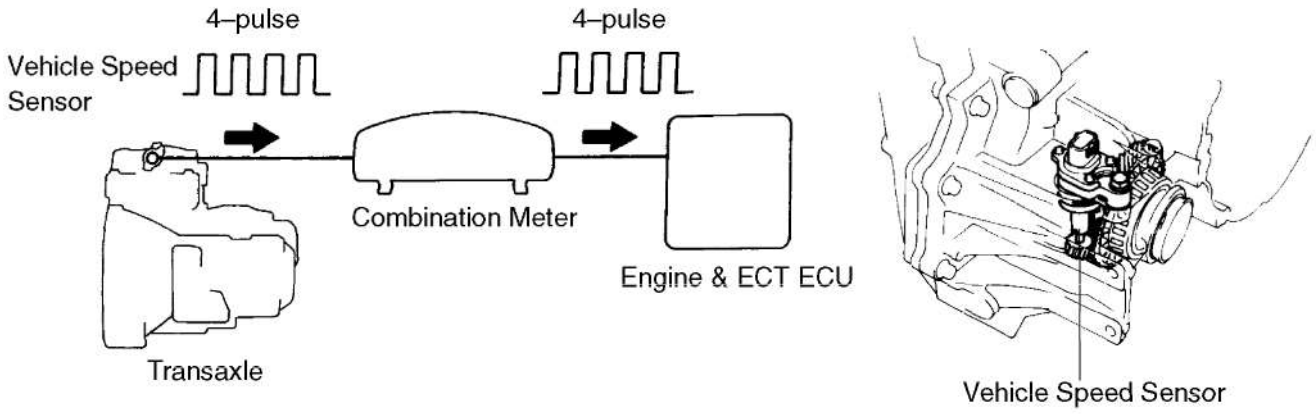
Slip (2nd)	1. Forward clutch (C_1) 2. 2nd brake (B_2) 3. No.1 one–way clutch (F_1) 4. U/D one–way clutch (F_3)	★ ★ ★ ★
Slip (3rd)	1. Forward clutch (C_1) 2. Direct clutch (C_2) 3. U/D one–way clutch (F_3)	★ ★ ★
Slip (O/D)	1. Forward clutch (C_1) 2. Direct clutch (C_2) 3. U/D clutch (C_3)	★ ★ ★
No engine braking (1st "L" range)	1st & reversebrake (B_3)	★
No engine braking (2nd "2" range)	2nd coast brake (B_1)	★
Poor acceleration	1. Torque converter 2. Forward clutch (C_1)	AX–36 ★
No lock–up	Torque converter	AX–36
Engine stalls when starting off or stopping	Torque converter	AX–36

DI332-01

CIRCUIT INSPECTION

DTC	P0500/43	Vehicle Speed Sensor Malfunction

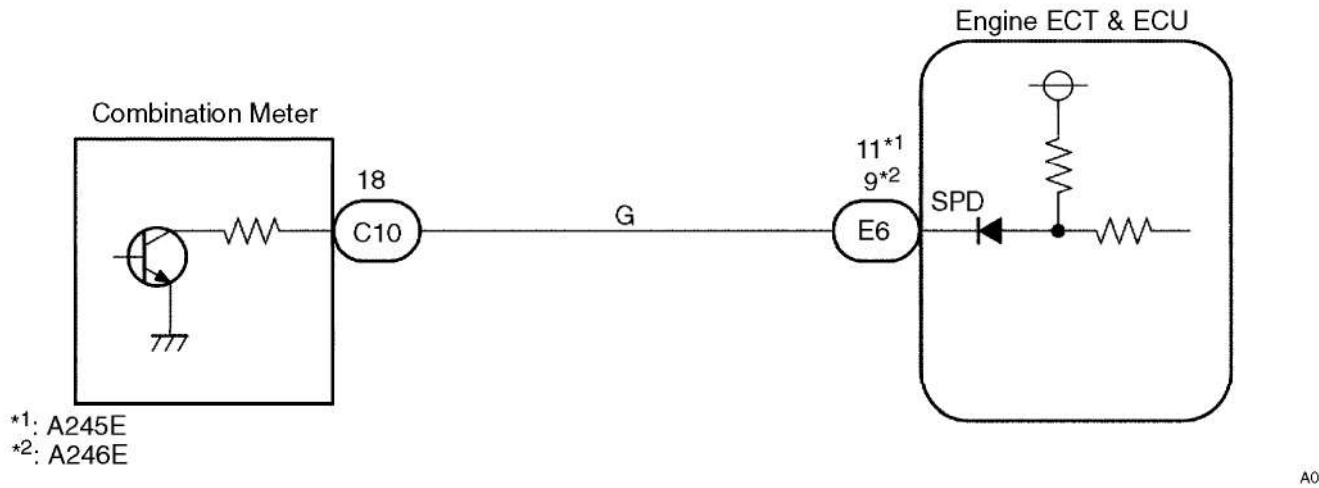
The vehicle speed sensor outputs a 4–pulse signal for every revolution of the rotor shaft, which is rotated by the transmission output shaft via the driven gear. After this signal is converted into a more precise rectangular wave form by the wave form shaping circuit inside the combination meter, it is then transmitted to the Engine & ECT ECU. The Engine & ECT ECU determines the vehicle speed sensor based on the frequency of these pulse signals.



D02245

DTC No.	DTC Detecting Condition	Trouble Area
P0500/43	• No vehicle speed sensor signal to Engine & ECT ECU under conditions (a) and (b): (1–trip detection logic) (a) Neutral start switch OFF (b) Vehicle is being driven • Clutch or brake slips or gear is broken. (1–trip detection logic)	• Open or short in vehicle speed sensor circuit • Vehicle speed sensor • Combination meter • Engine & ECT ECU • Automatic transaxle (clutch, brake or gear etc.)

WIRING DIAGRAM



A04252

INSPECTION PROCEDURE

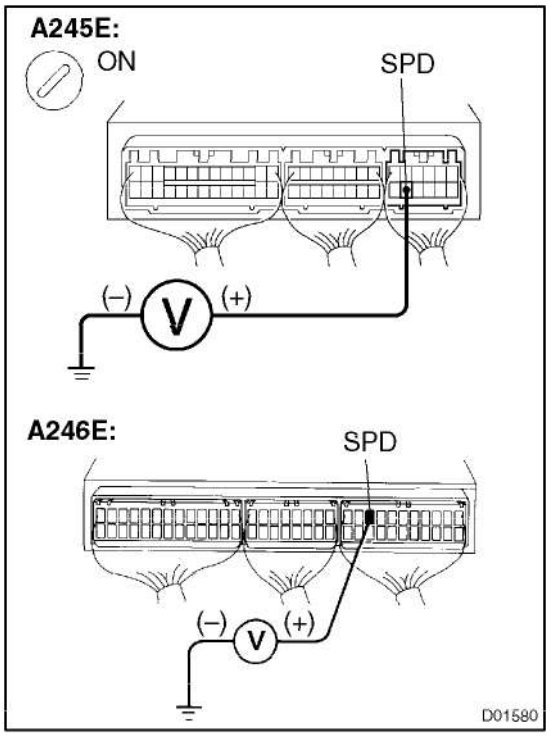
1	**Check operation of speedometer.**

CHECK:
Drive the vehicle and check if the operation of the speedometer in the combination meter is normal.
HINT:
The vehicle speed sensor is operating normally if the speedometer display is normal.

NG → **Check speedometer circuit. See combination meter troubleshooting (See page BE–63).**

OK

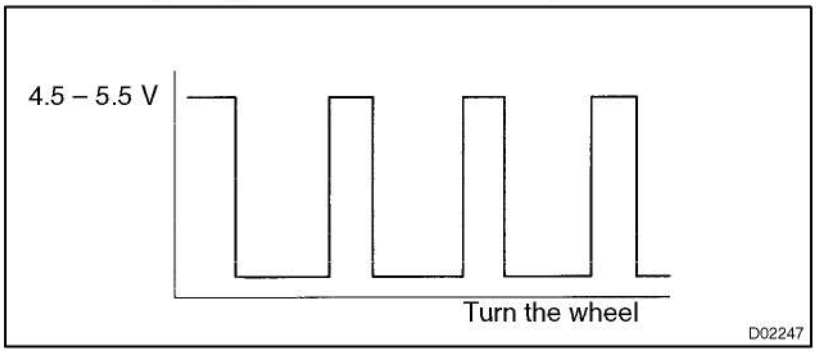
2	**Check voltage between terminal SPD of Engine & ECT ECU connector and body ground.**



PREPARATION:
(a) Turn up the floor mat on the passenger side.
(b) Remove the 2 bolts for Engine & ECT ECU.
(c) Shift the shift lever to N range or neutral.
(d) Jack up one of the front wheels.
(e) Turn ignition switch ON.

CHECK:
Measure voltage between terminal SPD of Engine & ECT ECU connector and body ground when the wheel is turned slowly.

OK:
Voltage is generated intermittently.



NG → **Check and repair harness and connector between combination meter and Engine & ECT ECU.**

OK

3	Check Engine & ECT ECU (See page IN–28).

NG → Replace Engine & ECT ECU

OK

Check repair transaxle (clutch, brake or gear etc.).

DTC	P0753/62,P0758/63	Shift Solenoid A/B Electrical Malfunction (No.1/No.2 Solenoid Valve)

CIRCUIT DESCRIPTION

Shifting from 1st to O/D is performed in combination with ON and OFF of the No.1 and No.2 solenoid valves controlled by Engine & ECT ECU. If an open or short circuit occurs in either of the solenoid valves, the Engine & ECT ECU controls the remaining normal solenoid valve to allow the vehicle to be operated smoothly (Fail safe function).

Range	NORMAL			NO.1 SOLENOID MALFUNCTIONING			NO.2 SOLENOID MALFUNCTIONING			BOTH SOLENOIDS MALFUNCTIONING
	Solenoid valve		Gear	Solenoid valve		Gear	Solenoid valve		Gear	Gear when shift selector is manually operated
	No.1	No.2		No.1	No.2		No.1	No.2		
D	ON	OFF	1st	X	ON	3rd	ON	X	1st	O/D
	ON	ON	2nd	X	ON	3rd	OFF	X	O/D	O/D
	OFF	ON	3rd	X	ON	3rd	OFF	X	O/D	O/D
	OFF	OFF	O/D	X	OFF	O/D	OFF	X	O/D	O/D
2	ON	OFF	1st	X	ON	3rd	ON	X	1st	3rd
	ON	ON	2nd	X	ON	3rd	OFF	X	3rd	3rd
	OFF	ON	3rd	X	ON	3rd	OFF	X	3rd	3rd
L	ON	OFF	1st	X	OFF	1st	ON	X	1st	1st
	ON	ON	2nd	X	ON	2nd	ON	X	1st	1st

X: Malfunctions

HINT:

Check the No.1 solenoid valve when DTC P0753/62 is output and check the No.2 solenoid valve when DTC P0758/63 is output.

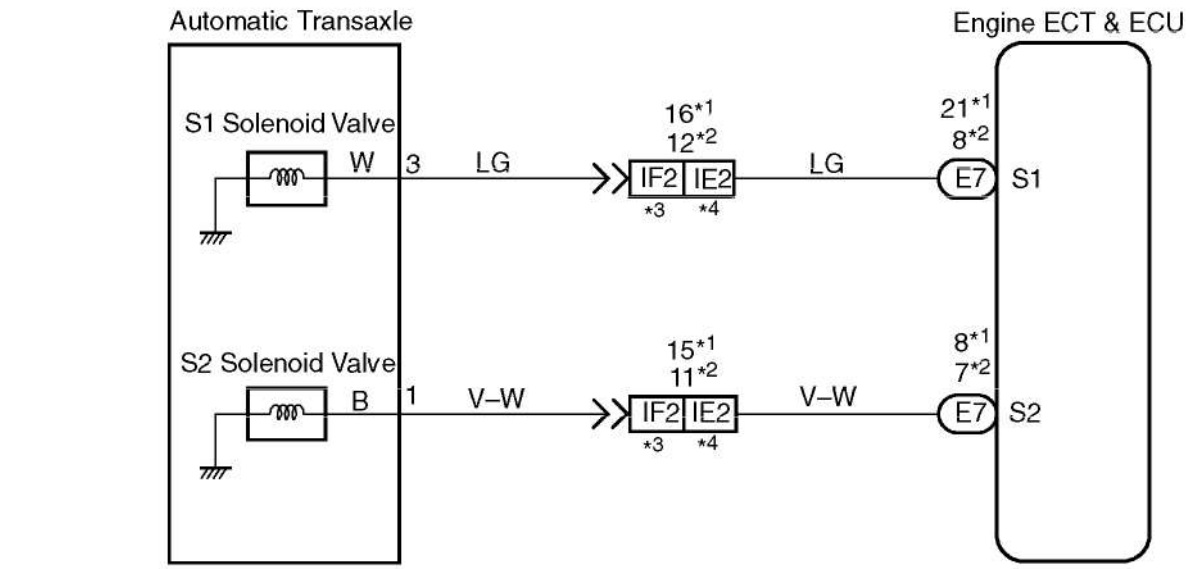
DTC No.	DTC Detecting Condition	Trouble Area
P0753/62 P0758/63	The Engine & ECT ECU checks for an open or short circuit in the No.1 or No.2 solenoid valve circuit when it changes. The Engine & ECT ECU records DTC P0753/62 or P0758/63 if condition (a) or (b) is detected once, but it does not blink the O/D OFF indicator light. After Engine & ECT ECU detects condition (a) or (b) continuously 8 times or more in one trip, it causes the O/D OFF indicator light to light up until condition (a) or (b) disappears. After that, if the Engine & ECT ECU detects condition (a) or (b) once, it starts lighting up O/D OFF indicator light again. (a) Solenoid resistance is 8 Ω or less (short circuit) when the solenoid is energized. (b) Solenoid resistance is 100 kΩ or more (open circuit) when the solenoid is not energized.	• Open or short in No.1/No.2 solenoid valve circuit • No.1/No.2 solenoid valve • Engine & ECT ECU

Fail Safe Function:

If either of the solenoid valve circuits develops an open or short, the Engine & ECT ECU turns the other solenoid valve ON and OFF to shift to the gear positions shown in the table above. The Engine & ECT ECU also turns the SL solenoid valve OFF at the same time. If both solenoids malfunction, hydraulic control cannot be performed electronically and must be done manually.

Manual shifting as shown in the above table must be done (In the case of a short circuit, the Engine & ECT ECU stops sending current to the short circuited solenoid).

WIRING DIAGRAM

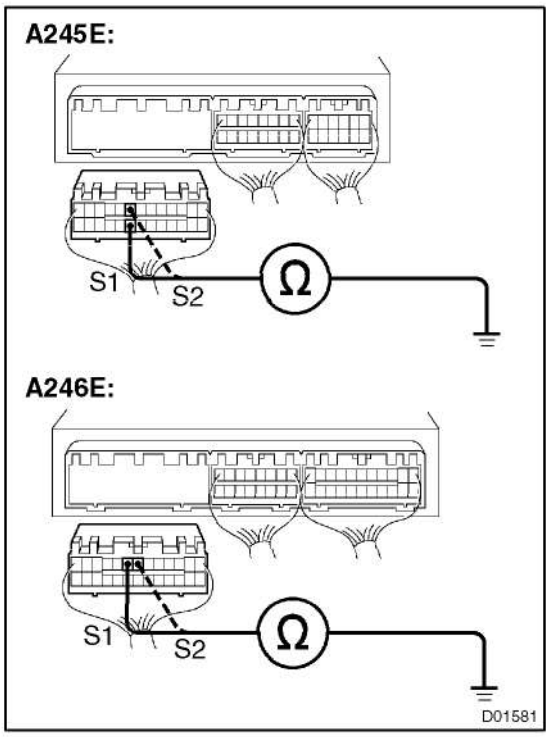


*1: A245E *3: LHD
*2: A246E *4: RHD

D01675

INSPECTION PROCEDURE

1	**Measure resistance between terminal S1 or S2 of Engine & ECT ECU and body ground.**



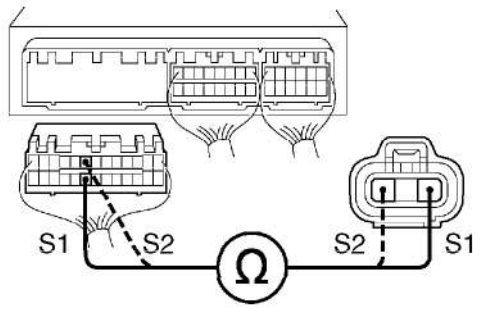
PREPARATION:
Disconnect the connector from Engine & ECT ECU.
CHECK:
Measure resistance between terminal S1 or S2 of Engine & ECT ECU and body ground.
OK:
Resistance: 11 ~ 15 Ω at 20 °C (68 °F)

OK	**Check and replace the Engine & ECT ECU (See page IN–28).**

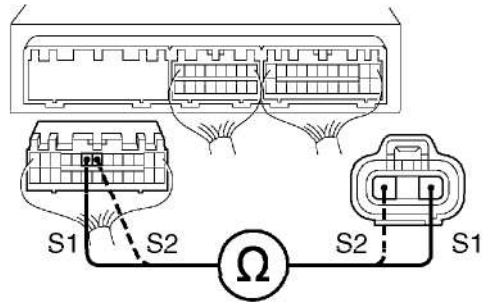
NG

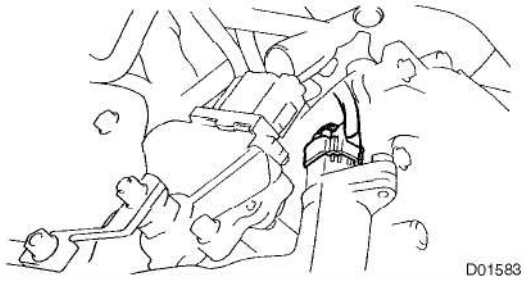
2	**Check harness and connector between Engine & ECT ECU and automatic transmission solenoid connector.**

A245E:



A246E:





PREPARATION:

Disconnect the solenoid connector from the automatic transaxle.

CHECK:

Check the harness and connector between terminal S1 or S2 of Engine & ECT ECU and terminal S1 or S2 of solenoid connector.

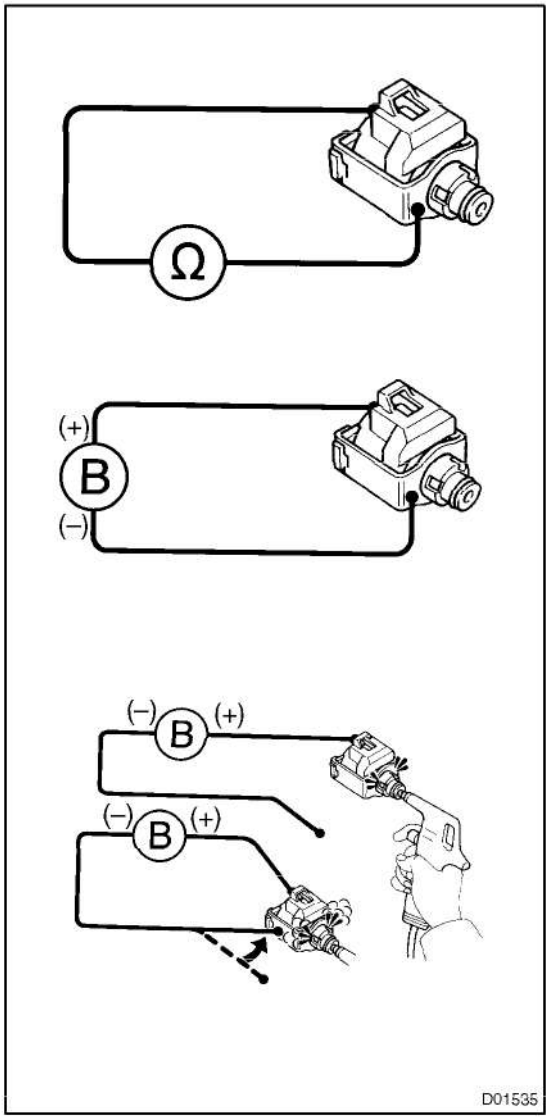
OK:

There is no open and short circuit.

NG → **Repair or replace the harness or connector (See page IN–28).**

OK

3	Check No.1 or No.2 solenoid valve.



Electrical Check:

PREPARATION:

(a) Jack up the vehicle.
(b) Remove the oil pan.
(c) Disconnect the solenoid connector.
(d) Remove the No.1 or No.2 solenoid valve.

CHECK:

(a) Measure resistance between solenoid connector and body ground.
(b) Connect positive ⊕ lead of the battery to terminal of solenoid connector, negative ⊖ lead of the battery to solenoid body.

OK:

(a) Resistance: 11 ~ 15 Ω at 20 °C (68 °F)
(b) The solenoid makes an operating noise

Mechanical Check:

PREPARATION:

(a) Jack up the vehicle.
(b) Remove the oil pan.
(c) Disconnect the solenoid connector.
(d) Remove the No.1 or No.2 solenoid valve.

CHECK:

(a) Applying 490 kPa (5 kgf/cm^2, 71 psi) of compressed air, check that the solenoid valve does not leak air.
(b) When battery positive voltage is supplied to the solenoid valve, check that the valve opens.

OK:

(a) Solenoid valve does not leak air.
(b) Solenoid valve opens.

NG → **Replace the solenoid valve.**

OK

Repair or replace the solenoid wire.

DTC	P0773/64	Shift Solenoid E Electrical Malfunction (SL Solenoid Valve)

CIRCUIT DESCRIPTION

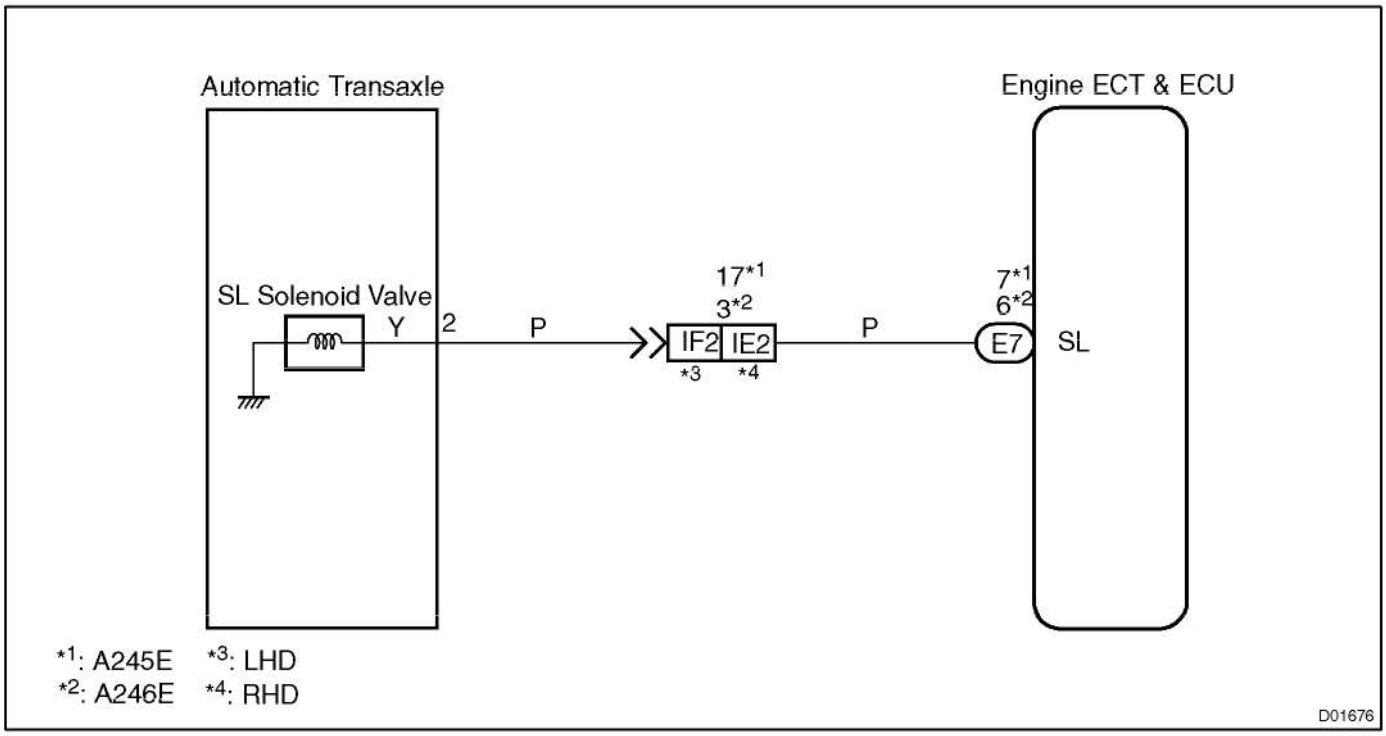
The SL solenoid valve is turned ON and OFF by signals from the Engine & ECT ECU to control the hydraulic pressure acting on the lock–up relay valve, which then controls operation of the lock–up clutch.

DTC No.	DTC Detecting Condition	Trouble Area
P0773/64	Either (a) or (b) is detected 1 time. (a) Solenoid resistance is 8 Ω or less (short circuit) when the solenoid is energized. (b) Solenoid resistance is 100 kΩ or more (open circuit) when the solenoid is not energized.	• Open or short in SL solenoid valve circuit • SL solenoid valve • Engine & ECT ECU

Fail safe function

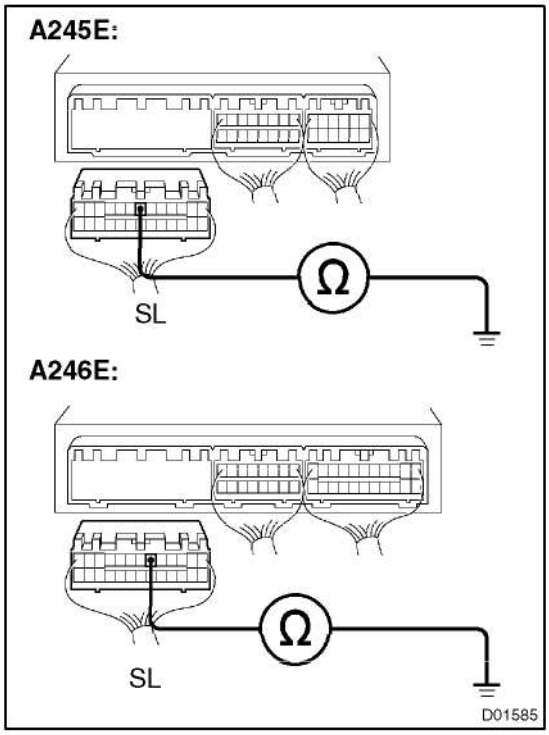
If the Engine & ECT ECU detects a malfunction, it turns the SL solenoid valve OFF.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Measure resistance between terminal SL of Engine & ECT ECU and body ground.**

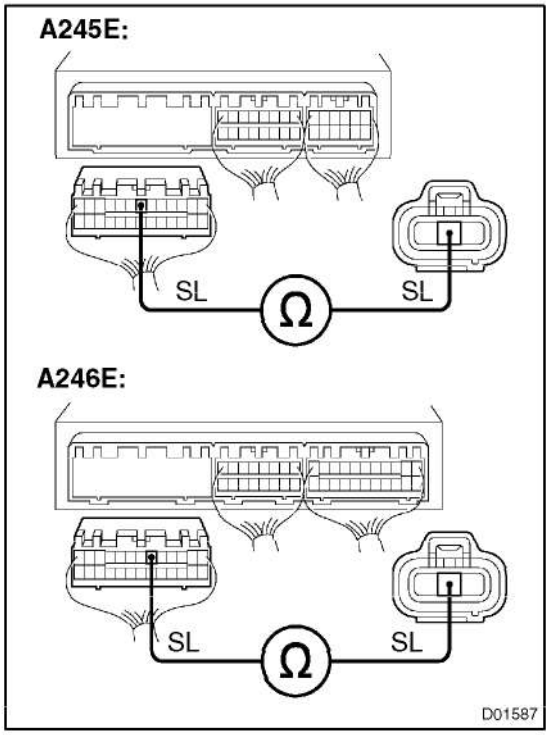


PREPARATION:
Disconnect the connector from Engine & ECT ECU.
CHECK:
Measure resistance between terminal SL of Engine & ECT ECU and body ground.
OK:
Resistance: 11 ~ 15 Ω at 20 °C (68 °F)

OK → **Check and replace the Engine & ECT ECU (See page IN–28).**

NG

2	**Check harness and connector between Engine & ECT ECU and automatic transmission solenoid connector.**

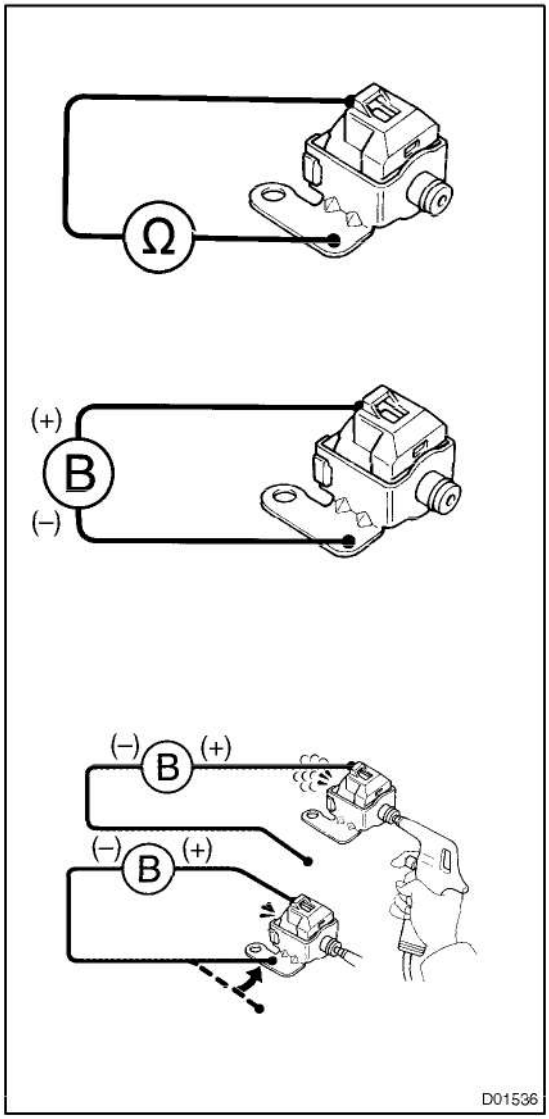


PREPARATION:
Disconnect the solenoid connector from the transmission.
CHECK:
Check the harness between terminal SL of Engine & ECT ECU and terminal SL of transmission solenoid connector.
OK:
There is no open or short circuit.

NG → **Repair or replace the harness or connector.**

OK

3	Check SL solenoid valve.



Electrical Check:

PREPARATION:

(a) Jack up the vehicle.
(b) Remove the oil pan.
(c) Disconnect the solenoid connector.
(d) Remove the SL solenoid valve.

CHECK:

(a) Measure resistance between terminal SL of solenoid valve and solenoid body.
(b) Connect positive ⊕ lead of the battery to terminal of solenoid connector, negative ⊖ lead of the battery to solenoid body.

OK:

(a) Resistance: 11 ~ 15 Ω at 20 °C (68 °F)
(b) The SL solenoid valve makes operating noise.

Mechanical Check:

PREPARATION:

(a) Jack up the vehicle.
(b) Remove the oil pan.
(c) Disconnect the solenoid connector.
(d) Remove the SL solenoid valve.

CHECK:

(a) Applying 490 kPa (5 kgf/cm^2, 71 psi) of compressed air, check that the solenoid valve does not leak air.
(b) When battery positive voltage is supplied to the solenoid valve, check that the solenoid valve opens.

OK:

(a) Solenoid valve does not leak air.
(b) Solenoid valve opens

NG → **Replace the SL solenoid valve.**

OK

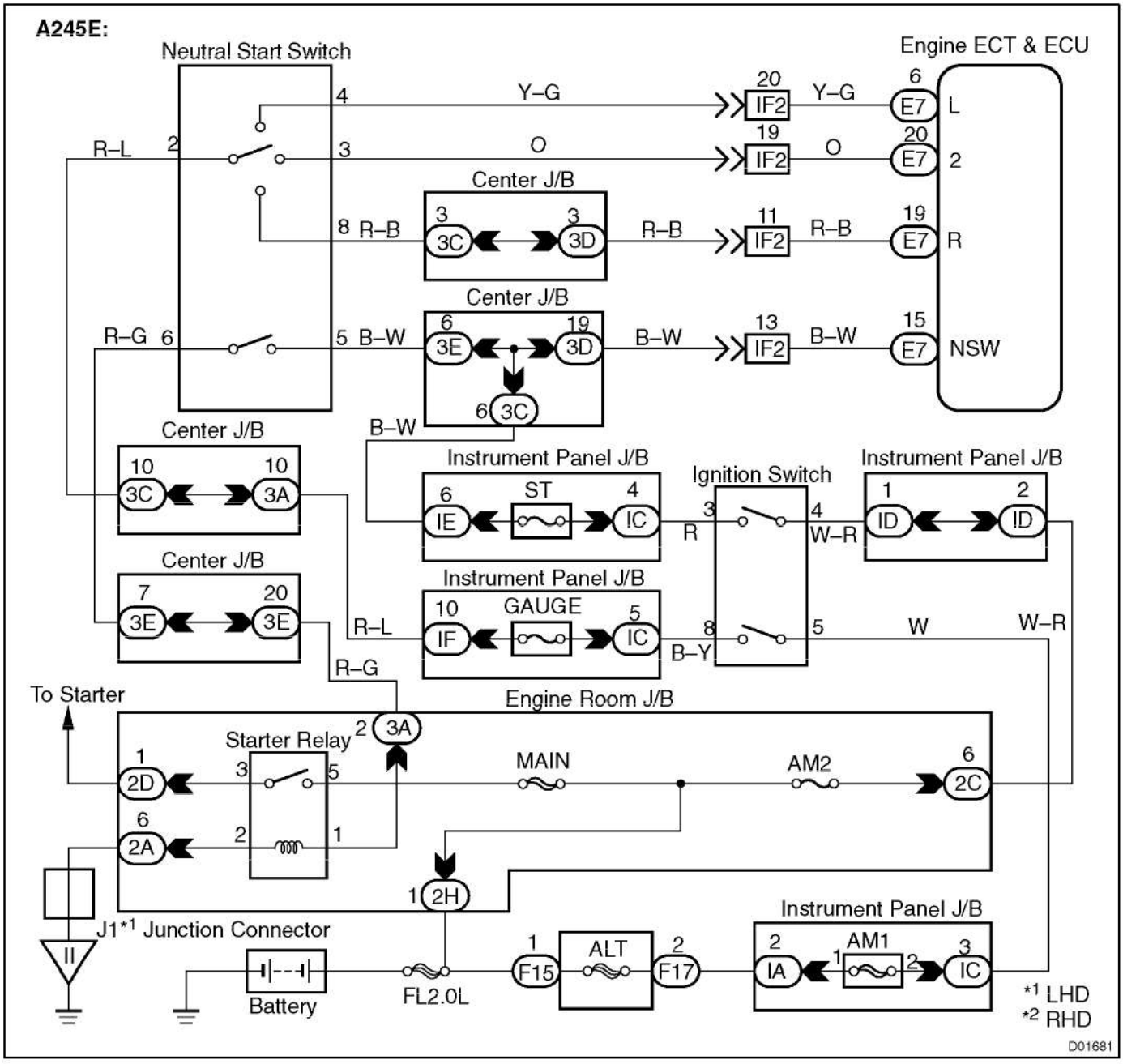
Repair or replace the solenoid wire.

Neutral Start Switch Malfunction

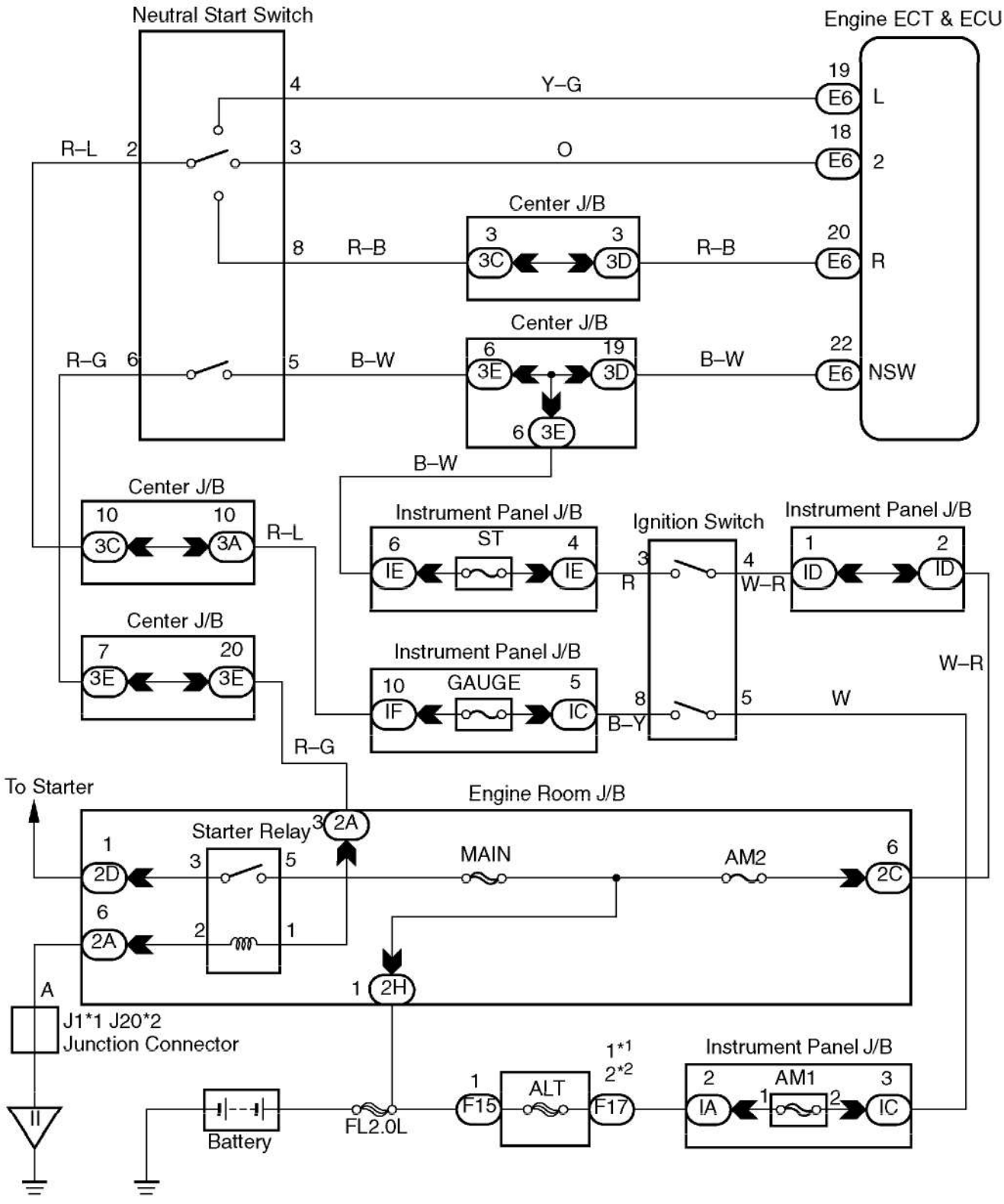
CIRCUIT DESCRIPTION

The neutral start switch detects the shift lever position and sends signals to the Engine & ECT ECU. The Engine & ECT ECU receives signals (NSW, R, 2 and L) from the neutral start switch. When the signal is not sent to the Engine & ECT ECU from the neutral start switch, the Engine & ECT ECU judges that the shift lever is in D range.

WIRING DIAGRAM



A246E:


Neutral Start Switch
Engine ECT & ECU
Y–G
R–L
O
R–B
R–B
R–G
B–W
B–W
B–W
R–L
R–G
W–R
W
B–Y
R
W–R
Center J/B
Instrument Panel J/B
Ignition Switch
Instrument Panel J/B
ST
GAUGE
To Starter
Engine Room J/B
Starter Relay
MAIN
AM2
J1*1 J20*2
Junction Connector
Battery
FL2.0L
ALT
Instrument Panel J/B
AM1
*1: LHD
*2 RHD
D01684

INSPECTION PROCEDURE

1	**Read PNP SW, REVERSE, 2ND and LOW signals.**

When using hand–held tester:

PREPARATION:

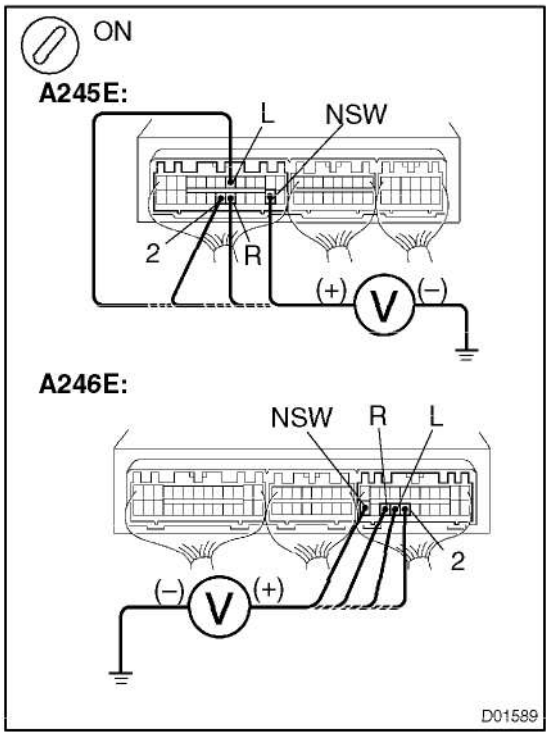
(a) Remove the DLC3 cover.
(b) Connect hand–held tester to the DLC3.
(c) Turn the ignition switch ON and hand–held tester main switch ON.

CHECK:

Shift lever into the P, R, N, 2 and L ranges, and read the PNP SW, REVERSE, 2ND and LOW signals on the hand–held tester.

OK:

Shift Range	Signal
2	2ND: OFF → ON
L	LOW: OFF → ON
R	REVERSE: OFF → ON
P, N	PNP SW: OFF → ON



When not using hand–held tester:

PREPARATION:

Turn the ignition switch ON.

CHECK:

Measure voltage between terminals NSW, 2, L and R of Engine & ECT ECU and body ground when the shift lever is shifted to the following ranges.

OK:

Range	NSW–Body ground	R–Body ground	2–Body ground	L–Body ground
P, N	0 V	0 V	0 V	0 V
R	9 ~ 14 V*	9 ~ 14 V*	0 V	0 V
D	9 ~ 14 V	0 V	0 V	0 V
2	9 ~ 14 V	0 V	9 ~ 14 V	0 V
L	9 ~ 14 V	0 V	0 V	9 ~ 14 V

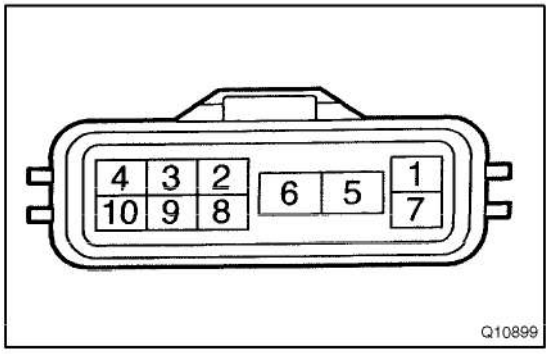
HINT:

The voltage will drop slightly due to lighting up the back up light.

OK → **Check and replace the Engine & ECT ECU (See page IN–28).**

NG

2	Check neutral start switch.



PREPARATION:

(a) Jack up the vehicle.

(b) Remove the neutral start switch.

CHECK:

Check continuity between each terminal shown below when the shift lever is moved to each position.

OK:

Shift Range	Terminal No. to continuity	Terminal No. to continuity
P	2 – 7	5 – 6
R	2 – 8	–
N	2 – 9	5 – 6
D	2 – 10	–
2	2 – 3	–
L	2 – 4	–

NG → **Replace the neutral start switch.**

OK →

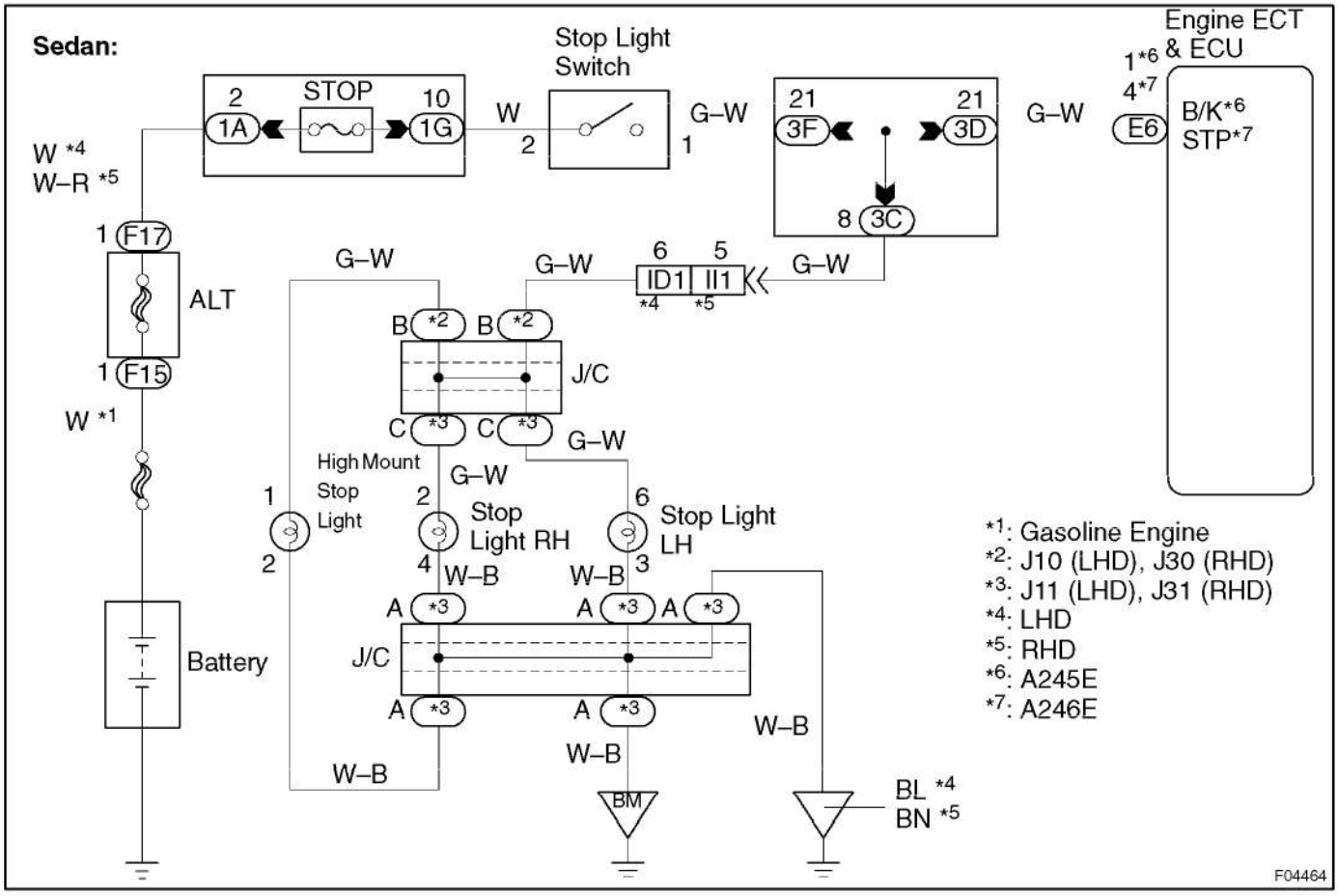
Repair or replace harness and connector between battery and neutral start switch, neutral start switch and Engine & ECT ECU (See page IN–28).

Stop Light Switch Signal Malfunction

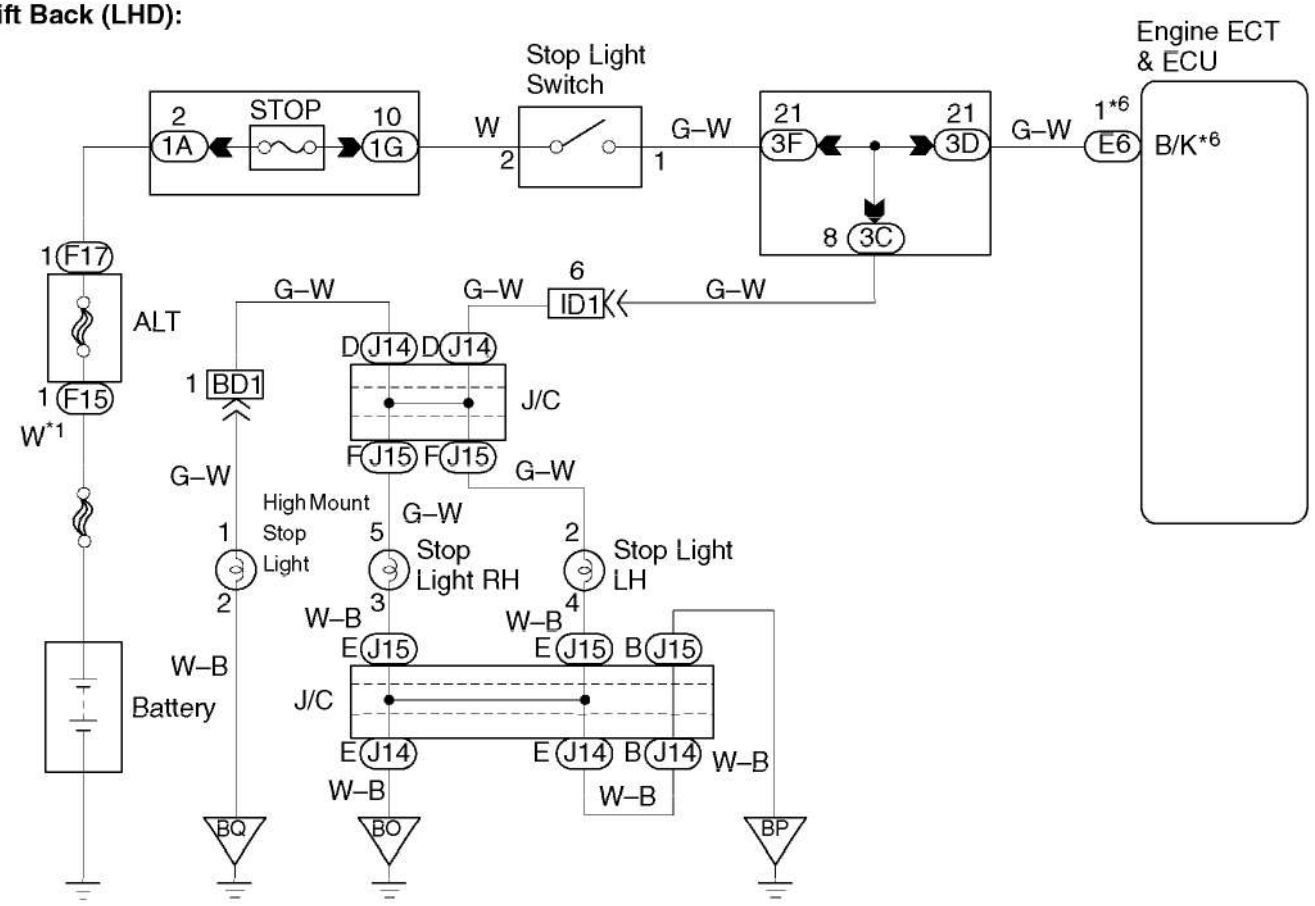
CIRCUIT DESCRIPTION

The object of this circuit is to prevent the engine from stalling, while driving in lock–up condition, when brakes are suddenly applied.
When the brake pedal is operated, this switch sends a signal to Engine & ECT ECU. Then the Engine & ECT ECU cancels operation of the lock–up clutch while braking is in progress.

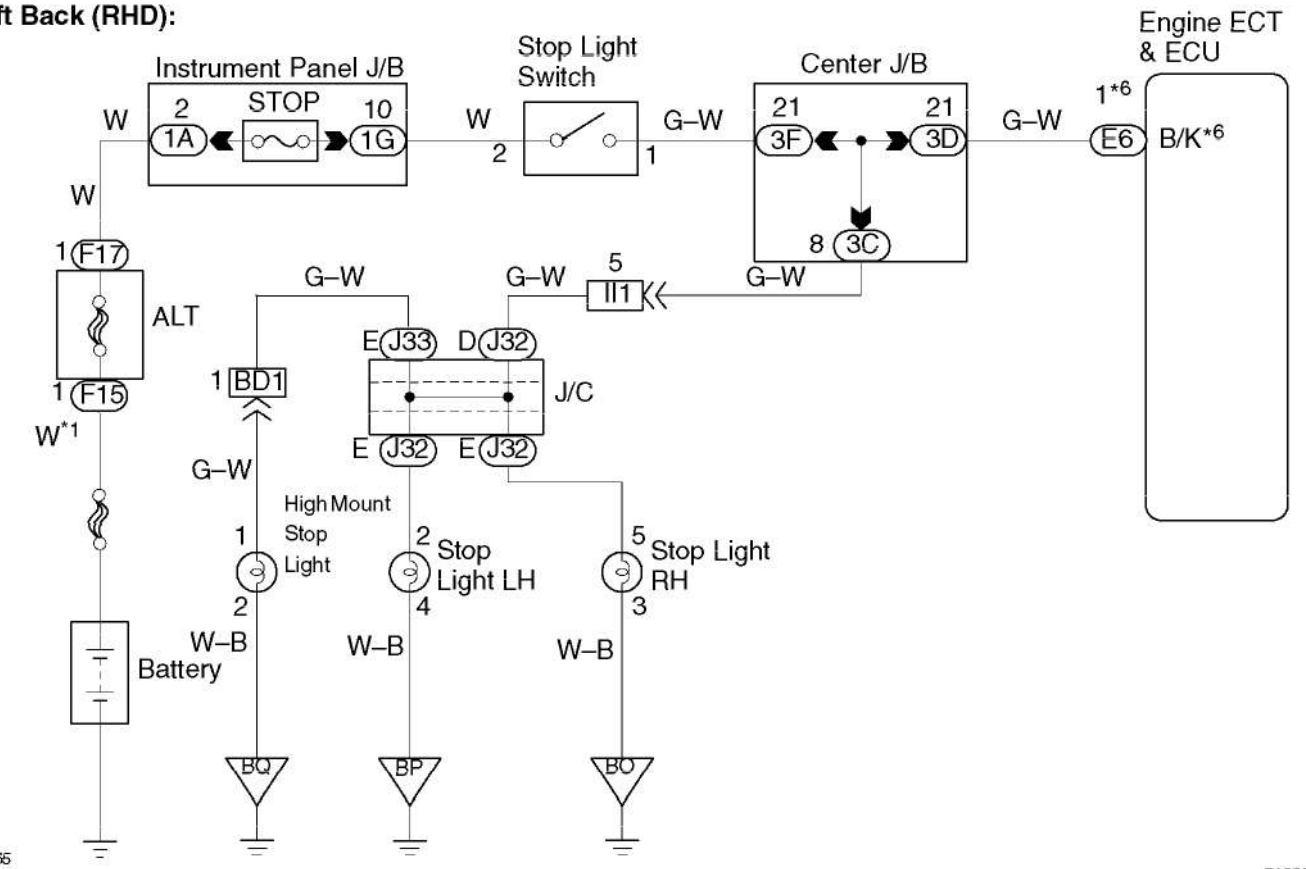
WIRING DIAGRAM



Lift Back (LHD):



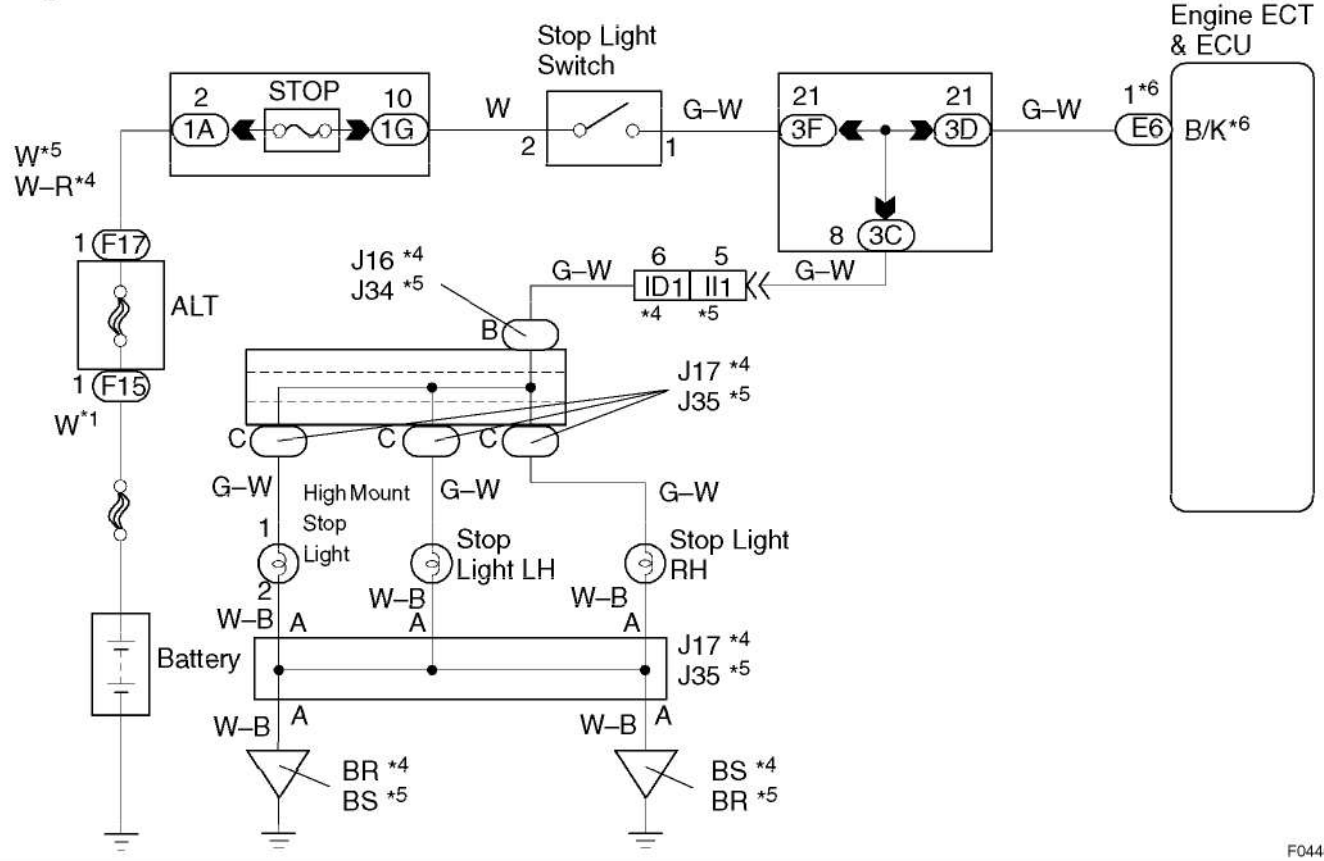
Lift Back (RHD):



F04465
F04466

F05531

Wagon:


Stop Light Switch
Engine ECT & ECU
STOP
2
1A
10
1G
W
2
1
G–W
21
3F
21
3D
G–W
1*6
E6
B/K*6
W*5
W–R*4
8
3C
1
F17
ALT
1
F15
W*1
J16 *4
J34 *5
G–W
6
ID1
5
II1
*4
*5
G–W
B
J17 *4
J35 *5
C
C
C
G–W
High Mount Stop Light
G–W
G–W
1
2
Stop Light LH
Stop Light RH
W–B
A
W–B
A
W–B
A
Battery
J17 *4
J35 *5
W–B
A
W–B
A
BR *4
BS *5
BS *4
BR *5
F04467

INSPECTION PROCEDURE

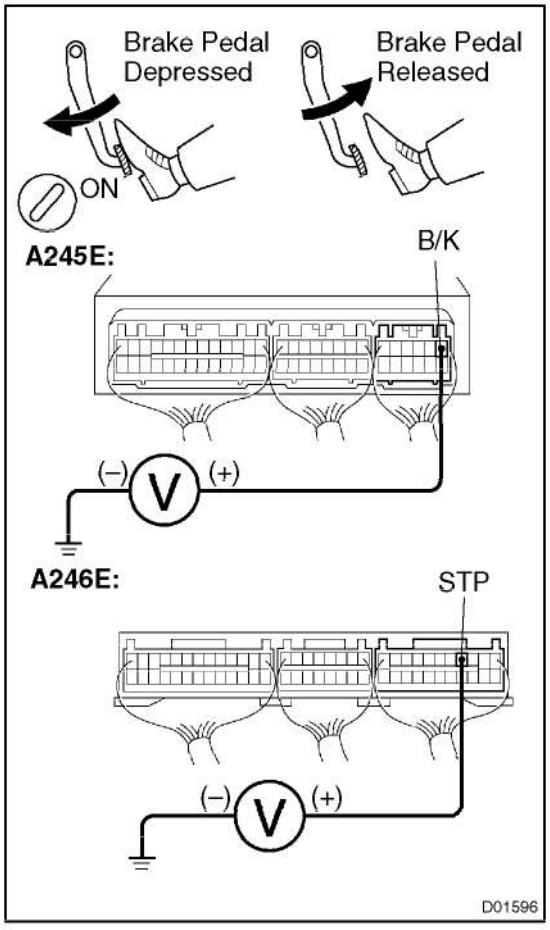
1	**Check operation of stop light.**

CHECK:
Check if the stop lights go on and off normally when the brake pedal is depressed and released.

NG → **Check and repair stop light circuit.**

OK

2	**Check STP signal.**



When using hand –held tester:
PREPARATION:
(a) Connect the hand–held tester to the DLC3.
(b) Turn the ignition switch ON and turn the hand–held tester main switch ON.
CHECK:
Read the STP signal on the hand–held tester.
OK:
Brake pedal is depressed: STP....ON
Brake pedal is released: STP....OFF
When not using hand –held tester:
PREPARATION:
Turn the ignition switch ON.
CHECK:
Check voltage between terminal B/K (A245E) or STP (A246E) of Engine & ECT ECU and body ground.
OK:

Brake pedal	Voltage
Depressed	7.5~14 V
Released	Below 1.5 V

OK → **Proceed to next circuit inspection shown in problem symptoms table (See page DI–74).**

NG

3	**Check harness and connector between Engine & ECT ECU and stop light switch (See page IN–28).**

NG → **Repair or replace harness or connector.**

OK

Check and replace Engine & ECT ECU (See page IN–28).

D038–01

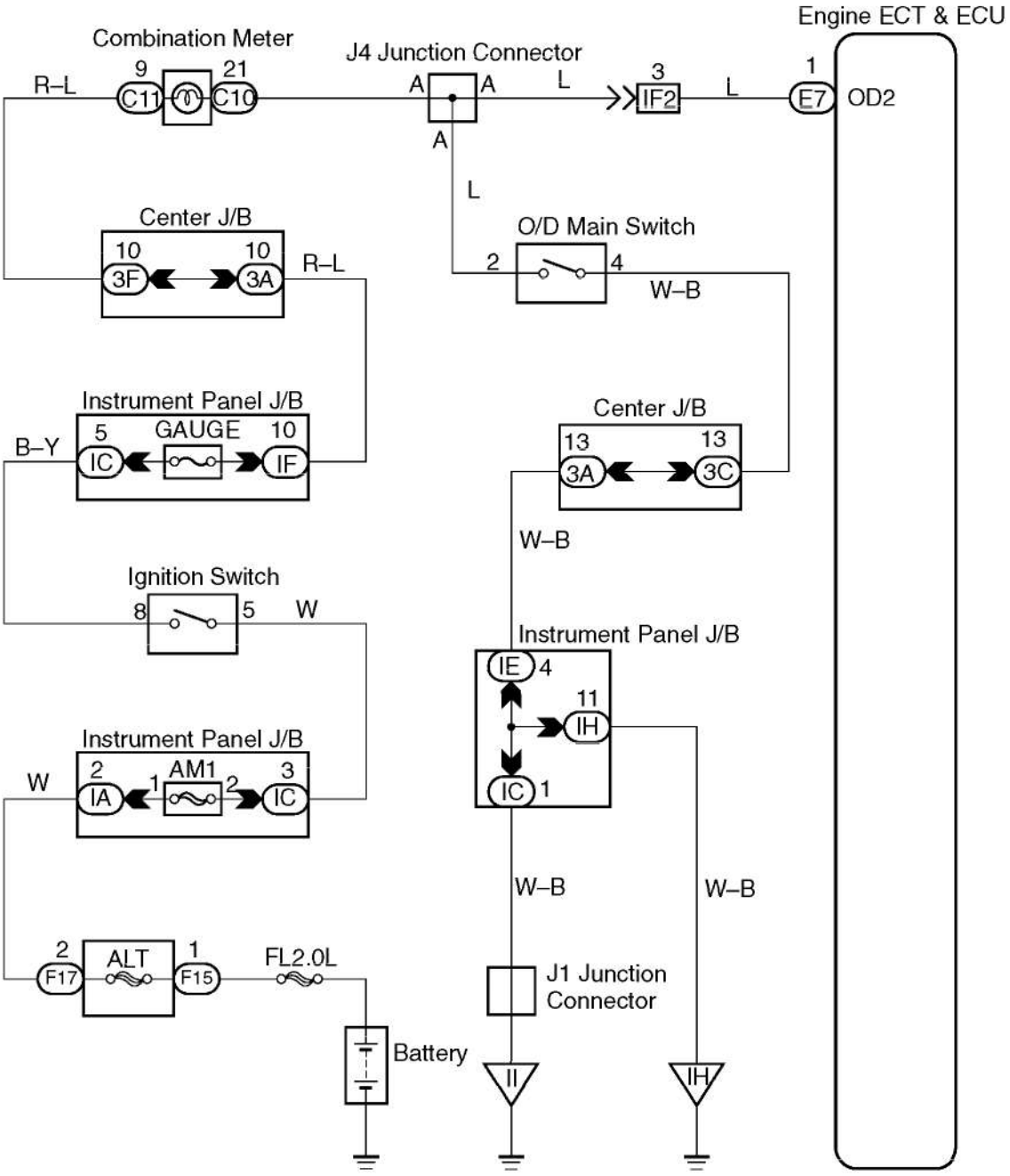
O/D Main Switch & O/D OFF Indicator Light Circuit

CIRCUIT DESCRIPTION

The O/D main switch contacts go open when the switch is pushed in and go closed when it is pushed out. When O/D main switch is in OFF position, the O/D OFF indicator light lights up, and the Engine & ECT ECU prohibits shifting O/D.

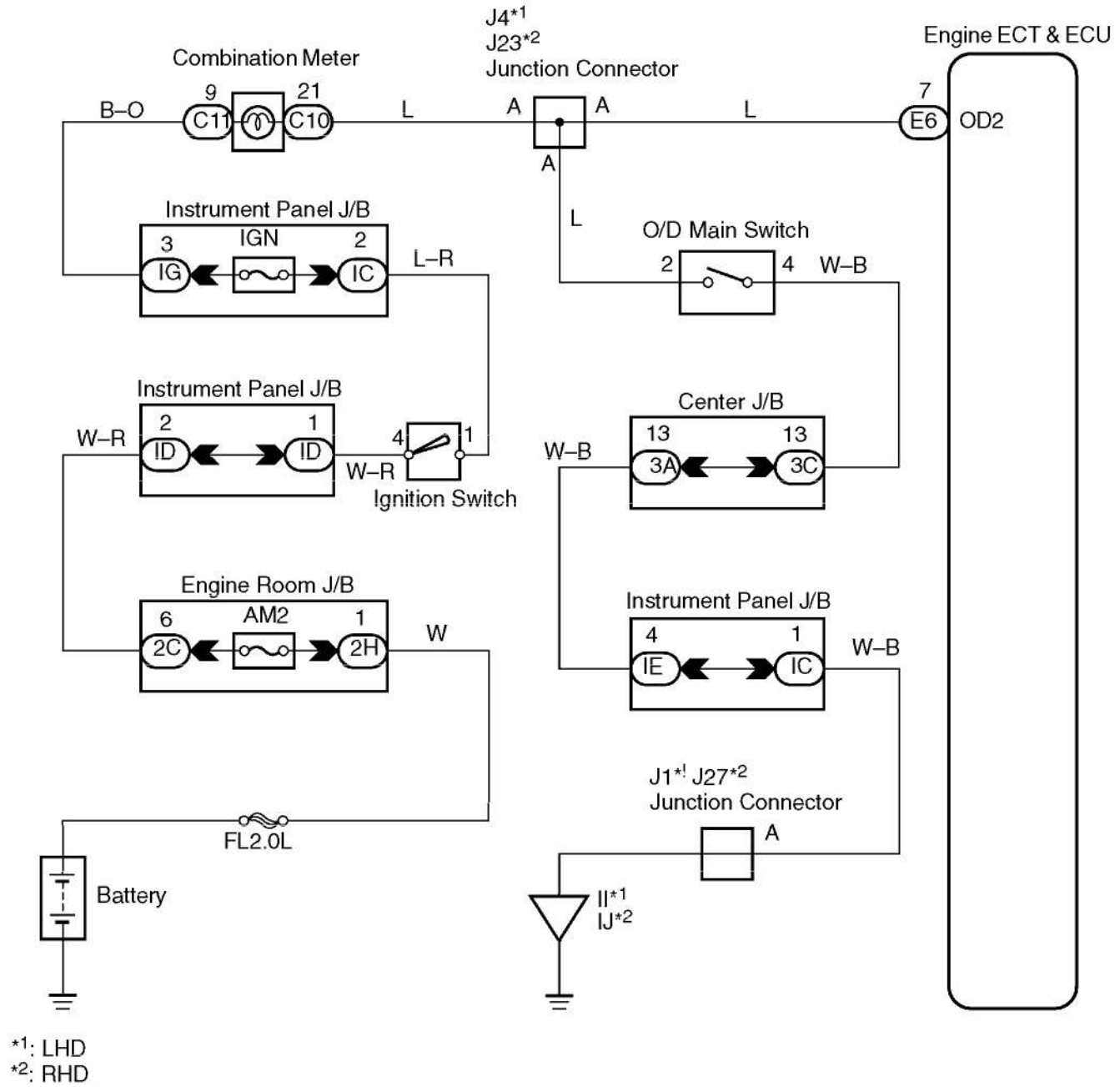
WIRING DIAGRAM

A245E



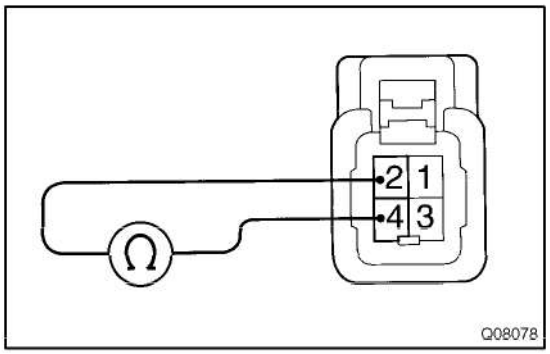
D01683

A246E:


J4*1
J23*2
Junction Connector
Engine ECT & ECU
Combination Meter
9
21
B–O
C11
C10
L
A
A
L
7
E6
OD2
A
L
Instrument Panel J/B
3
IGN
2
IG
IC
L–R
O/D Main Switch
2
4
W–B
Instrument Panel J/B
2
1
W–R
ID
ID
4
1
W–R
Ignition Switch
Center J/B
13
13
W–B
3A
3C
Engine Room J/B
6
AM2
1
2C
2H
W
Instrument Panel J/B
4
1
IE
IC
W–B
J1*1 J27*2
Junction Connector
A
FL2.0L
Battery
II*1
IJ*2
*1: LHD
*2: RHD
D01678

INSPECTION PROCEDURE
O/D OFF indicator light does not light up

1	**Check O/D main switch.**



PREPARATION:
Disconnect the O/D main switch connector.
CHECK:
Check continuity at each terminal of O/D main switch connector.
OK:

O/D main switch	Specified condition
ON	No continuity
OFF	Continuity

NG → **Replace the O/D main switch.**

OK

2	**Check and replace combination meter (See page BE–63).**

NG → **Replace the combination meter.**

OK

3	Check OVRDRIVE CUT SW2 signal.

When using hand–held tester:

PREPARATION:

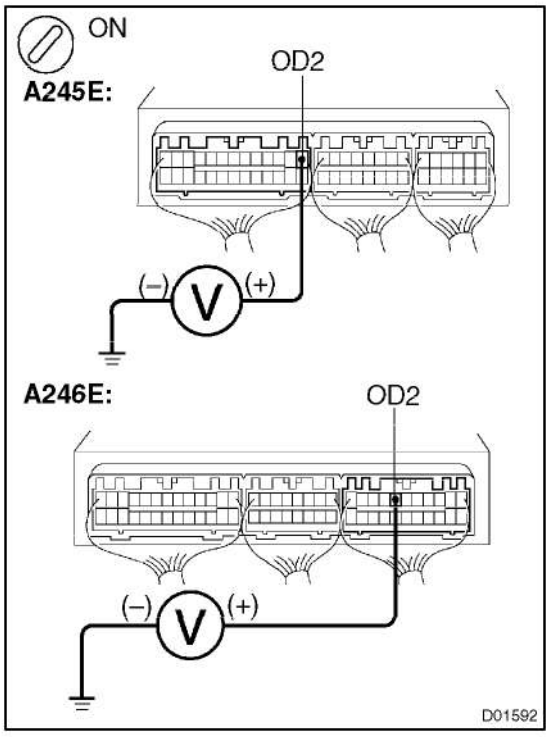
(a) Remove the DLC3 cover.
(b) Connect hand–held tester to the DLC3.
(c) Turn the ignition switch ON and hand–held tester main switch ON.

CHECK:

Read the OVRDRIVE CUT SW2 signal on the hand–held tester.

OK:

O/D main switch condition	OVRDRIVE CUT SW2 signal
O/D ON (Pushed in)	OFF
O/D OFF (Pushed once again)	ON



When not using hand–held tester:

PREPARATION:

Turn the ignition switch ON.

CHECK:

Check voltage between terminal OD2 of Engine & ECT ECU and body ground.

OK:

O/D main switch condition	Voltage
O/D ON (Pushed in)	9 ~ 14
O/D OFF (Pushed once again)	Below 3 V

OK → **Check and replace the Engine & ECT ECU (See page IN–28).**

NG

4	**Check harness and connector between O/D OFF indicator light and Engine & ECT ECU (See page IN–28).**

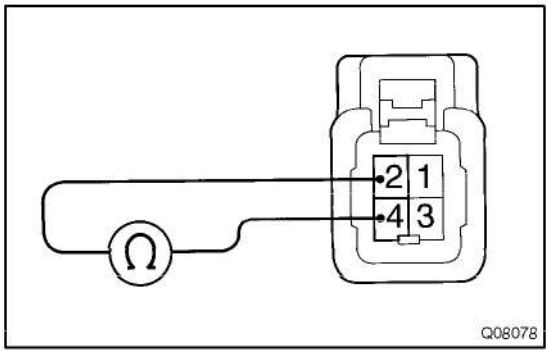
NG → **Repair or replace the harness or connector.**

OK →

Check and replace the Engine & ECT ECU (See page IN–28).

O/D OFF indicator light remains ON

1	**Check O/D main switch.**



PREPARATION:
Disconnect the O/D main switch connector.
CHECK:
Check continuity at each terminal of O/D main switch connector.
OK:

O/D main switch	Specified condition
ON	No continuity
OFF	Continuity

NG → **Replace the O/D main switch.**

OK

2	**Check harness and connector between O/D OFF indicator light and O/D main switch, O/D OFF indicator light and Engine & ECT ECU (See page IN–28).**

NG → **Repair or replace the harness or connector.**

OK

Check and replace the Engine & ECT ECU (See page IN–28).

DI39–01

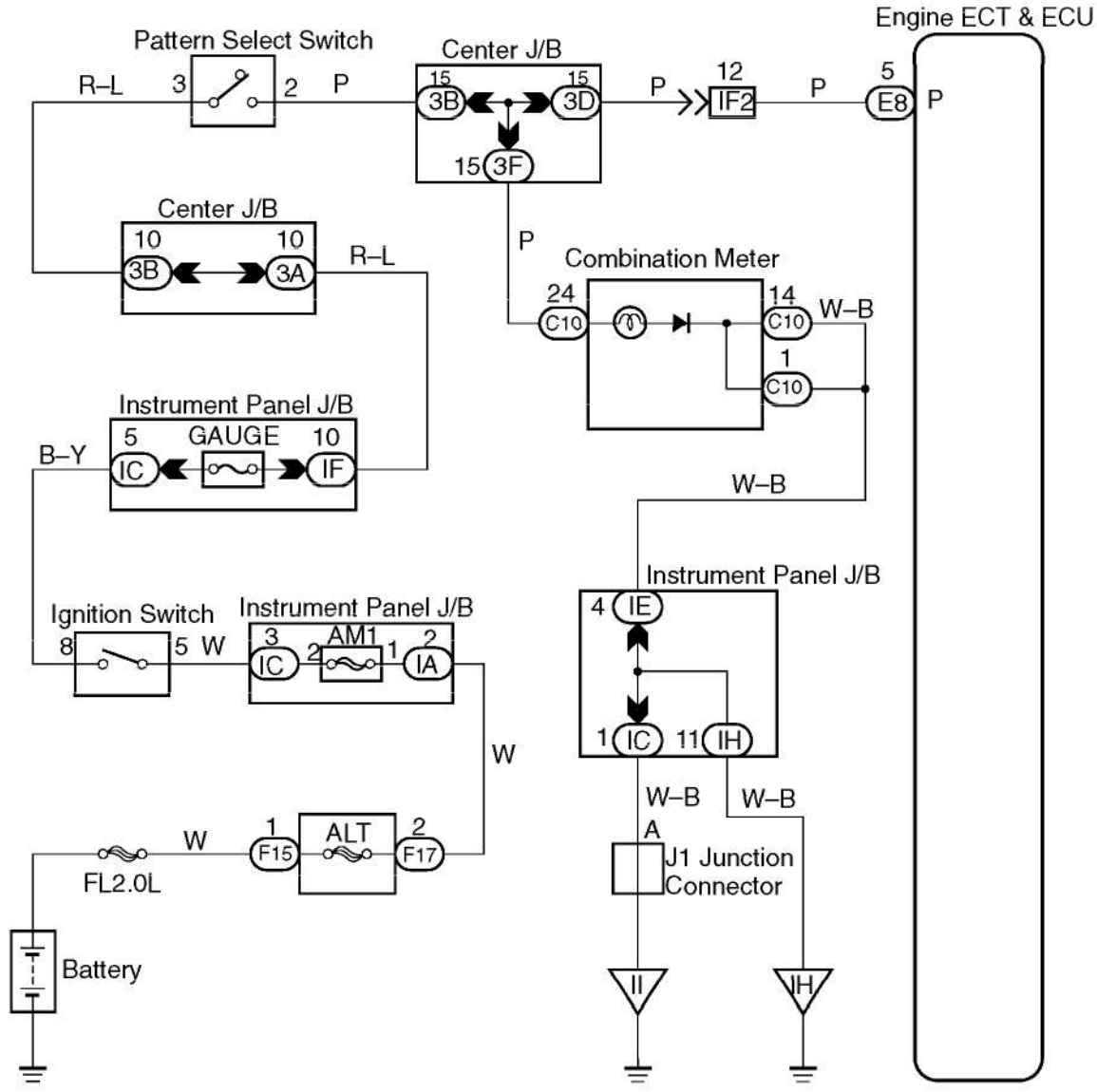
Pattern Select Switch Circuit

CIRCUIT DESCRIPTION

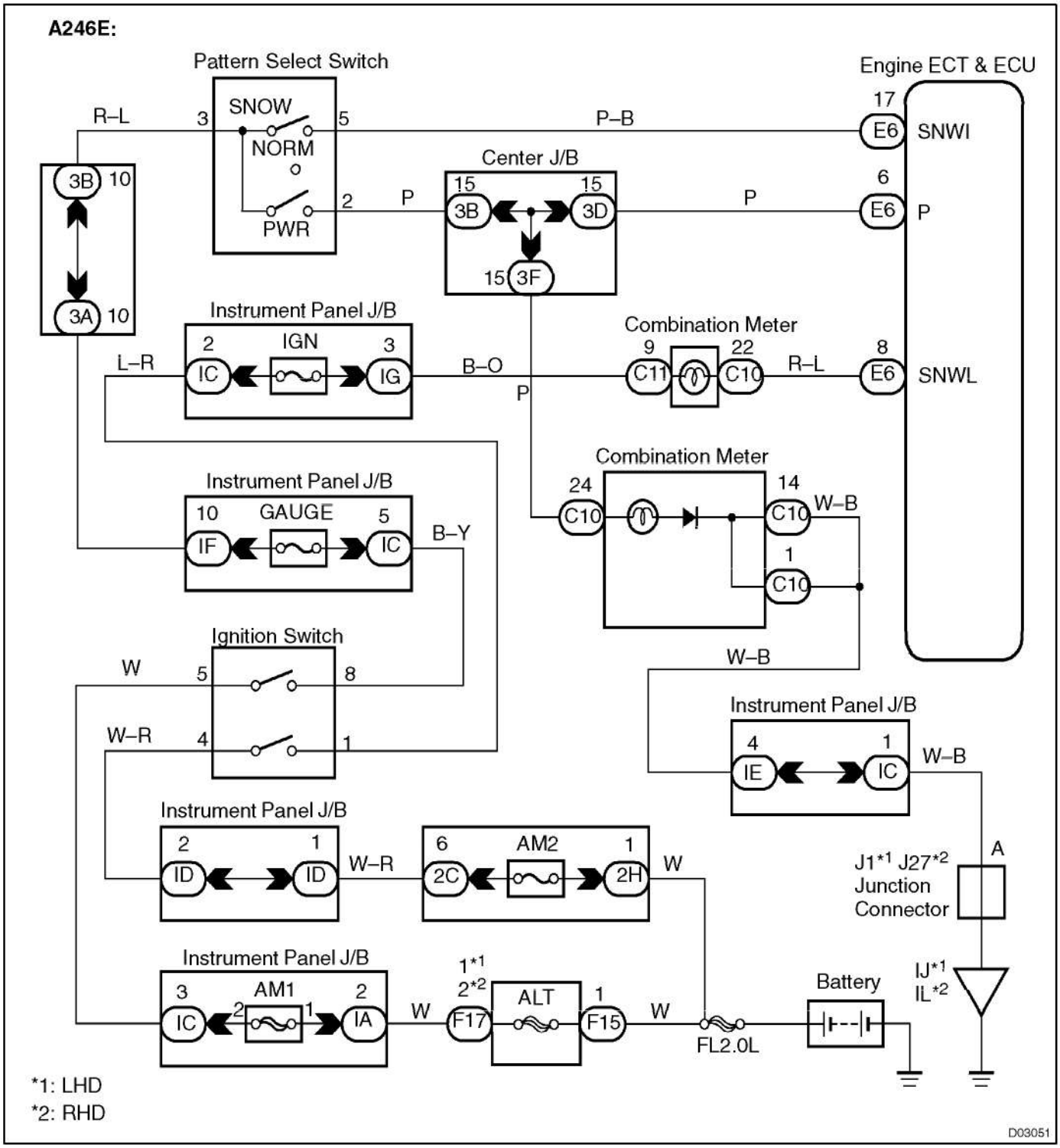
The Engine & ECT ECU memory contains the shift programs for the NORMAL, POWER and SNOW (w/ SNOW MODE) patterns, 2 range, L range and the lock–up patterns. By following the programs corresponding to the signals from the pattern select switch, the neutral start switch and other various sensors, the Engine & ECT ECU switches the solenoid valves ON and OFF, and controls the transmission gear change and the lock–up clutch operation.

WIRING DIAGRAM

A245E:



A246E:


Pattern Select Switch
SNOW
NORM
PWR
Engine ECT & ECU
SNWI
SNWL
Center J/B
Instrument Panel J/B
IGN
GAUGE
Combination Meter
Ignition Switch
Instrument Panel J/B
AM2
Instrument Panel J/B
AM1
ALT
Battery
J1*1 J27*2
Junction
Connector
IJ*1
IL*2
FL2.0L
R–L
P–B
P
L–R
B–O
R–L
W–B
B–Y
W
W–R
*1: LHD
*2: RHD
D03051

INSPECTION PROCEDURE

1	**Check PATTERN SEL SW signal.**

PREPARATION:

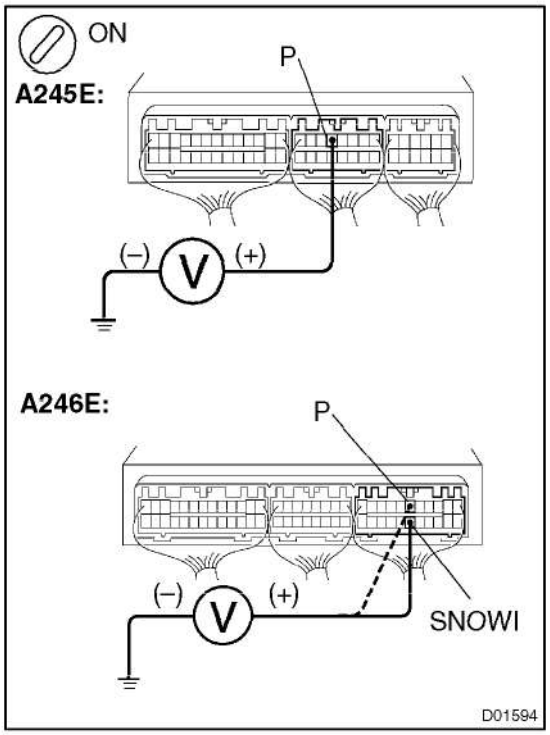
(a) Remove the DLC3 cover.
(b) Connect a hand–held tester to the DLC3.
(c) Turn the ignition switch ON and hand–held tester main switch ON.

CHECK:

Read the PATTERN SEL SW signal on the hand–held tester.

OK:

Pattern select switch	PATTERN SEL SW signal
POWER	ON
NORM	OFF
SNOW (w/ SNOW MODE)	OFF



PREPARATION:

Turn the ignition switch ON.

CHECK:

Measure voltage between terminal each of P, SNOW1 of Engine & ECT ECU and body ground when the pattern select switch is set to the PWR (POWER), NORM (NORMAL) and SNOW (w/ SNOW MODE) positions.

OK:

Switch position	Tester connection	Specified condition
PWR	P – Body ground	9 – 14 V
	SNOWI – Body ground	Below 1.5 V
NORM	P – Body ground	Below 1.5 V
	SNOWI – Body ground	Below 1.5 V
SNOW	P – Body ground	Below 1.5 V
	SNOWI – Body ground	9 – 14 V

HINT:

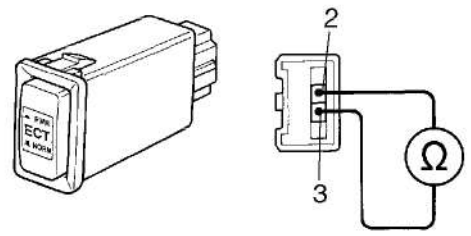
The Engine & ECT ECU uses the normal pattern signal if the P and SNOW1 signals are not input.

OK → **Proceed to next circuit inspection shown in symptom preblems table (See page DI–74).**

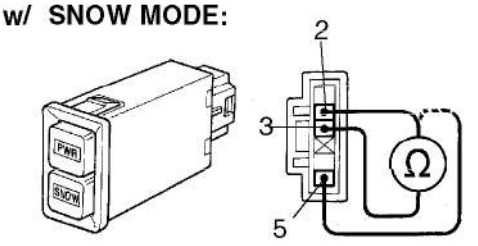
NG

2	Check pattern select switch

w/o SNOW MODE:



w/ SNOW MODE:



D01534

w/o SNOW MODE:

PREPARATION:

Disconnect the pattern select switch connector.

CHECK:

Check continuity between terminals 2 and 3 of pattern select switch connector when the select switch is set to PWR and NORM positions.

OK:

Switch position	Tester connection	Specified condition
PWR	2 – 3	Continuity
NORM	2 – 3	No continuity

w/ SNOW MODE:

PREPARATION:

Disconnect the pattern select switch connector.

CHECK:

Check continuity between terminals 2 and 3 (PWR, NORM), 3 and 5 (SNOW) of pattern select switch connector when the select switch is set to PWR, NORM and SNOW positions.

OK:

Switch position	Tester connection	Specified condition
PWR	2 – 3	Continuity
NORM	2 – 3, 3 – 5	No continuity
SNOW	3 – 5	Continuity

NG → **Replace the pattern select switch.**

OK

3	Check harness and connector between battery and pattern select switch, pattern select switch and Engine & ECT ECU (See page IN–28).

NG → **Repair or replace the harness or connector.**

OK

Check and replace the Engine & ECT ECU (See page IN–28).

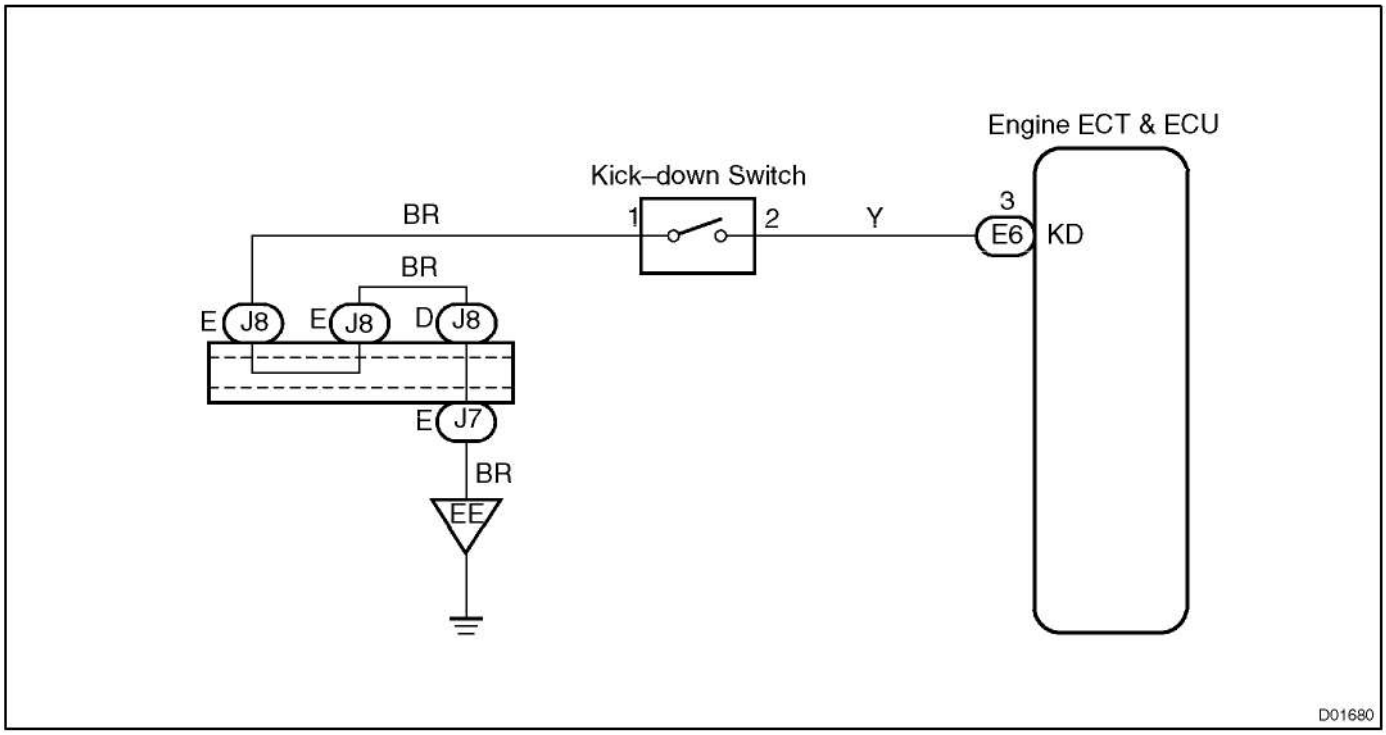
DI33–01

Kick–down Switch Circuit (A246E)

CIRCUIT DESCRIPTION

The kick–down switch is turned ON when the accelerator pedal is depressed beyond the full throttle opening and sends signals to Engine & ECT ECU.
When the kick–down switch is turned ON, the Engine & ECT ECU controls gear shifting according to the programmed shift diagrams.
If a short circuit develops in the kick–down switch, the Engine & ECT ECU disregards the kick–down signals and controls shifting at the normal shift points.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Check KICK DOWN SW signal.**

When using hand–held tester:

PREPARATION:

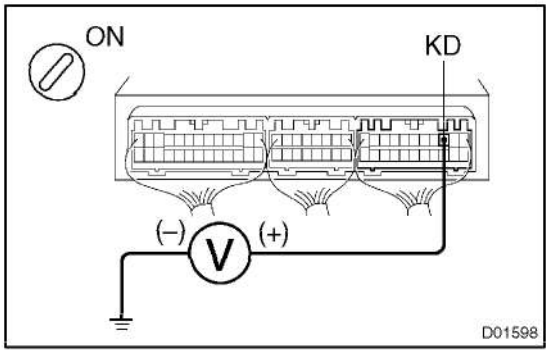
(a) Remove the DLC3 cover.
(b) Connect a hand–held tester to the DLC3.
(c) Turn the ignition switch ON and hand–held tester main switch ON.

CHECK:

Read the KICK DOWN SW signal on the hand–held tester.

OK:

Accelerator Pedal	KICK DOWN SW signal
Fully depressed (kick–down SW is ON)	ON
Released (kick–down SW is OFF)	OFF



When not using hand–held tester:

PREPARATION:

Turn the ignition switch ON.

CHECK:

Measure voltage between terminal KD of Engine & ECT ECU connector and body ground when accelerator pedal is fully depressed or not.

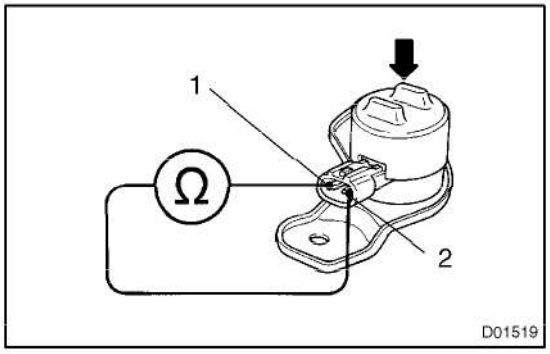
OK:

Accelerator Pedal	Voltage
Fully depressed (kick–down SW is on)	Below 1 V
Released (kick–down SW is OFF)	10 – 14 V

OK → **Proceed to next circuit inspection shown in problem symptoms table (See page DI–74)**

NG

2	Check kick–down switch.



PREPARATION:
Disconnect the kick–down switch connector.
CHECK:
Check continuity at each terminal of kick–down switch connector.
OK:

Kick–down Switch	Specified continuity
ON	Continuity
OFF	No continuity

NG → **Replace kick–down switch**

OK

3	Check harness and connector between Engine & ECT ECU and kick–down switch, kick–down switch and body ground (See page IN–28).

NG → **Repair or replace the harness or connector.**

OK

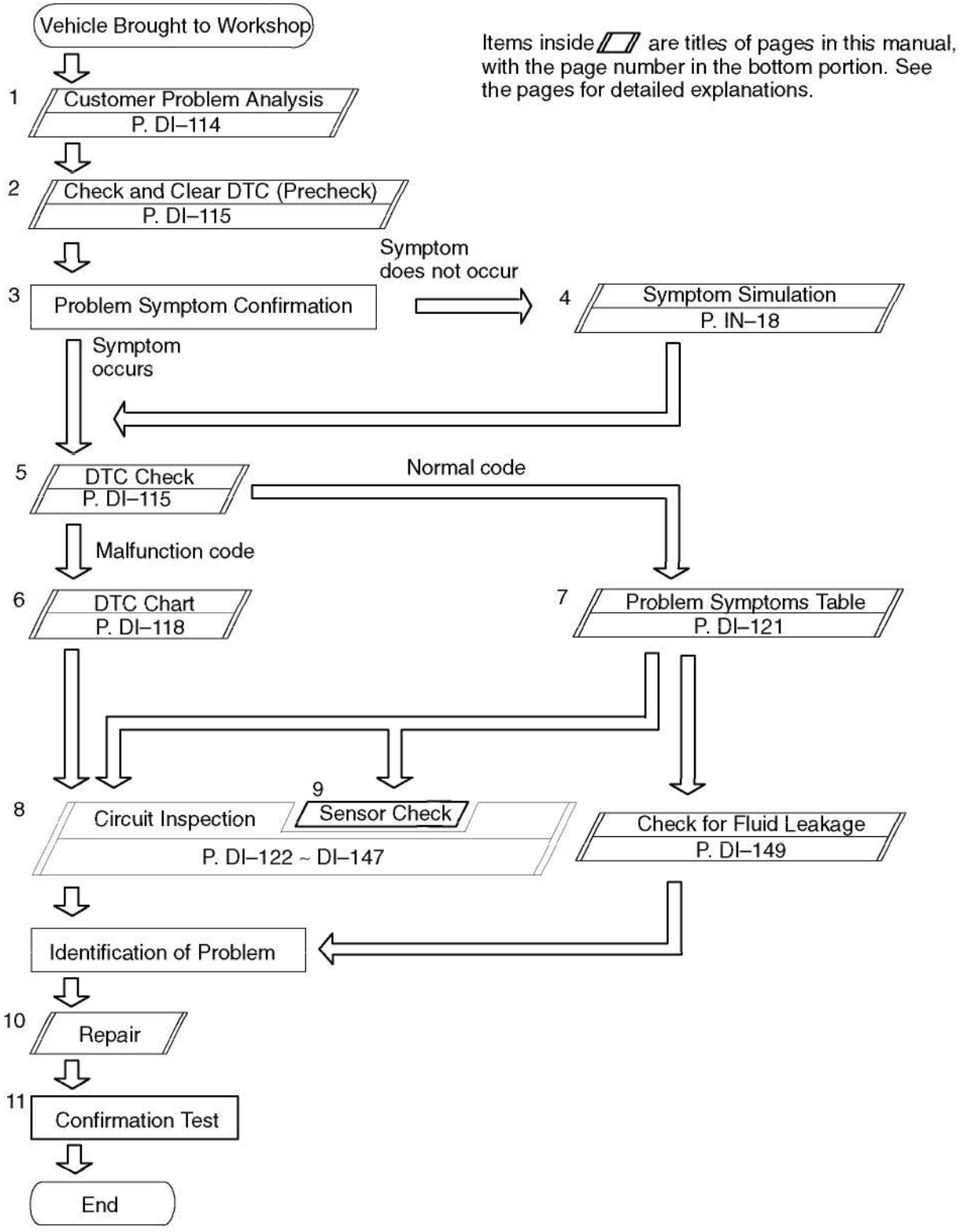
Check and replace Engine & ECT ECU (See page IN–28).

ANTI–LOCK BRAKE SYSTEM

DI24X–03

HOW TO PROCEED WITH TROUBLESHOOTING

Troubleshooot in accordance with the procedure on the following pages.



DI24Y–02

CUSTOMER PROBLEM ANALYSIS CHECK

ABS Check Sheet

Inspector's Name :

Customer's Name		**Registration No.**	
		Registration Year	/ /
		Frame No.	
Date Vehicle Brought In	/ /	**Odometer Reading**	km miles

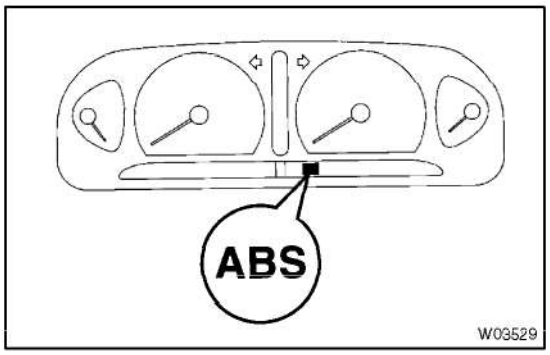
Date Problem First Occurred	/ /
Frequency Problem Occurs	☐ Continuously ☐ Intermittently (times a day)

Symptoms	☐ ABS does not operate.	
	☐ ABS does not operate intermittently.	
	ABS Warning Light Abnormal	☐ Remains ON ☐ Does not Light Up

DTC Check	**1st Time**	☐ Normal Code ☐ Malfunction Code (Code)
	2nd Time	☐ Normal Code ☐ Malfunction Code (Code)

DI02P–01

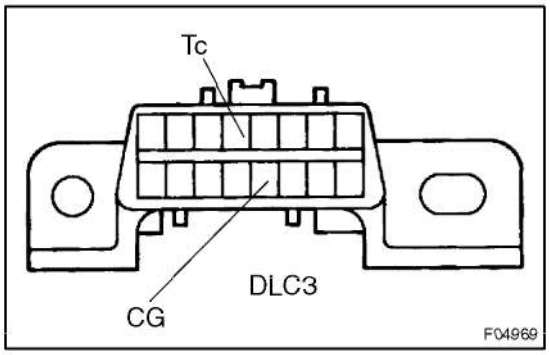
PRE–CHECK



1. DIAGNOSIS SYSTEM

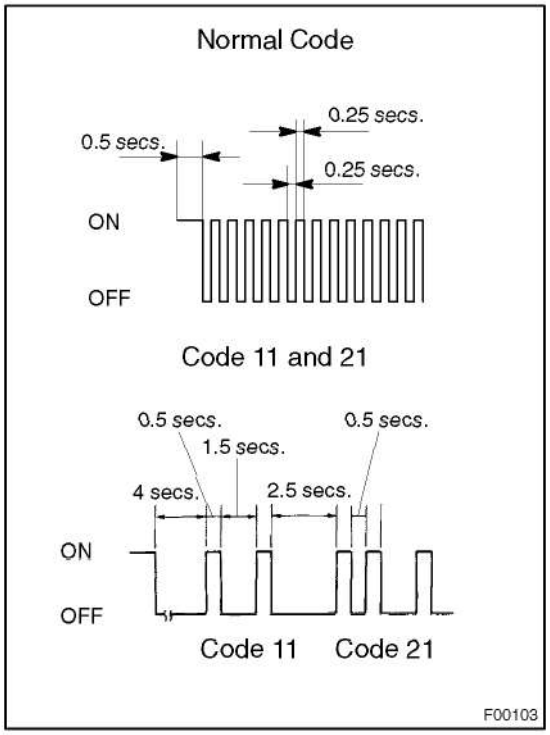
(a) Check the indicator.
When the ignition switch is turned ON, check that the ABS warning light goes on for 2 seconds.

HINT:
If the indicator check result is not normal, proceed to trouble-shooting for the ABS warning light circuit (See page DI–143).



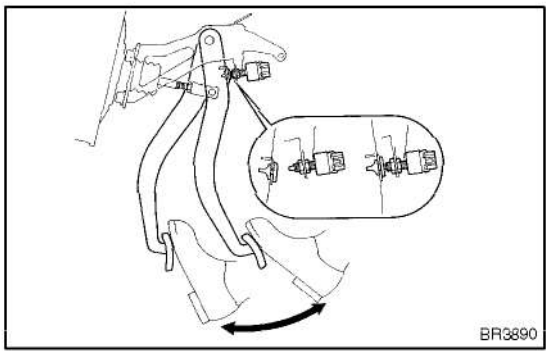
(b) Check the DTC
(1) Using SST, connect terminals Tc and CG of DLC3.
SST 09843 –18020
(2) Turn the ignition switch ON.
(3) Read the DTC from the ABS warning light on the combination meter.

HINT:
- If no code appears, inspect the diagnostic circuit or ABS warning light circuit (See page DI–145 or DI–143).



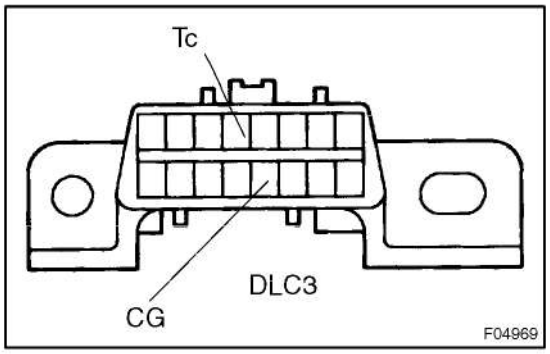
- As an example, the blinking patterns for normal code and codes 11 and 21 are shown on the left.
(4) Codes are explained in the code table on page DI–118.
(5) After completing the check, disconnect terminals Tc and CG, and turn off the display.

If 2 or more malfunctions are indicated at the same time the lowest numbered DTC will be displayed 1st.



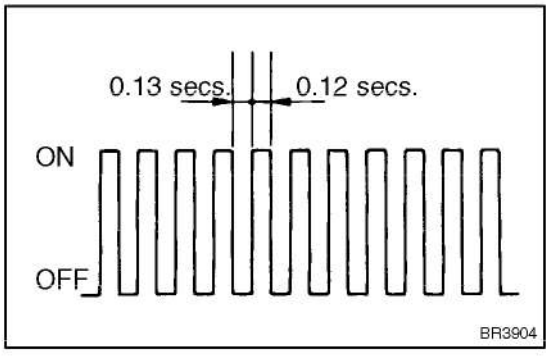
(c) Clear the DTC.
(1) Using SST, connect terminals Tc and CG of DLC3.
SST 09843 – 18020
(2) Turn the ignition switch ON.
(3) Clear the DTC stored in ECU by depressing the brake pedal 8 or more times within 3 seconds.
(4) Check that the warning light shows the normal code.
(5) Remove the SST from the terminals of DLC3.
SST 09843 – 18020

HINT:
Cancellation cannot be done by removing the battery cable or ECU–B fuse.



2. SPEED SENSOR SIGNAL

(a) Check the speed sensor signal.
(1) When the ignition switch is turned ON, check that the ABS warning light goes on for 2 seconds.
(2) Turn the ignition switch OFF.
(3) Using SST, connect terminals Ts and CG of DLC3.
SST 09843 – 18020
(4) Start the engine.



(5) Check that the ABS warning light blinks.

HINT:
If the ABS warning light does not blink, inspect the ABS warning light circuit (See page DI–143).

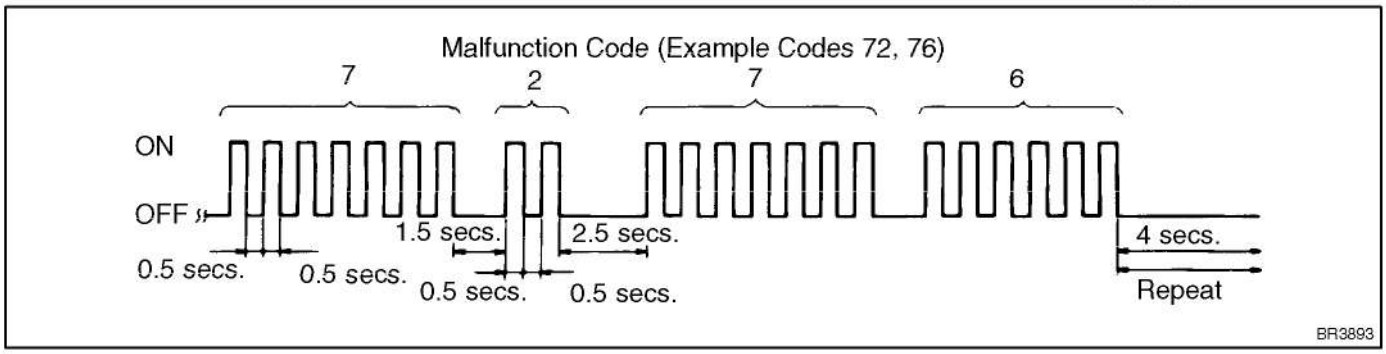
(6) Drive vehicle straight forward.

HINT:
- Drive vehicle at 45 – 55 km/h (28 – 34 mph) for several seconds.
- If the brake is applied during the check, the check routine must be started again.

(7) Stop the vehicle.
(8) Turn the ignition switch OFF.
(9) Disconnect the SST from terminals Ts and CG, and connect the SST to terminals Tc and CG of DLC3.
SST 09843 – 18020
(10) Turn the ignition switch ON.
(11) Read the number of blinks of the ABS warning light.

HINT:

- See the list of DTC shown below.
- If every sensor is normal, a normal code is output (A cycle of 0.25 secs. ON and 0.25 secs. OFF is repeated).
- If 2 or more malfunctions are indicated at the same time, the lowest numbered code will be displayed 1st.



(12) After doing the check, disconnect the SST from terminals Tc and CG of DLC3 and turn ignition switch OFF.
SST 09843 –18020

DTC of the speed sensor check function.

Code No.	Diagnosis	Trouble Area
71	Low output voltage of right front speed sensor	• Right front speed sensor • Sensorinstallation • Right front speed sensor rotor
72	Low output voltage of left front speed sensor	• Left front speed sensor • Sensorinstallation • Left front speed sensor rotor
73	Low output voltage of right rear speed sensor	• Right rear speed sensor • Sensorinstallation • Right rear speed sensor rotor
74	Low output voltage of left rear speed sensor	• Left rear speed sensor • Sensorinstallation • Left rear speed sensor rotor
75	Abnormal change in output voltage of right front speed sensor	• Right front speed sensor rotor
76	Abnormal change in output voltage of left front speed sensor	• Left front speed sensor rotor
77	Abnormal change in output voltage of right rear speed sensor	• Right rear speed sensor rotor
78	Abnormal change in output voltage of left rear speed sensor	• Left rear speed sensor rotor

DI2S0-02

DIAGNOSTIC TROUBLE CODE CHART

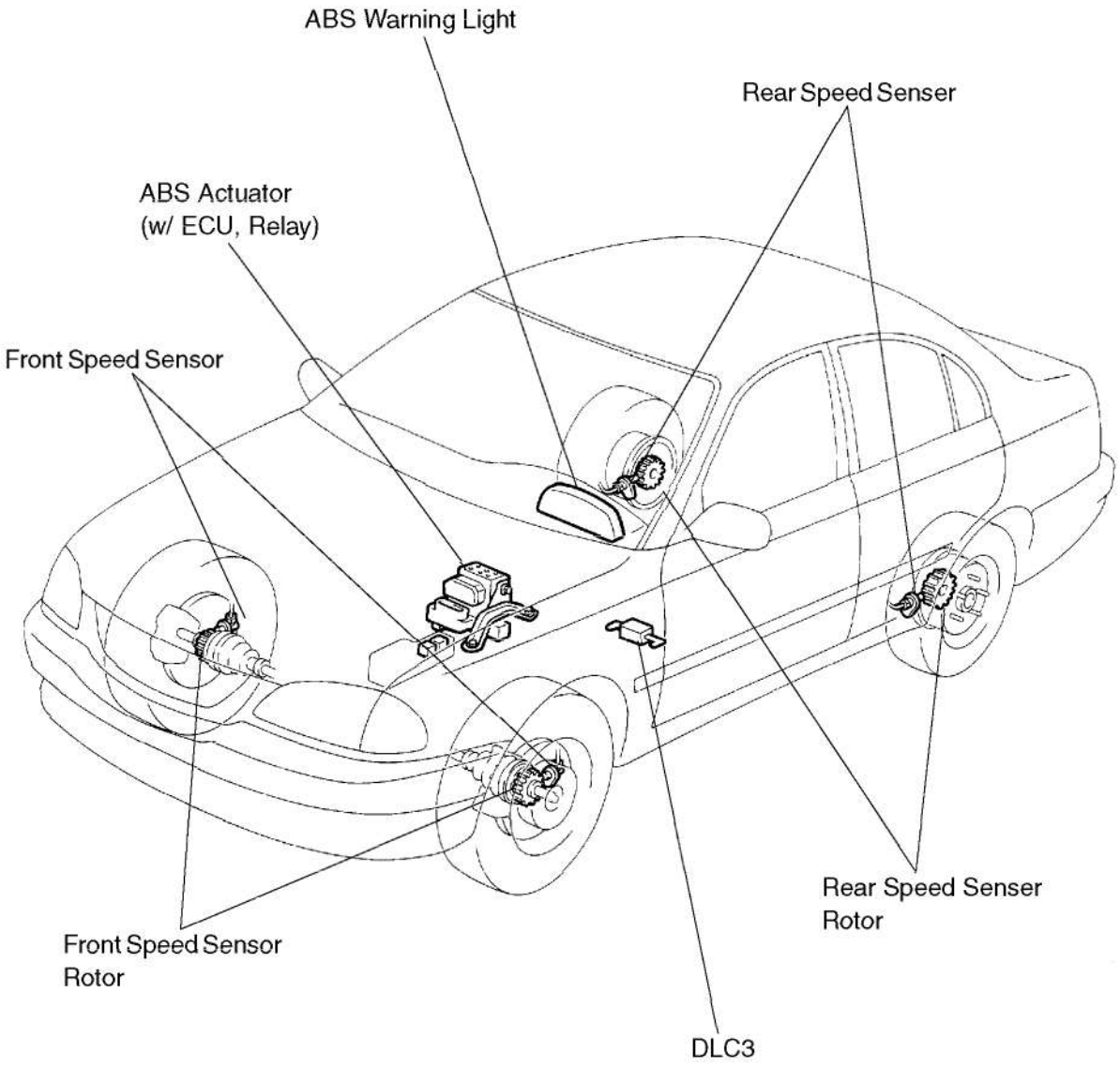
HINT:

- Using SST 09843 –18020, connect the terminals Tc and CG.
- If a malfunction code is displayed during the DTC check, check the circuit listed for that code. For details of each code, turn to the page referred to under the "See page" for respective "DTC No." in the DTC chart.

DTC No. (See Page)	Detection Item	Trouble Area
11 (DI–122)	ABS solenoid valve relay faulty	• ABS solenoid valve relay • Valve supply voltage • ECU
13 (DI–124)	ABS pump motor faulty	• ABS motor relay • Pump motor voltage • Pump motor lead disconnected • ECU
21 (DI–126)	Right front solenoid valves faulty	• ABS actuator (right front inlet or outlet solenoid valve)
22 (DI–126)	Left front solenoid valves faulty	• ABS actuator (left front inlet or outlet solenoid valve)
23 (DI–126)	Right rear solenoid valves faulty	• ABS actuator (right rear inlet or outlet solenoid valve)
24 (DI–126)	Left rear solenoid valves faulty	• ABS actuator (left rear inlet or outlet solenoid valve)
31 (DI–128)	Right front wheel speed sensor signal malfunction	• Right front, left front, right rear and left rear speed sensor • Each speed sensor circuit • Sensor installation • ECU
32 (DI–128)	Left front wheel speed sensor signal malfunction	
33 (DI–128)	Right rear wheel speed sensor signal malfunction	
34 (DI–128)	Left rear wheel speed sensor signal malfunction	
35 (DI–128)	Open circuit in right front wheel speed sensor circuit	• Right front, left front speed sensor • Each speed sensor circuit • ECU
36 (DI–128)	Open circuit in left front wheel speed sensor circuit	
37 (DI–133)	Speed sensor rotor is wrong number of teeth on one of the 4 wheels	• Speed sensor • Sensor rotor • ECU
38 (DI–128)	Open circuit in right rear wheel speed sensor circuit	• Right rear, left rear speed sensor • Each speed sensor circuit • ECU
39 (DI–128)	Open circuit in left rear wheel speed sensor circuit	
41 (DI–134)	Low battery voltage	• Battery • IC regulator • Power source circuit • ECU
58 (DI–137)	Open circuit in stop light switch circuit	• Stop light switch • Stop light switch circuit • ECU
62 (DI–141)	Malfunction in ECU	• ECU

DI32Q–01

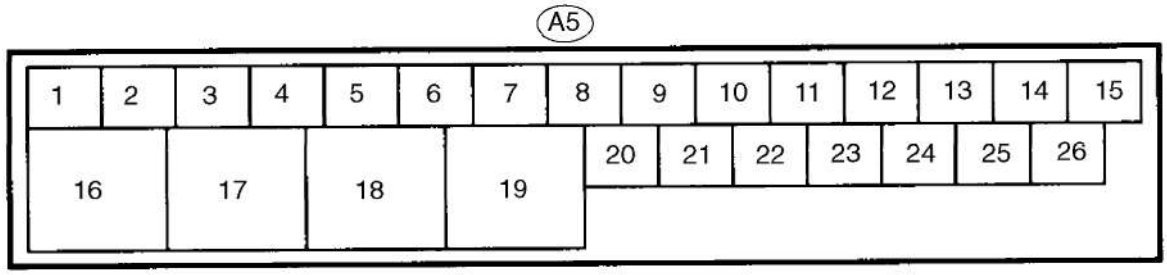
PARTS LOCATION



F04286

DI252-02

TERMINALS OF ECU



F00050

Symbols (Terminals No.)	Wiring Color	Condition	STD Voltage (V)
+B (A5 – 17, 18) – GND (A5 – 16, 19)	L ↔ W–B	Constant	10 – 14
IG1(A5 – 15) – GND (A5 – 16, 19)	B–R ↔ W–B	IG switch ON	10 – 14
WA (A5 – 21) – GND (A5 – 16, 19)	R–Y ↔ W–B	IG switch ON, ABS warning light ON	Below 2.6
		IG switch ON, ABS warning light OFF	10 – 14
STP (A5 – 14) – GND (A5 – 16, 19)	G–W ↔ W–B	Stop light switch OFF	Below 1.5
		Stop light switch ON	5 – 14
Tc (A5 – 12) – GND (A5 – 16, 19)	LG–R ↔ W–B	IG switch ON	5.7 – 8.1
Ts (A5 – 11) – GND (A5 – 16, 19)	LG–B ↔ W–B	IG switch ON	5.7 – 8.1
FR+ (A5 – 5) – FR– (A5 – 4)	B–R ↔ BR	IG switch ON Slowly turn right front wheel	AC generation
FL+ (A5 – 7) – FL– (A5 – 6)	L ↔ B–W	IG switch ON Slowly turn left front wheel	AC generation
RR+ (A5 – 3) – RR– (A5 – 1)	G ↔ R	IG switch ON Slowly turn right rear wheel	AC generation
RL+ (A5 – 9) – RL– (A5 – 8)	W ↔ B	IG switch ON Slowly turn left rear wheel	AC generation

DI253-02

PROBLEM SYMPTOMS TABLE

If a normal code is displayed during the DTC check but the problem still occurs, check the circuits for each problem symptom in the order given in the table below and proceed to the relevant troubleshooting page.

Symptoms	Inspection Circuit	See page
ABS does not operate.	Only when 1. ~ 4. are all normal and the problem is still occurring, replace the ABS ECU. 1. Check the DTC reconfirming that the normal code is output. 2. Power source circuit. 3. Speed sensor circuit. 4. Check the hydraulic circuit for leakage.	 DI–115 DI–134 DI–128 DI–149
ABS does not operate intermittently.	Only when 1. ~ 4. are all normal and the problem is still occurring, replace the ABS ECU. 1. Check the DTC reconfirming that the normal code is output. 2. Speed sensor circuit. 3. Stop light switch circuit. 4. Check the hydraulic circuit for leakage.	 DI–115 DI–128 DI–137 DI–149
ABS warning light abnormal.	1. ABS warning light circuit. 2. ABS ECU.	DI–143
DTC check cannot be done.	Only when 1. and 2. are all normal and the problem is still occurring, replace the ABS ECU. 1. ABS warning light circuit. 2. Tc terminal circuit.	 DI–143 DI–145
Speed sensor signal check cannot be done.	1. Ts terminal circuit. 2. ABS ECU.	DI–147

DI254-02

CIRCUIT INSPECTION

DTC	11	ABS Solenoid Valve Relay Circuit

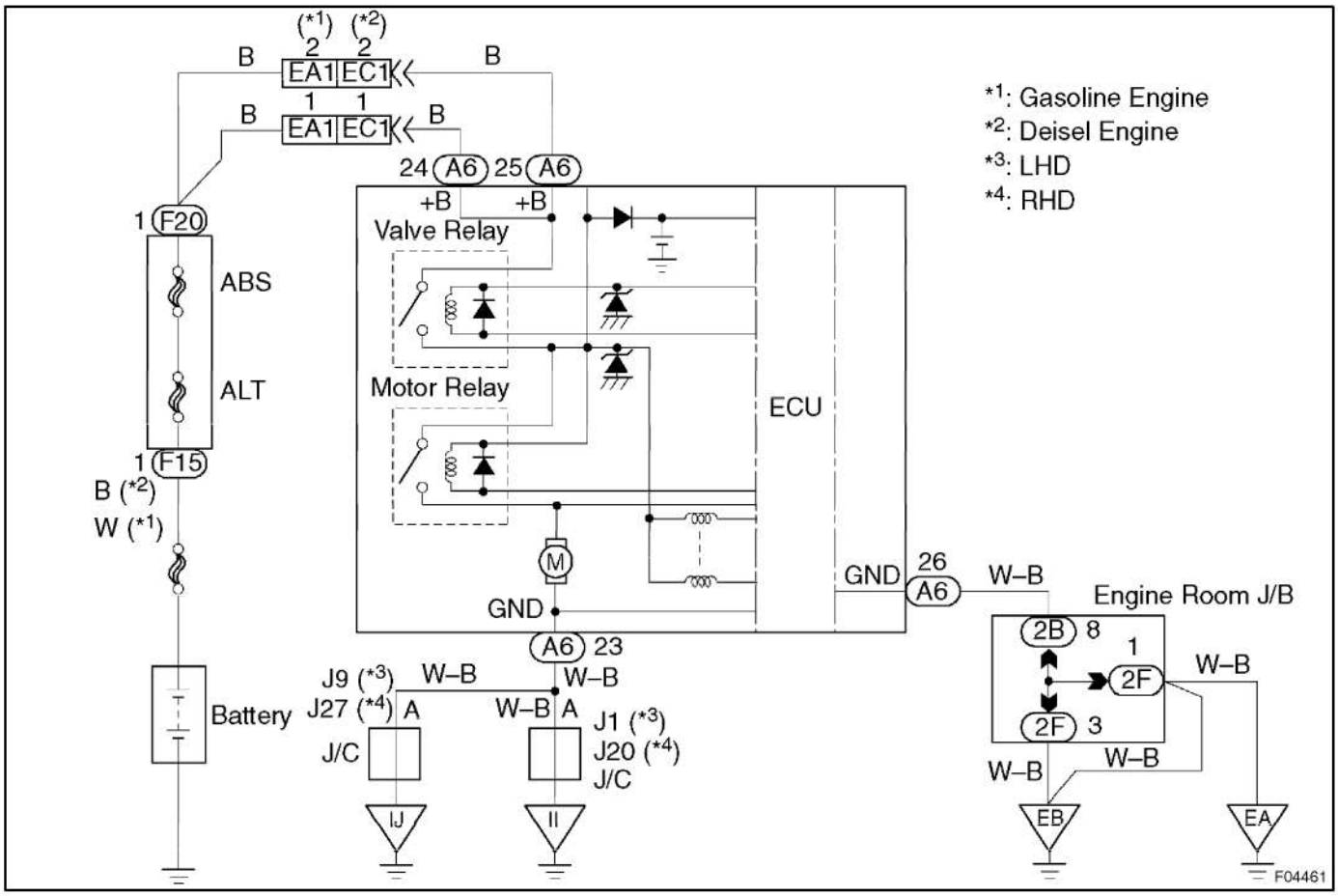
CIRCUIT DESCRIPTION

This relay supplies power to each ABS solenoid. After the ignition switch is turned ON, if the initial check is OK, the relay goes on.

DTC No.	DTC Detecting Condition	Trouble Area
11	Detection of any conditions from (1) through (3): (1) 3 or more solenoid valves are detected faulty in response and at the same time valve supply voltage is detected faulty. (2) Solenoid valve relay will not be switched OFF. (3) Valve relay is stuck in spite of its high valve relay supply voltage.	• ABS solenoid valve relay • Valve supply voltage • ECU

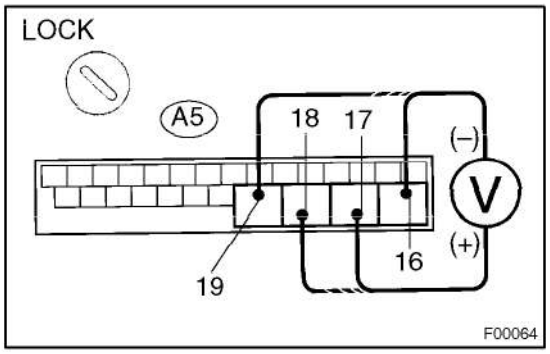
Fail safe function:
If trouble occurs in the ABS solenoid valve relay circuit, the ECU cuts off current to the ABS solenoid valve relay and prohibits ABS control.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Check voltage between terminals A5 – 17, 18 and A5 – 16, 19 of ABS actuator connector.**



PREPARATION:
Disconnect the ABS actuator connector.
CHECK:
Measure the voltage between terminals A5 – 17, 18 and A5 – 16, 19 of ABS actuator harness side connector.
OK:
Voltage: 10 – 14 V

NG → **Check and replace fuses.**
Check and repair harness or connector.

OK

If the same code is still output after the DTC is deleted, check the contact condition of each connection. If the connections are normal, the ECU may be defective.

DI255–02

DTC	13	Pump Motor Circuit

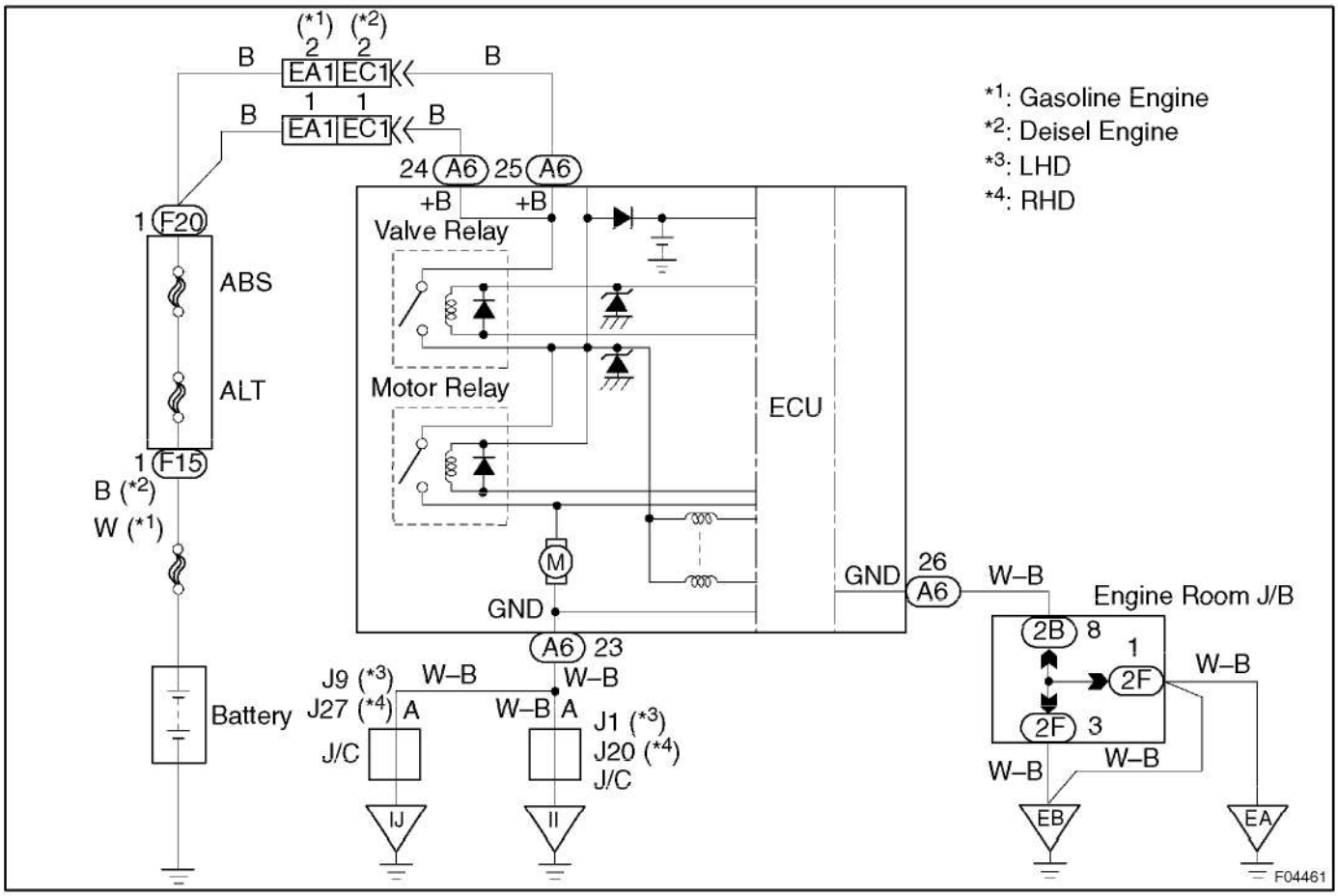
CIRCUIT DESCRIPTION

The ABS motor relay supplies power to the ABS pump motor. While the ABS is activated, the ECU switches the ABS motor relay ON and operates the ABS pump motor.

DTC No.	DTC Detecting Condition	Trouble Area
13	Detection of any conditions from (1) through (3): (1) After actuating the motor relay, voltage will not be supplied to the pump motor within 0.4 secs. (2) Although the voltage supplied to the pump motor is in a high level, motor relay will not actuate for 2.5 secs, or more. (3) The voltage supplied to the pump motor keeps low level for louger than 0.4 secs. and the pump repeats activating for 7 secs. 3times maximally. After the last activation, the pump motor has been gone dead because of short circuit.	• ABS motor relay • Pump motor voltage • Pump motor lead disconnected • ECU

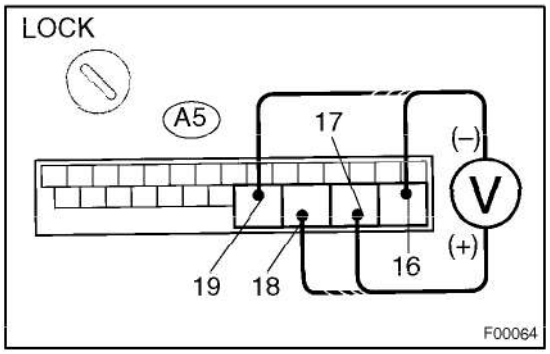
Fail safe function:
If trouble occurs in the ABS motor relay circuit, the ECU cuts off current to the ABS solenoid relay and prohibits ABS control.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Check voltage between terminals A5 – 17, 18 and A5 – 16, 19 of ABS actuator connector.**



PREPARATION:
Disconnect the ABS actuator connector.
CHECK:
Measure the voltage between terminals A5 – 17, 18 and A5 – 16, 19 of ABS actuator harness side connector.
OK:
Voltage: 10 – 14 V

NG → **Check and replace fuses.**
Check and repair harness or connector.

OK

If the same code is still output after the DTC is deleted, check the contact condition of each connection. If the connections are normal, the ECU may be defective.

DI256–02

DTC	21, 22, 23, 24	ABS Solenoid Valve Circuit

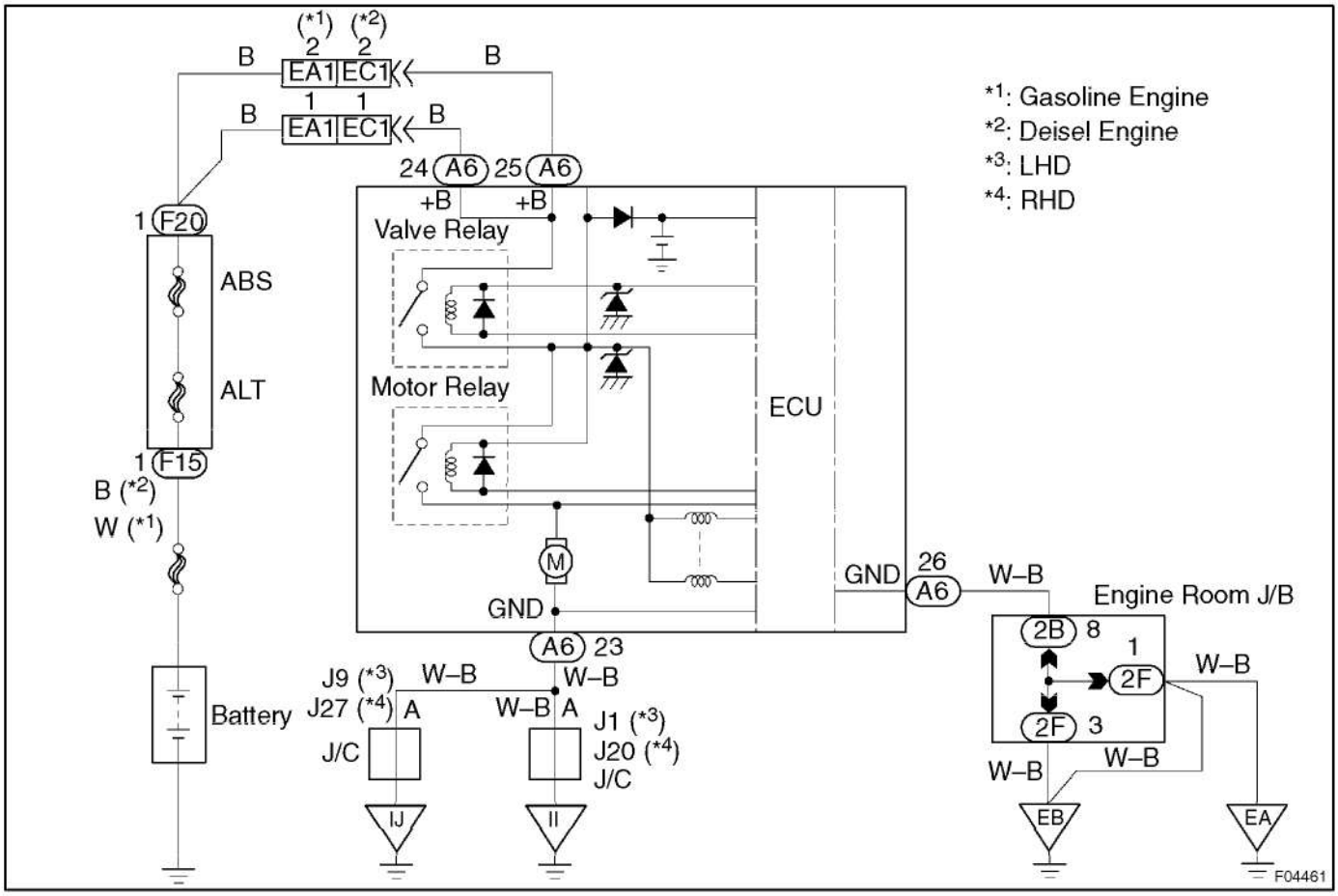
CIRCUIT DESCRIPTION

This solenoid goes on when signals are received from the ECU and controls the pressure acting on the wheel cylinders thus controlling the braking force.

DTC No.	DTC Detecting Condition	Trouble Area
21, 22, 23, 24	Solenoid valve signal does not match for the check result.	• Each solenoid valve

Fail safe function:
If trouble occurs in the actuator solenoid valve circuit, the ECU cuts off current to the ABS solenoid valve relay and prohibits ABS control.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Check the DTC once more.**

PREPARATION:

(a) Clear the DTC (See page DI–115).

(b) Turn the ignition switch OFF.

CHECK:

Turn the ignition switch ON, and check if the same DTC is stored in the memory.

NO → **No problem.**

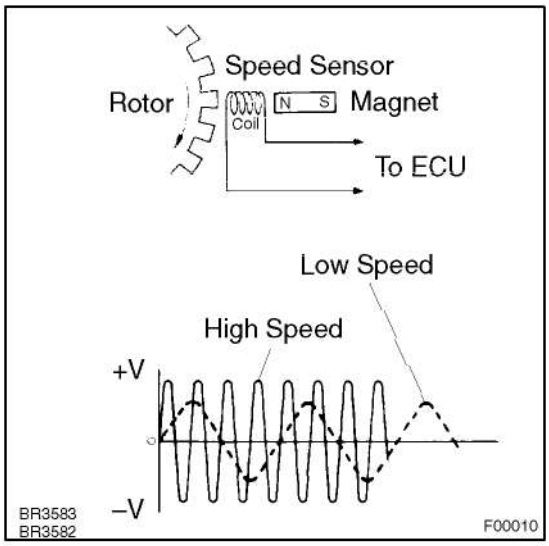
YES

Replace ABS ECU.

DI257–02

DTC	31, 32, 33, 34, 35, 36, 38, 39	Speed Sensor Circuit

CIRCUIT DESCRIPTION



The speed sensor detects wheel speed and sends the appropriate signals to the ECU. These signals are used to control the ABS system. The front and rear rotors each have 48 serrations.

When the rotors rotate, the magnetic field emitted by the permanent magnet in the speed sensor generates an AC voltage. Since the frequency of this AC voltage changes in direct proportion to the speed of the rotor, the frequency is used by the ECU to detect the speed of each wheel.

DTC No.	DTC Detecting Condition	Trouble Area
31, 32, 33, 34	Detection of any of conditions from (1) through (3): (1) Vehicle speed is more than 40 km/h (25 mph), pulses are not input for 0.01 secs. (2) After the initial start or restart and when the vehicle speed has reached 12 km/h (7 mph), the wheel with 0 km/h (0 mph) of wheel speed was detected. (3) After the initial start or restart and when the vehicle speed has reached 70 km/h (44 mph), front wheel with 0 km/h (0 mph) of wheel speed was detected.	• Right front, left front, right rear, left rear speed sensor • Each speed sensor circuit • Sensor installation • ECU
35, 36, 38, 39	Detecting abnormality in the resistance value of each speed sensor.	• Right front, left front, right rear, left rear speed sensor • Each speed sensor circuit • ECU

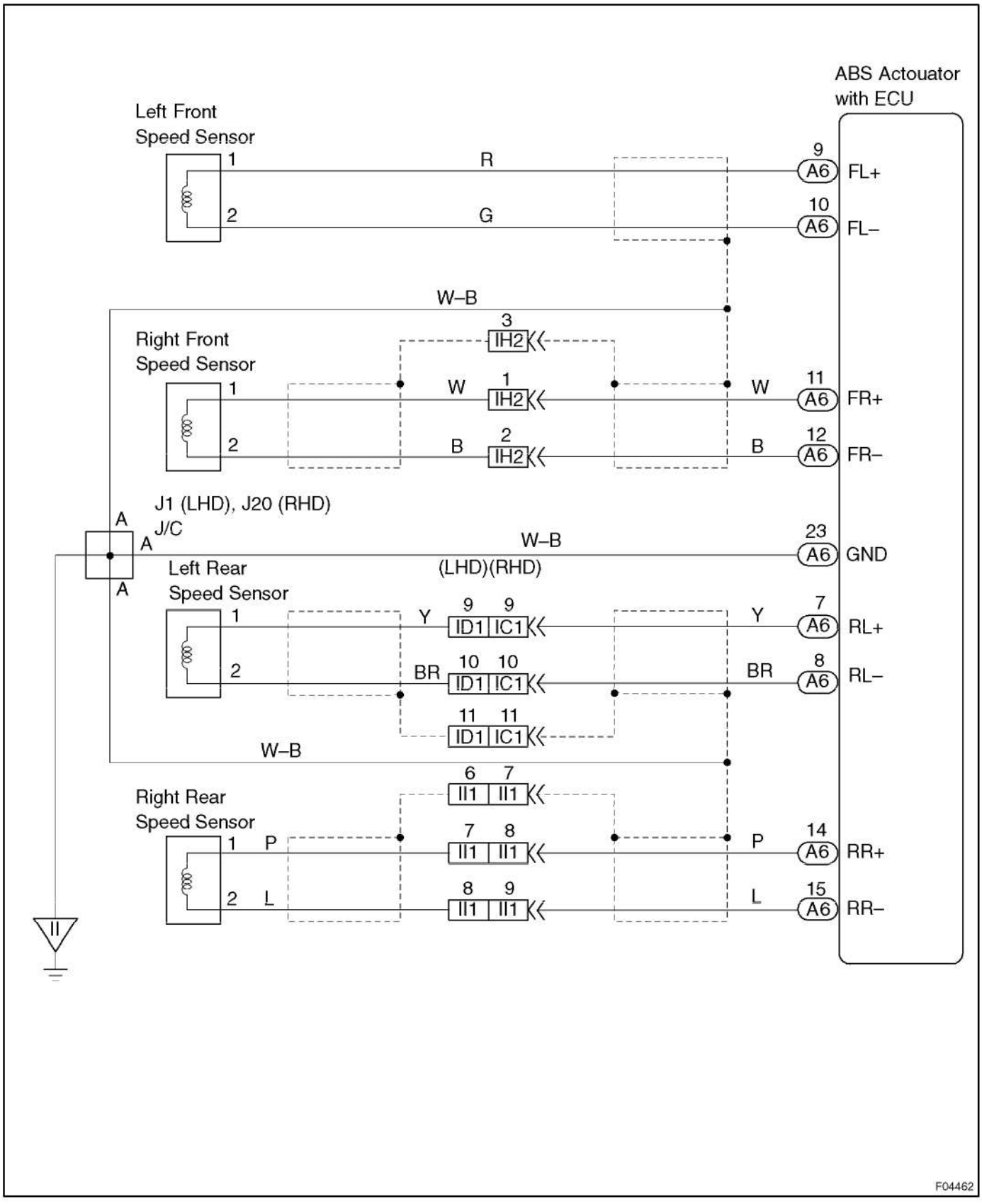
HINT:

- DTC Nos. 31 and 35 are for the right front speed sensor.
- DTC Nos. 32 and 36 are for the left front speed sensor.
- DTC Nos. 33 and 38 are for the right rear speed sensor.
- DTC Nos. 34 and 39 are for the left rear speed sensor.

Fail safe function:

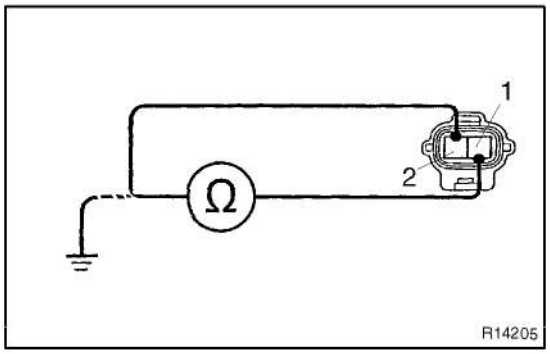
If trouble occurs in the speed sensor circuit, the ECU cuts off current to the ABS solenoid valve relay and prohibits ABS control.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Check speed sensor.**



Front

PREPARATION:

(a) Remove the front fender liner.

(b) Disconnect the speed sensor connector.

CHECK:

Measure resistance between terminals 1 and 2 of speed sensor connector.

OK:

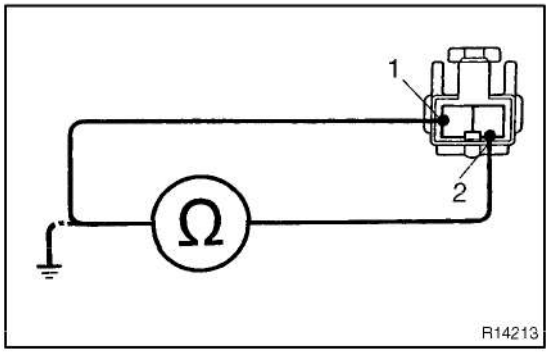
Resistance: 0.6 – 2.5 kΩ (1.6 ± 0.2 kΩ at 20 °C)

CHECK:

Measure resistance between terminals 1 and 2 of speed sensor connector and body ground.

OK:

Resistance: 1 MΩ or higher



Rear

PREPARATION:

(a) Remove the seat cushion and side seatback.

(b) Disconnect the speed sensor connector.

CHECK:

Measure resistance between terminals 1 and 2 of speed sensor connector.

OK:

Resistance: 1.2 – 2.3 kΩ (1.6 ± 0.1 kΩ at 20 °C)

CHECK:

Measure resistance between terminals 1 and 2 of speed sensor connector and body ground.

OK:

Resistance: 1 MΩ or higher

NG	**Replace speed sensor.**

NOTICE:

Check the speed sensor signal last (See page DI–115).

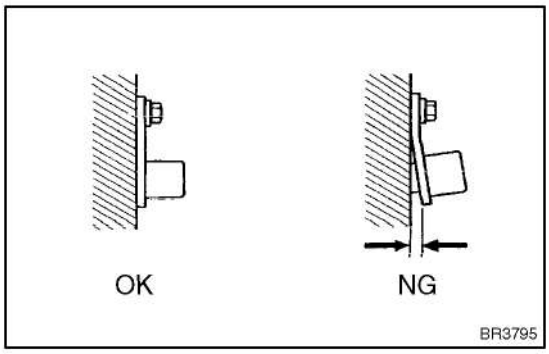
OK

2	Check for open and short in harness and connector between each speed sensor and ECU (See page IN–28).

NG → Repair or replace harness or connector.

OK

3	Check speed sensor installation.



CHECK:
Check the speed sensor installation.
OK:

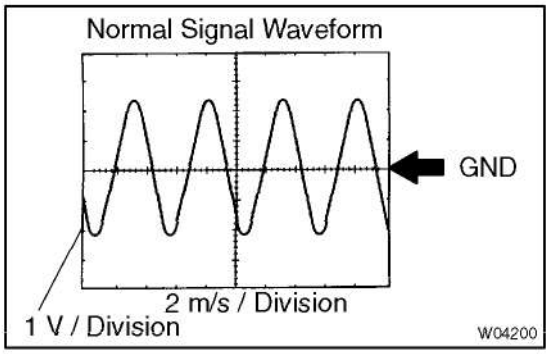
The installation bolt is tightened properly and there is no clearance between the sensor and front steering knuckle or rear axle carrier.

NG → Replace speed sensor.

NOTICE:
Check the speed sensor signal last (See page DI–115).

OK

4	Check speed sensor and sensor rotor serrations.



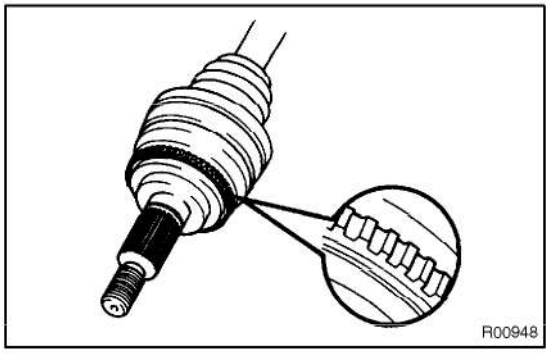
REFERENCE: INSPECTION USING OSCILLOSCOPE
PREPARATION:
(a) Remove the ABS ECU.
(b) Connect the oscilloscope to the terminals FR+, FL+, RR+ or RL+ and GND of the ABS ECU.

CHECK:
Drive the vehicle at about 30 km/h (19 mph), and check the signal waveform.

OK → Check and replace ABS ECU.

NG

5	Check sensor rotor and sensor tip.



Front

PREPARATION:

Remove the front drive shaft (See page SA–19).

CHECK:

Check the sensor rotor serrations.

OK:

No scratches or missing teeth or foreign objects.

PREPARATION:

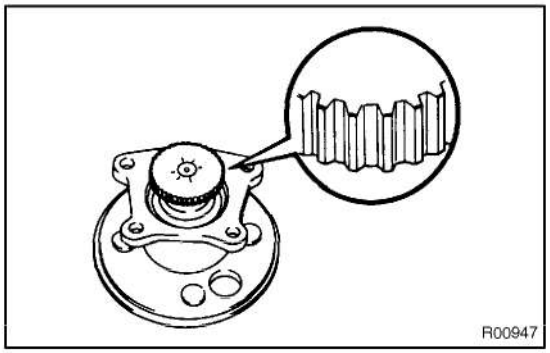
Remove the front speed sensor (See page BR–42).

CHECK:

Check the sensor tip.

OK:

No scratches or foreign objects on the sensor tip.



Rear

PREPARATION:

Remove the axle hub (See page SA–51).

CHECK:

Check the sensor rotor serrations.

OK:

No scratches or missing teeth or foreign objects.

PREPARATION:

Remove the rear speed sensor (See page BR–45).

CHECK:

Check the sensor tip.

OK:

No scratches or foreign objects on the sensor tip.

NG → **Replace sensor rotor or speed sensor.**

NOTICE:

Check the speed sensor signal last (See page DI–115).

OK

Check and replace ABS ECU.

DI258–03

DTC	37	Speed Sensor Rotor Faulty

CIRCUIT DESCRIPTION

DTC No.	DTC Detecting Condition	Trouble Area
37	Detection of any of conditions from (1) through (3): (1) Occurrence of differential to some degree in the wheel speed between the front and rear wheels of either left or right side of the vehicle and the front left and right wheels. (Detection of differential in mini tire size, spinning wheel and decelerating wheel.) (2) Continuous ABS control for 60 secs. or more. (3) Interference on 1 or more wheels for 20 secs. with the brake pedal depressed, or for 5 secs. when the brake pedal is not depressed.	• Speed sensor • Sensor rotor • ECU

INSPECTION PROCEDURE

1	Check sensor rotor (See page DI–128).

NG → Replace sensor rotor.

OK

2	Check speed sensor (See page DI–128).

NG → Replace speed sensor.

OK

3	Check for open or short circuit in harness and connector between speed sensor and ECU (See page IN–28).

NG → Repair or replace harness and connector.

OK

Check and replace ABS ECU.

DI259–02

DTC	41	Power Source Circuit

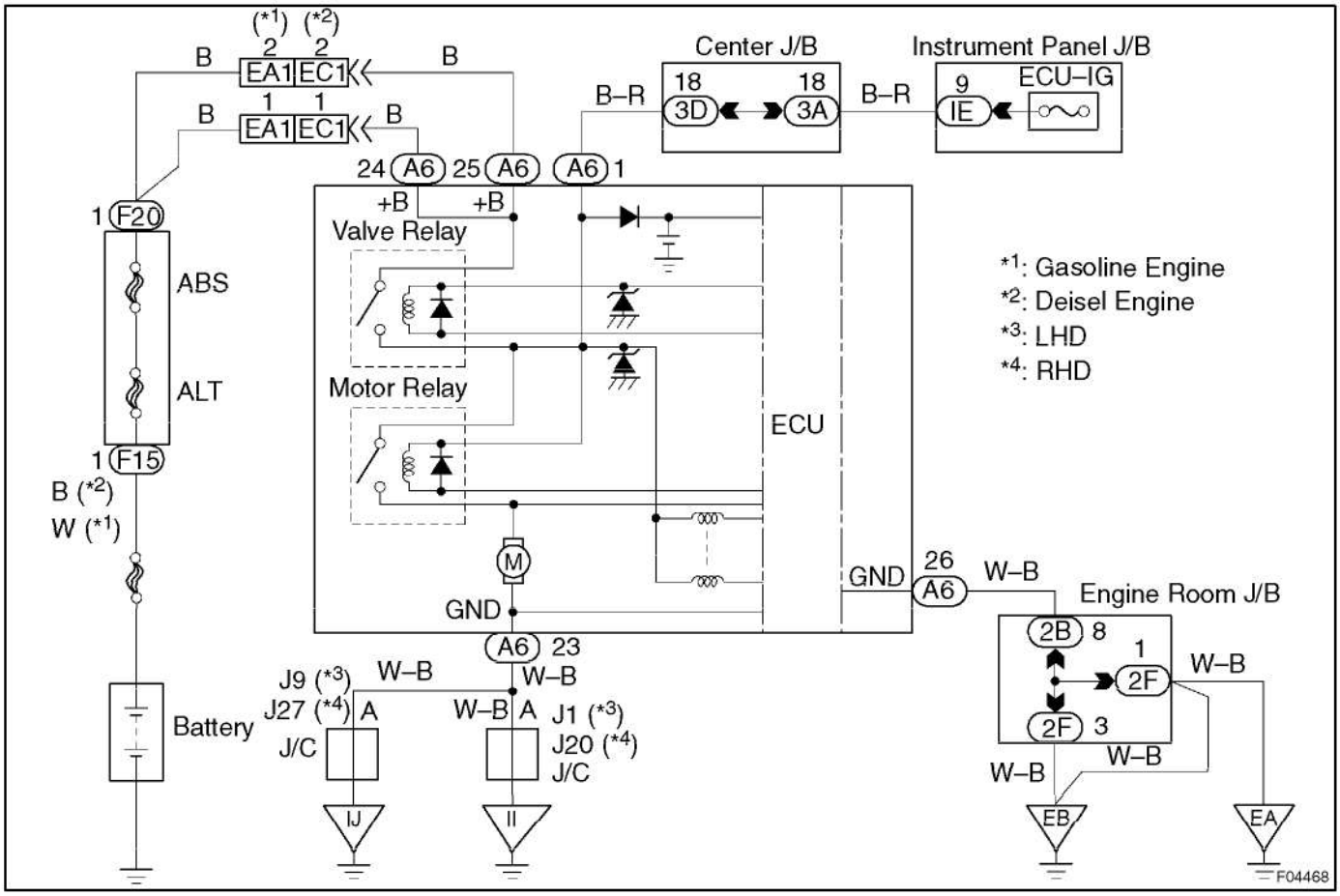
CIRCUIT DESCRIPTION

This circuit is the power source for the ECU, hence the actuators.

DTC No.	DTC Detecting Condition	Trouble Area
41	When the vehicle speed is at aprox. 6 km/h (4 mph), low battery voltage is less than 9.4 V at the time of non–operation of ABS control or less than 8.8 V at the time of operation of ABS control, and high battery voltage is more than 17.4 V.	• Battery • IC regulator • Power source circuit • ECU

Fail safe function:
If trouble occurs in the power source circuit, the ECU cuts off current to the ABS solenoid valve relay and prohibits ABS control.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Check battery voltage.**

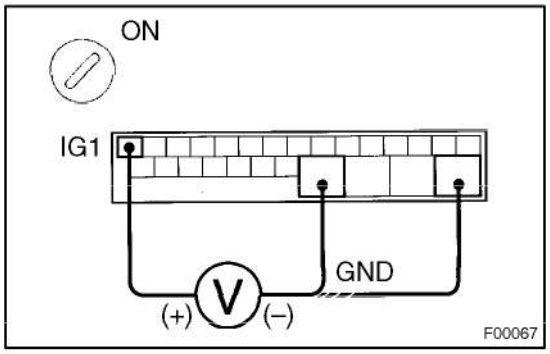
OK:

Voltage: 10 – 14 V

NG → **Check and replace fuses.**
Check and repair the charging system.

OK

2	**Check voltage between terminals IG1 and GND of ABS actuator connector.**



PREPARATION:

Disconnect ABS actuator connector.

CHECK:

(a) Turn the ignition switch ON.

(b) Measure voltage between terminals IG1 and GND of ABS actuator harness side connector.

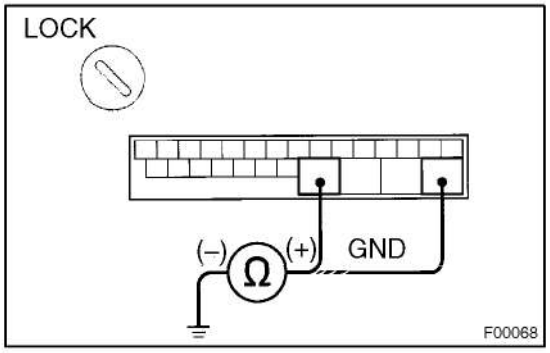
OK:

Voltage: 10 – 14 V

NG → **Check and replace fuses.**
Repair or replace harness or connector.

OK

3	Check continuity between terminals GND of ABS actuator connector and body ground.

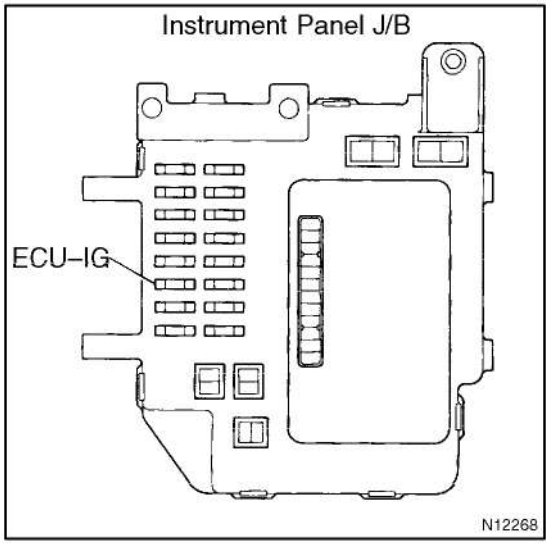


CHECK:
Measure resistance between terminals GND of ABS actuator harness side connector and body ground.
OK:
Resistance: 1 Ω or less

NG → **Repair or replace harness or connector.**

OK

4	Check ECU–IG fuse.



PREPARATION:
Remove ECU–IG fuse from Instrument Panel J/B.
CHECK:
Check continuity of ECU–IG fuse.
OK:
Continuity

NG → **Check for short in all the harness and components connected to ECU–IG fuse (See attached wiring diagram.**

OK

Check and replace ABS ECU.

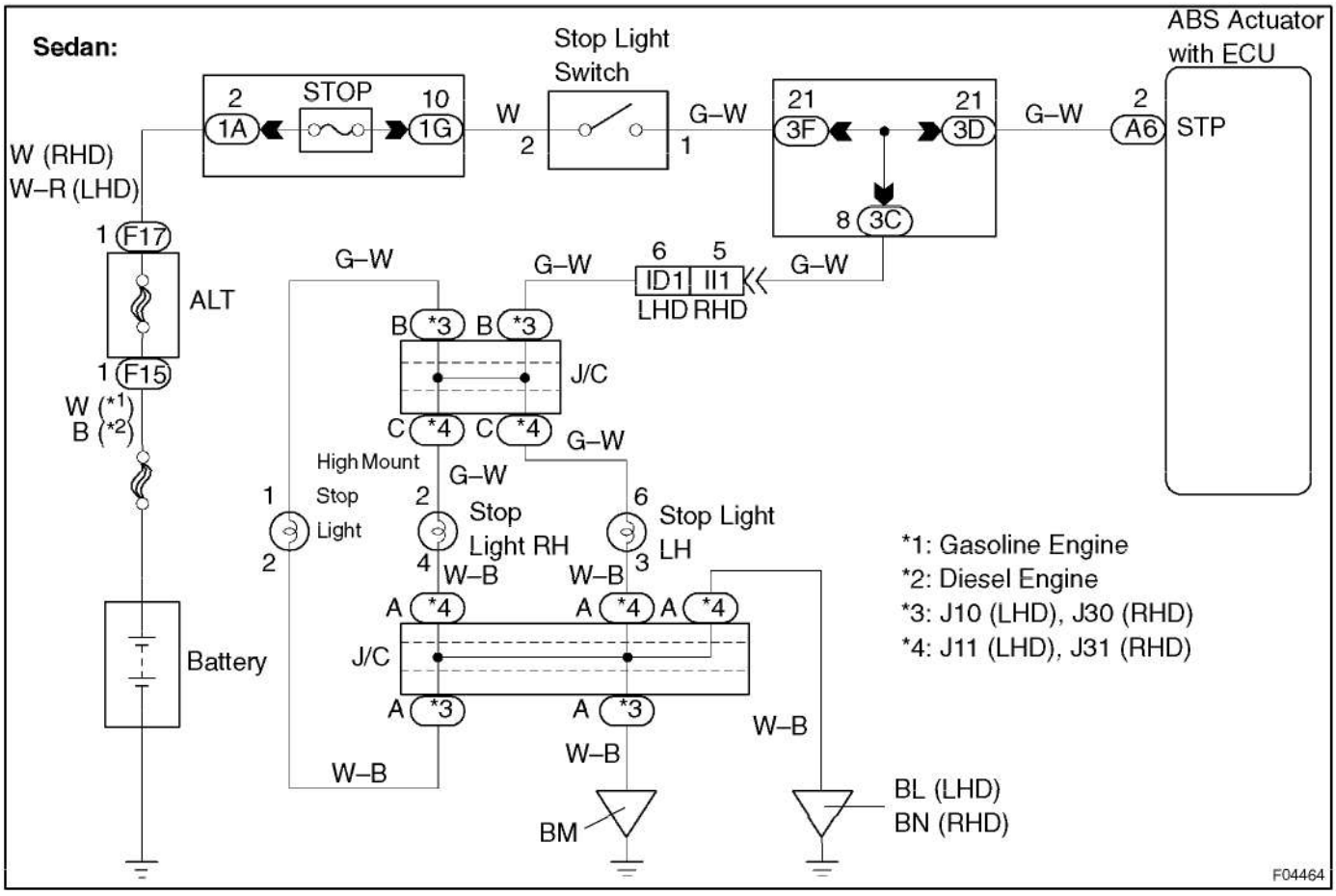
DI2R–01

DTC	58	Stop Light Switch Circuit

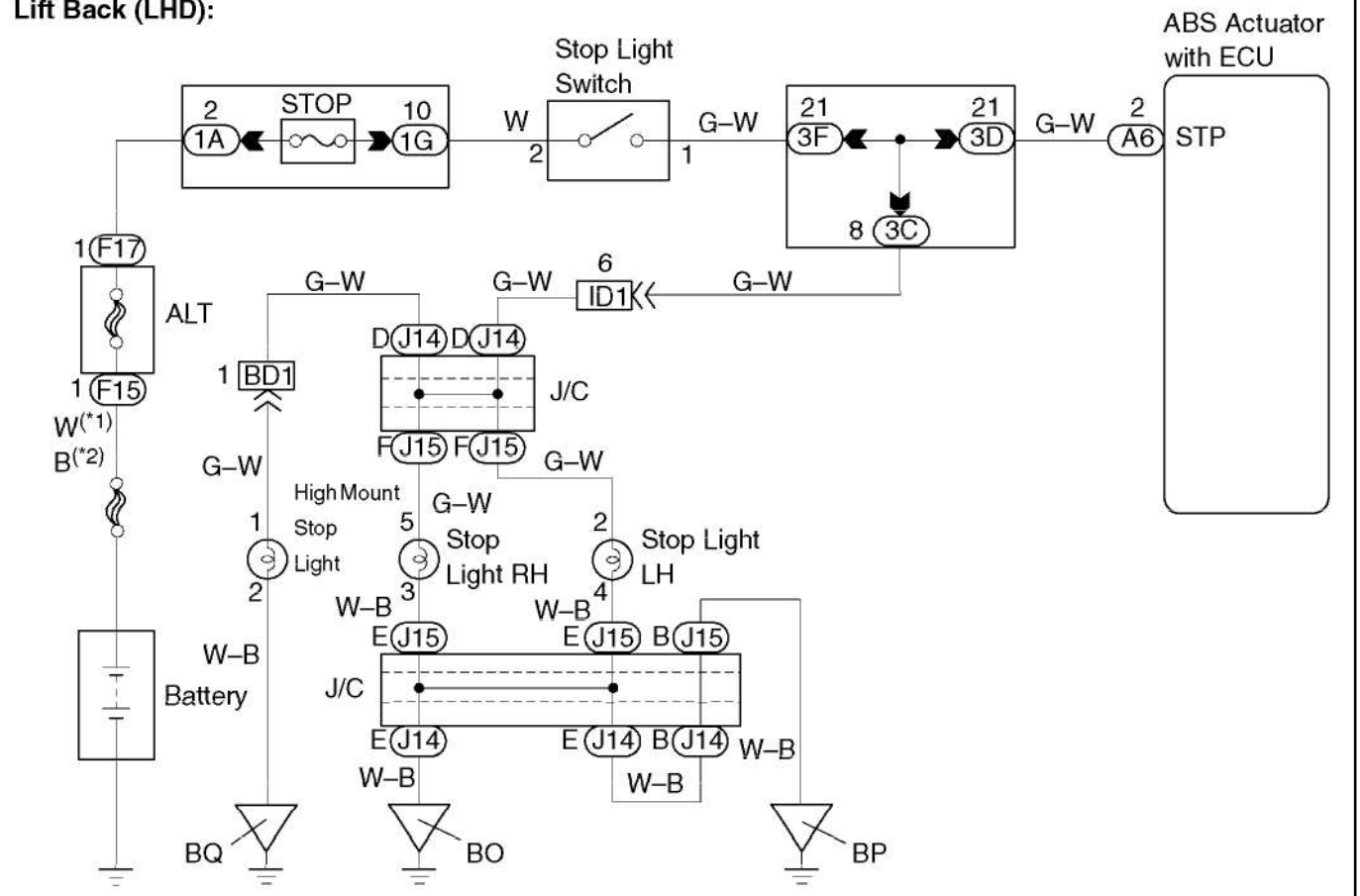
CIRCUIT DESCRIPTION

DTC No.	DTC Detecting Condition	Trouble Area
58	Stop light switch circuit is open circuit, and stop light switch voltage is in the level between 65 % or more and less than 93 % of the battery voltage.	• Stop light switch • Stop light switch circuit • ECU

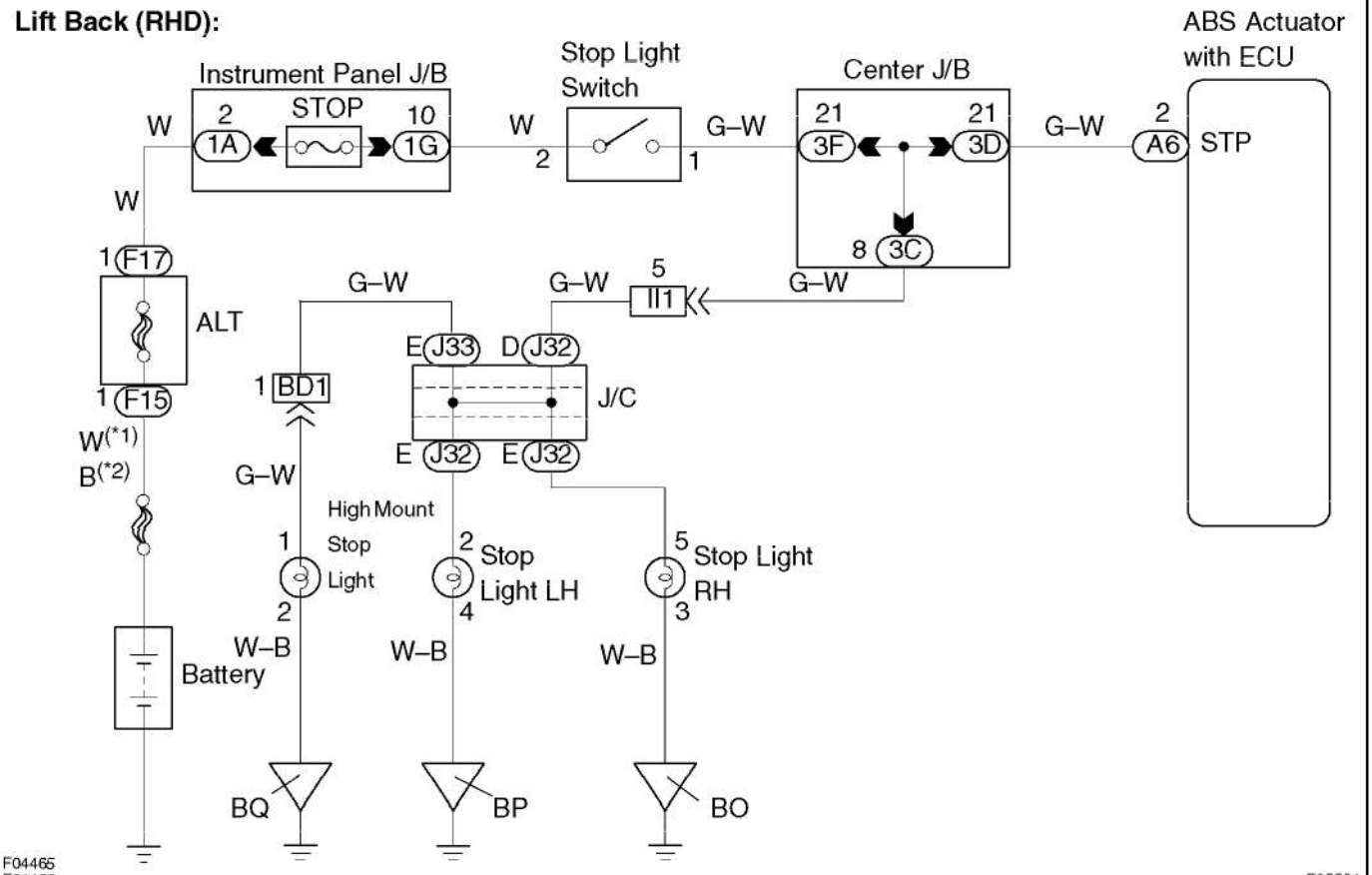
WIRING DIAGRAM



Lift Back (LHD):

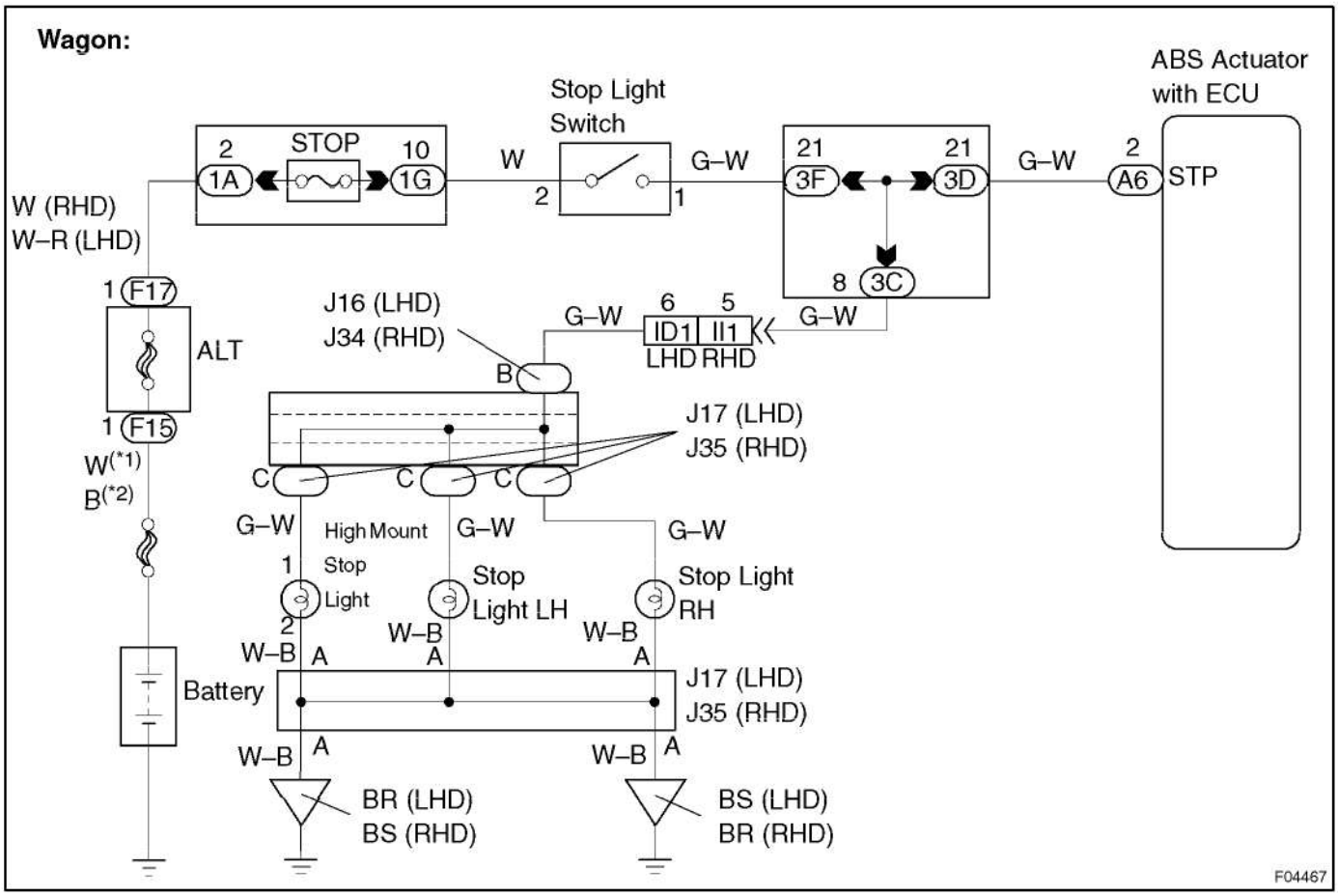


Lift Back (RHD):



F04465
F04466

F05531



INSPECTION PROCEDURE

1	**Check operation of stop light.**

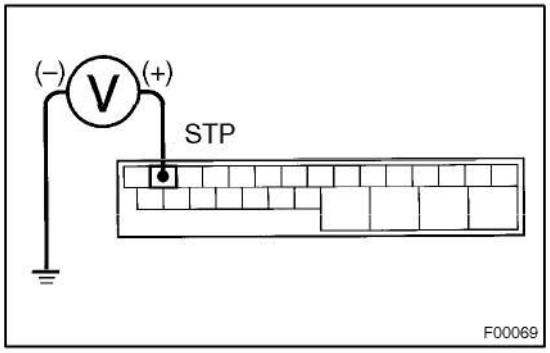
CHECK:

Check that stop light lights up when brake pedal is depressed and turns off when brake pedal is released.

NG → **Repair stop light circuit (See page BE–47).**

OK

2	Check voltage between terminal STP of ABS actuator and body ground.



PREPARATION:
Disconnect ABS actuator connector.
CHECK:
Measure voltage between terminal STP of ABS actuator harness side connector and body ground when brake pedal is depressed.
OK:
Voltage: 8 – 14 V

OK → **Proceed to next circuit inspection shown in problem symptoms table (See page DI–121).**

NG

3	Check for open circuit in harness and connector between ABS ECU and stop light switch (See page IN–28).

NG → **Repair or replace harness or connector.**

OK

Check and replace ABS ECU.

DI25B–02

DTC	62	ABS ECU Malfunction

CIRCUIT DESCRIPTION

DTC No.	DTC Detecting Condition	Trouble Area
62	ABS ECU continuously detected the inproper operation of ABS.	• Battery • ECU

Fail safe function:
If trouble occurs in the power source circuit, the ECU cuts off current to the ABS solenoid valve relay and prohibits ABS control.

INSPECTION PROCEDURE

1	Is DTC output?

Check DTC on page DI–115.

YES → Repair circuit indicated by the output code.

NO

2	Is normal code displayed?

YES → Check for short circuit in harness and connector between check connector and ABS ECU (See page IN–28).

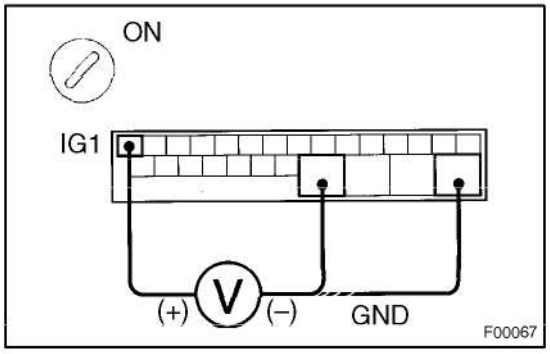
NO

3	Does ABS warning light go off?

YES → Check open and short circuit of the harness and connector in the Tc circuit between ECU and check connector.

NO

4	Check voltage between terminals IG1 and GND of ABS actuator connector.



PREPARATION:
Disconnect ABS actuator connector.
CHECK:
(a) Turn the ignition switch ON.
(b) Measure voltage between terminals IG1 and GND of ABS actuator harness side connector.
OK:
Voltage: 10 – 14 V

YES → **Check for open or short circuit in harness and connector between ECU–IG fuse and ABS actuator (See page IN–28).**

OK

5	Check connection of ABS actuator connector.

CHECK:
(a) Check the connection of the ABS actuator connector.
(b) Check the ABS warning light goes off.

OK → **Check and replace ABS ECU.**

NG

Repair or replace harness or connector.

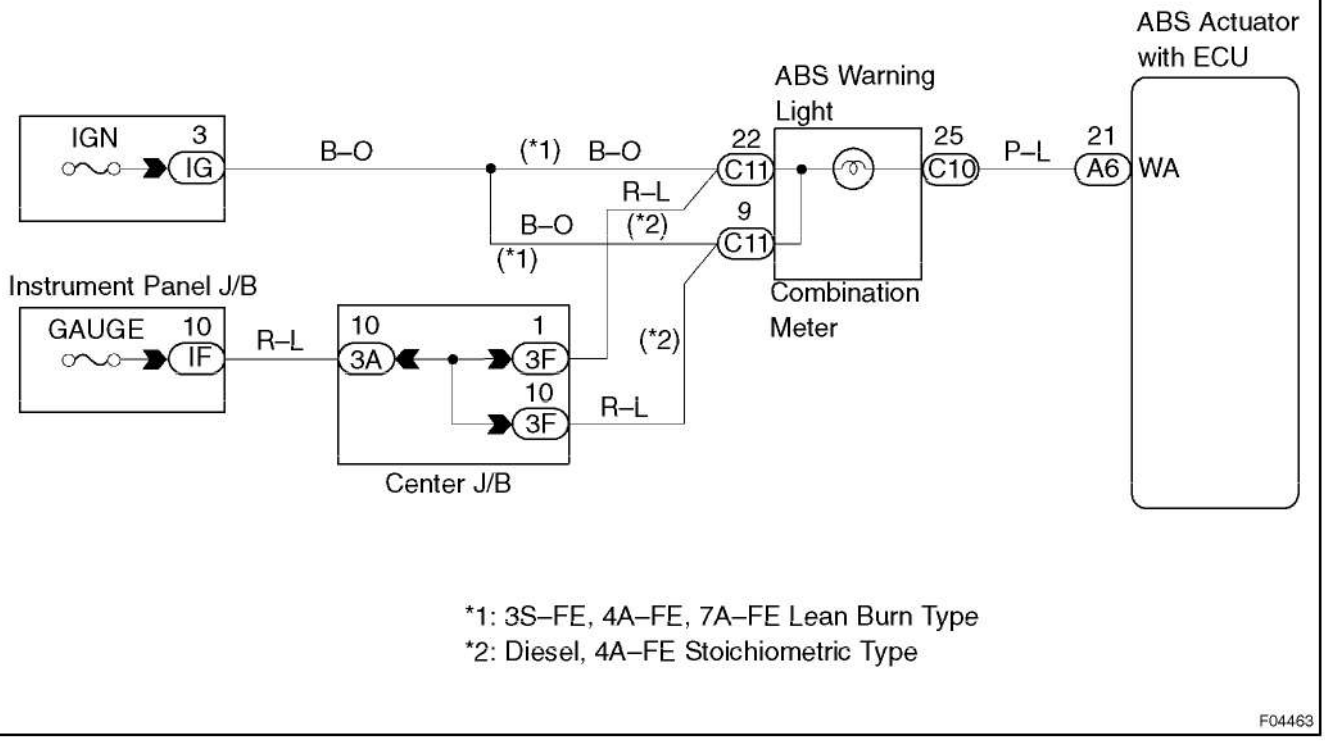
DI2SC–02

ABS Warning Light Circuit

CIRCUIT DESCRIPTION

If the ECU detects trouble, it lights the ABS warning light while at the same time prohibiting ABS control. At this time, the ECU records a DTC in memory.
Connecting terminals Tc and CG of the DLC3 makes the ABS warning light blink and output the DTC.

WIRING DIAGRAM



*1: 3S–FE, 4A–FE, 7A–FE Lean Burn Type
*2: Diesel, 4A–FE Stoichiometric Type

F04463

INSPECTION PROCEDURE

Troubleshoot in accordance with the chart below for each trouble symptom.

ABS warning light does not light up	Go to step 1
ABS warning light remains ON	Go to step 2

1	**Check ABS warning light.**

See Combination Meter Troubleshooting on page BE–2.

NG → **Repair bulb or combination meter assembly.**

OK

Check for open circuit in harness and connector between GAUGE fuse and ABS ECU (See page IN–28).

2	**Is DTC output?**

Check DTC on page DI–115.

YES → **Repair circuit indicated by the output code.**

NO

Check for short circuit in harness and connector between ABS warning light, DLC3 and ECU (See page IN–28).

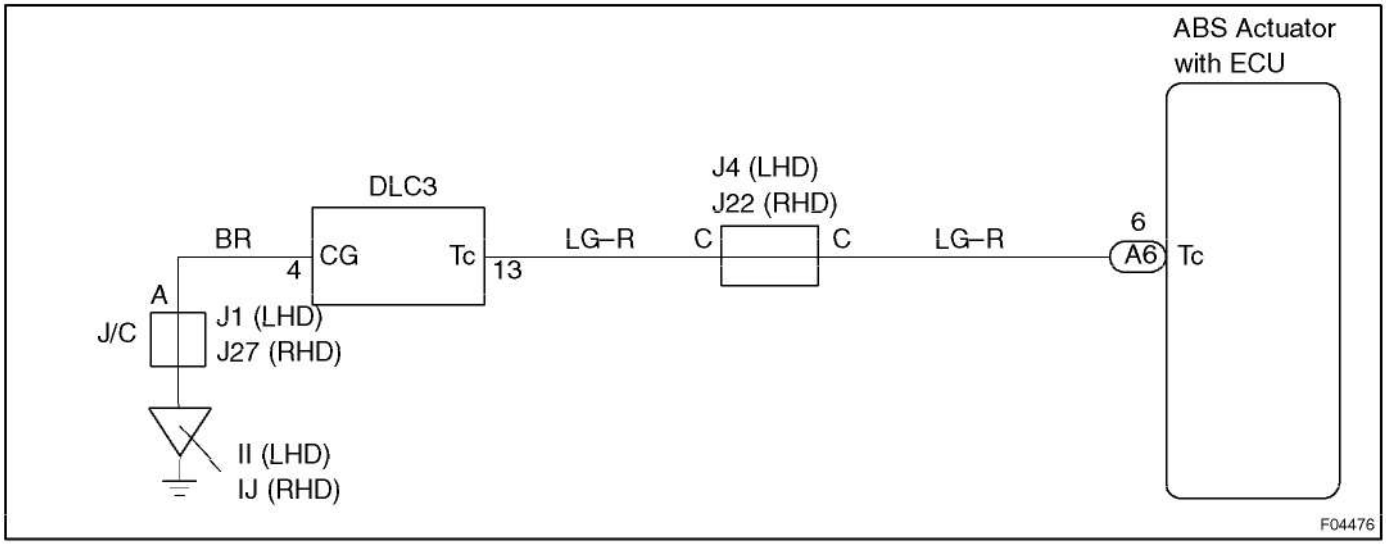
DI25D–02

Tc Terminal Circuit

CIRCUIT DESCRIPTION

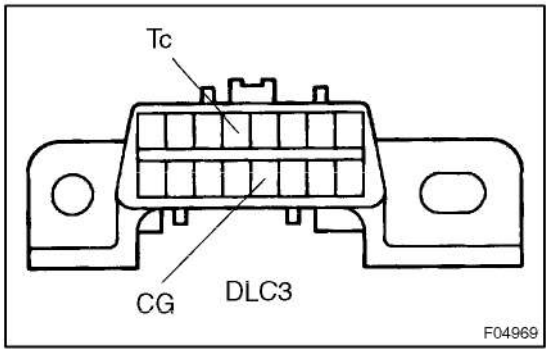
Connecting between terminals Tc and E_1 of the DLC3 causes the ECU to display the DTC by flashing the ABS warning light.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Check voltage between terminals Tc and E_1 of check connector or DLC3.**



CHECK:

(a) Turn the ignition switch ON.

(b) Measure voltage between terminals Tc and CG of DLC3.

OK:

Voltage: 10 – 14 V

OK → **If ABS warning light does not blink even after Tc and E_1 are connected, the ECU may be defective.**

NG

2	Check for open and short circuit in harness and connector between ABS ECU and DLC3, DLC3 and body ground (See page IN–28).

NG → Repair or replace harness or connector.

OK →

Check and replace ABS ECU.

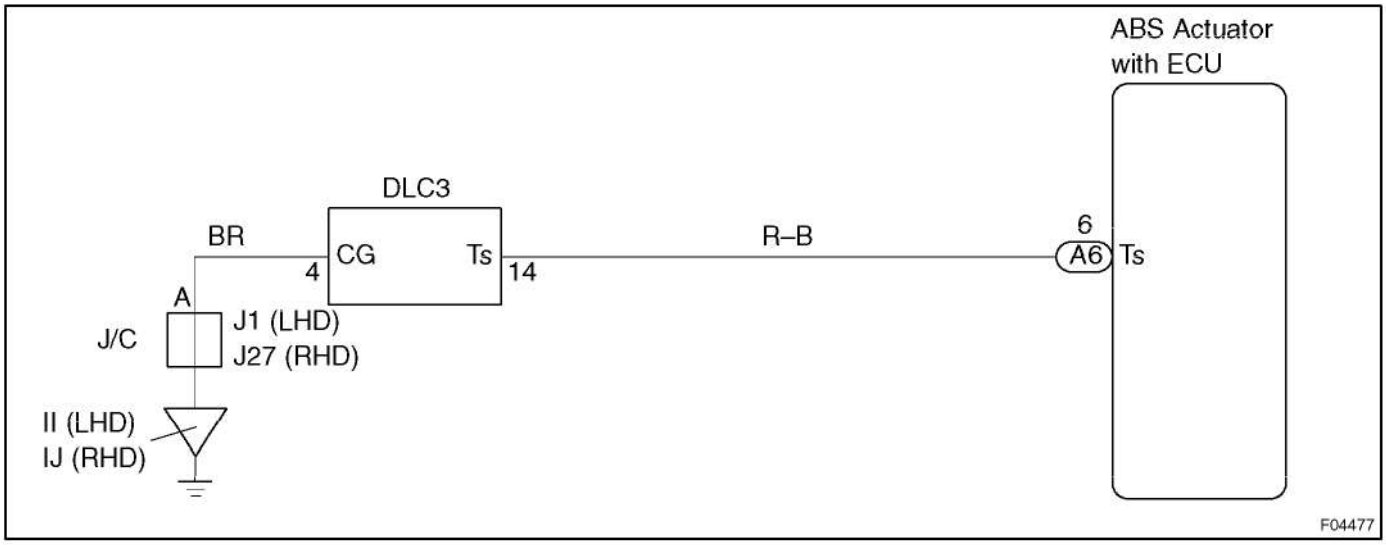
DI25E–02

Ts Terminal Circuit

CIRCUIT DESCRIPTION

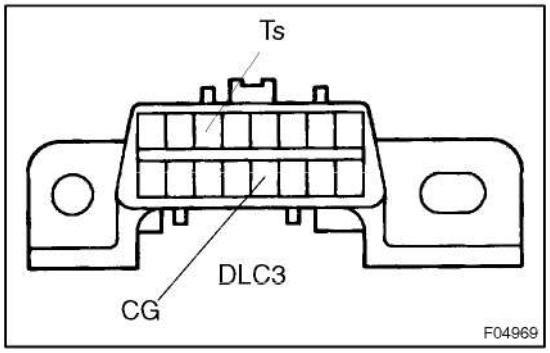
The sensor check circuit detects abnormalities in the speed sensor signal which cannot be detected with the DTC check.
Connecting terminals Ts and CG of the DLC3 in the engine compartment starts the check.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Check voltage between terminals Ts and E_1 of DLC3.**



CHECK:

(a) Turn the ignition switch ON.

(b) Measure voltage between terminals Ts and CG of DLC3.

OK:

Voltage: 10 – 14 V

OK → **If ABS warning light does not blink even after Ts and E_1 are connected, the ECU may be defective.**

NG

2	Check for open and short in harness and connector between ABS ECU and DLC3 and body ground (See page IN–28).

NG → Repair or replace harness or connector.

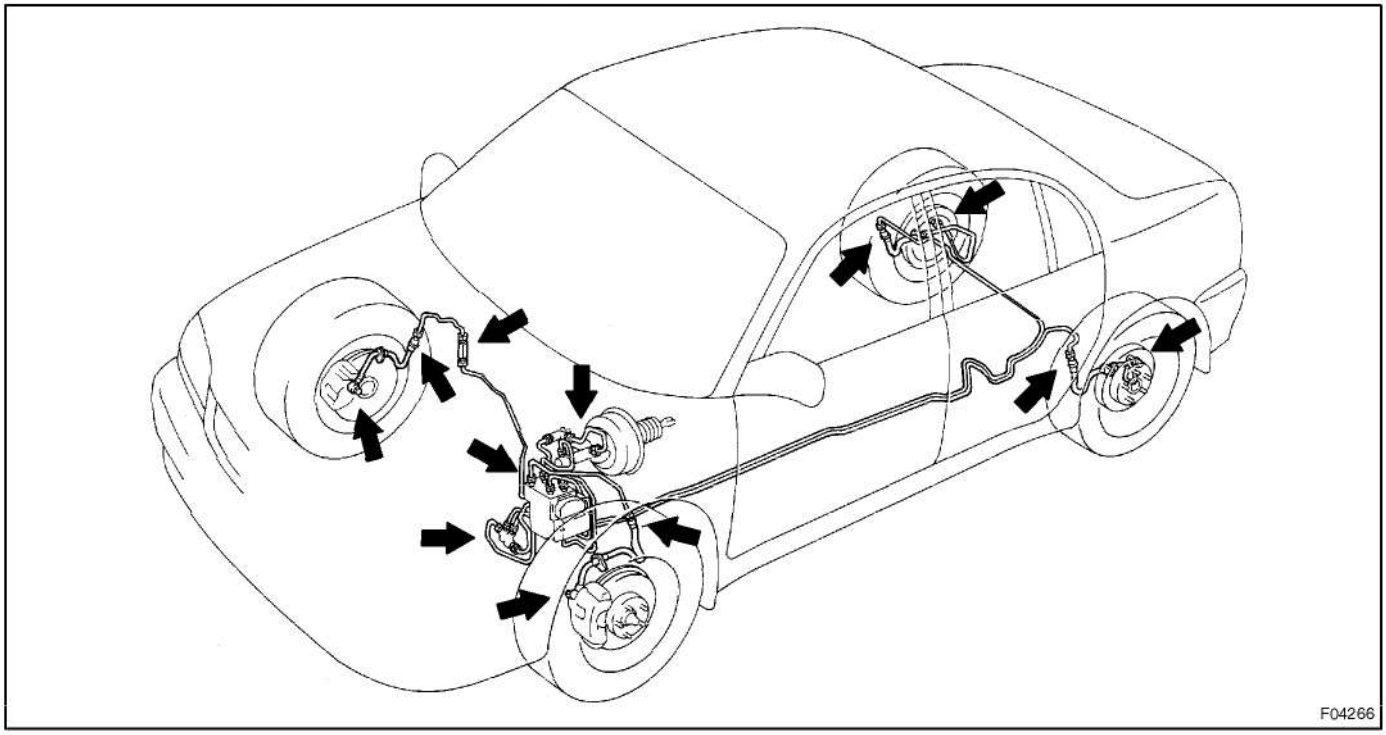
OK →

Check and replace ABS ECU.

DI25F–02

Check for Fluid Leakage

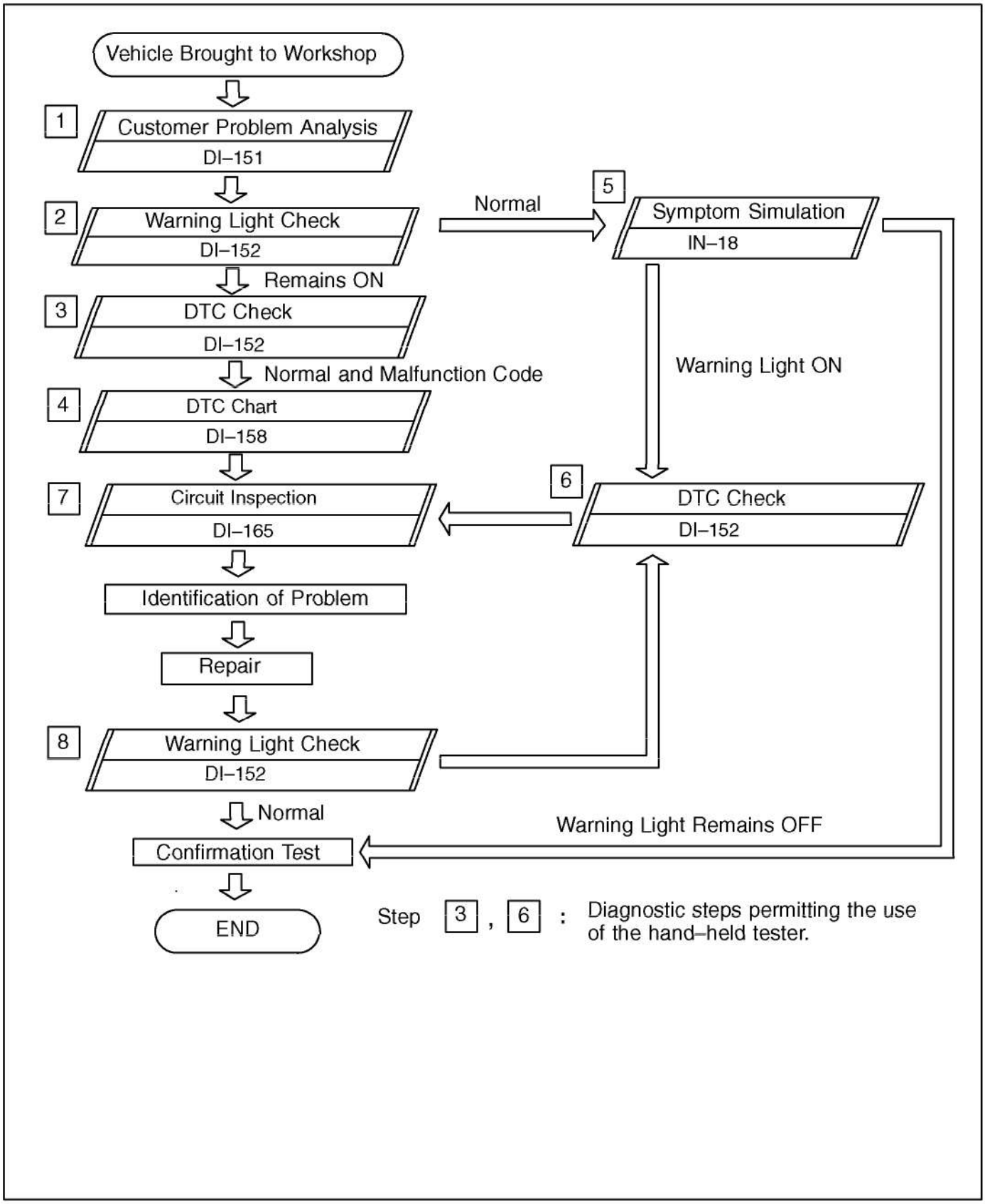
Check for fluid leakage from actuator or hydraulic lines.



SUPPLEMENTAL RESTRAINT SYSTEM

DI1MX–05

HOW TO PROCEED WITH TROUBLESHOOTING



DI15Z-04

CUSTOMER PROBLEM ANALYSIS CHECK

Supplemental Restraint System Check Sheet

Inspector's Name _____

Customer's Name		Registration No.	
		Registration Year	/ /
		Frame No.	
Date Vehicle Brought In	/ /	Odometer Reading	km Miles

Date Problem Occurred	/ /
Weather	☐ Fine ☐ Cloudy ☐ Rainy ☐ Snowy ☐ Other
Temperature	Approx.

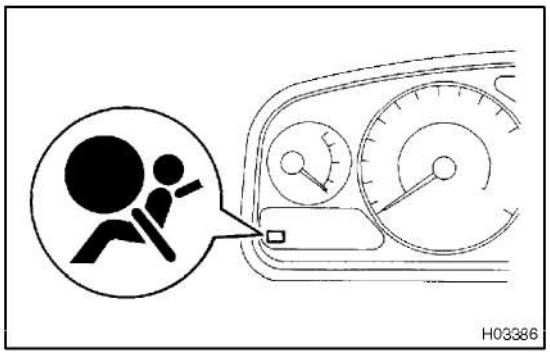
Vehicle Operation	☐ Starting ☐ Idling ☐ Driving [☐ Constant speed ☐ Acceleration ☐ Deceleration ☐ Other]
Road Conditions	
Details Of Problem	

Vehicle Inspection and Repair History Prior to Occurrence of Malfunction (Including Supplemental Restraint System)	

Diagnosis System Inspection

SRS Warning Light Inspection	1st Time	☐ Remains ON ☐ Sometimes Lights Up ☐ Does Not Light Up
	2nd Time	☐ Remains ON ☐ Sometimes Lights Up ☐ Does Not Light Up
DTC Inspection	1st Time	☐ Normal Code ☐ Malfunction Code [Code.]
	2nd Time	☐ Normal Code ☐ Malfunction Code [Code.]

DI1MZ-05



PRE–CHECK

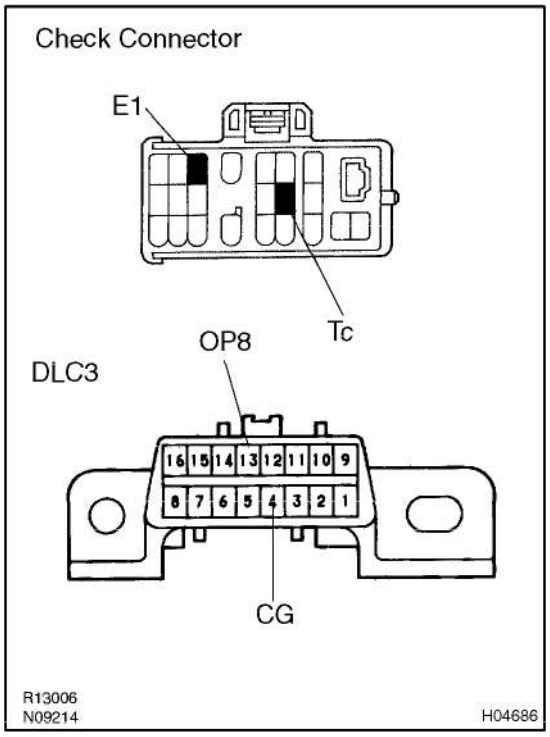
1. SRS WARNING LIGHT CHECK

(a) Turn the ignition switch to the ACC or ON position and check that the SRS warning light lights up.

(b) Check that the SRS warning light goes out after approx. 6 seconds.

HINT:

- When the ignition switch is at ACC or ON and the SRS warning light remains on or flashes, the airbag sensor assembly has detected a malfunction code.
- If, after approx. 6 seconds have elapsed, the SRS warning light sometimes lights up or the SRS warning light lights up even when the ignition switch is OFF, a short in the SRS warning light circuit can be considered likely. Proceed to "SRS warning light circuit malfunction" on page DI–288, DI–290.



2. DTC CHECK (Using diagnosis check wire)

(a) Present Trouble Codes:
Output the DTC.

(1) Turn the ignition switch to the ACC or ON position and wait for approx. 20 seconds.

(2) Using SST, connect terminals Tc and E1 of the check connector or OP8 and CG of the DLC3.

SST 09843–18020

NOTICE:

Pay due attention to the terminal connecting position to avoid a malfunction.

(b) Past Trouble Codes:
Output the DTC.

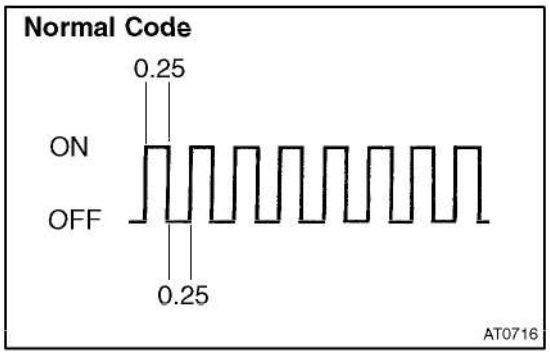
(1) Using SST, connect terminals Tc and E1 of the check connector.

SST 09843–18020

(2) Turn the ignition switch to the ACC or ON position and wait for approx. 20 seconds.

NOTICE:

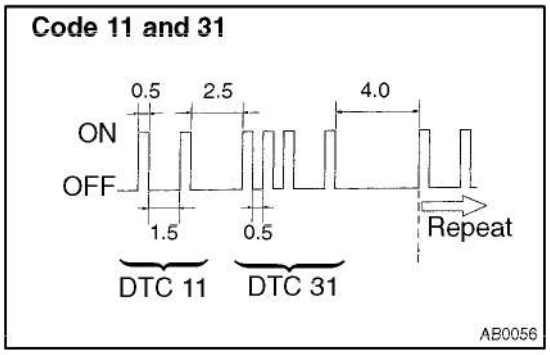
Pay due attention to the terminal connecting position to avoid a malfunction.



(c) READ DTC

Read the 2–digit DTC as indicated by the number of times the SRS warning light blinks. As an example, the blinking patterns, normal, 11 and 31 are shown in the illustration.

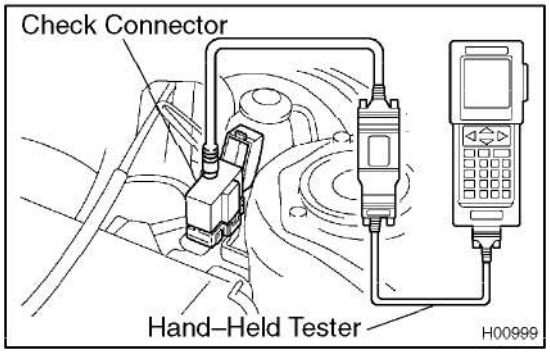
- Normal code indication
  The light will blink 2 times per second.
- Malfunction code indication
  The first blinking output indicates the first digit of a 2–digit DTC. After a 1.5–second pause, the second blinking output will indicate the second digit.



- If there are 2 or more codes, there will be a 2.5–second pause between each code. After all the codes have been output, there will be a 4.0–second pause and they will all be repeated.

HINT:

- In the event of a number of trouble codes, indication will start from the smallest numbered code.
- If a DTC is not output or a DTC is output without terminal connection, proceed to the Tc terminal circuit inspection on page DI–294.



3. DTC CHECK (Using hand–held tester)

(a) Hook up the hand–held tester to the check connector.

(b) Read the DTCs by following the prompts on the tester screen.

HINT:

Please refer to the hand–held tester operator's manual for further details.

4. DTC CLEARANCE (Not using service wire)

When the ignition switch is turned OFF, the diagnostic trouble code is cleared.

HINT:

DTC might not be cleared by turning the ignition switch OFF. In this case, proceed to the next step.

5. DTC CLEARANCE (Using service wire)

(a) Connect the 2 service wires to terminal Tc or OP8 and AB of the check connector or the DLC3.

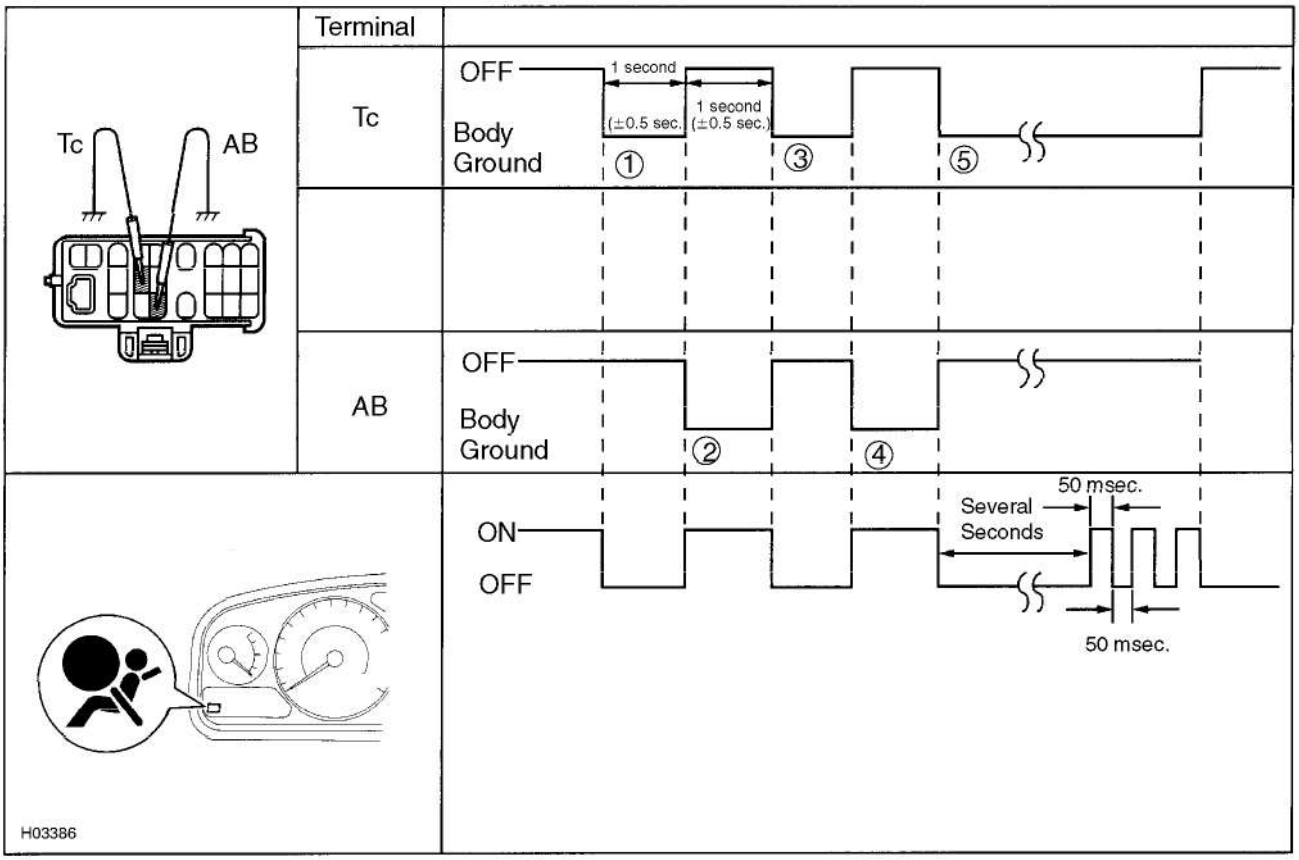
(b) Turn the ignition switch to ACC or ON and wait for approx. 6 seconds.

(c) Starting with the Tc terminal, ground alternately terminal Tc and terminal AB twice each in cycles of 1.0 second. Make sure that the terminals are grounded. Ensure the terminal Tc remains grounded.

HINT:

When alternately grounding terminals Tc and AB, release ground from one terminal and immediately ground the other terminal within an interval of 0.2 seconds.

If DTCs are not cleared, repeat the above procedure until the codes are cleared.



H01461

H04557

(d) Several seconds after doing the clearing procedure, the SRS warning light will blink in a 50 msec. cycle to indicate the codes which have been cleared.

6. Past Trouble Codes:
DTC CLEARANCE
(See step 5.)

7. RELEASE METHOD OF AIRBAG ACTIVATION PREVENTION MECHANISM

An airbag activation prevention mechanism is built into the connector for the squib circuit of the SRS.

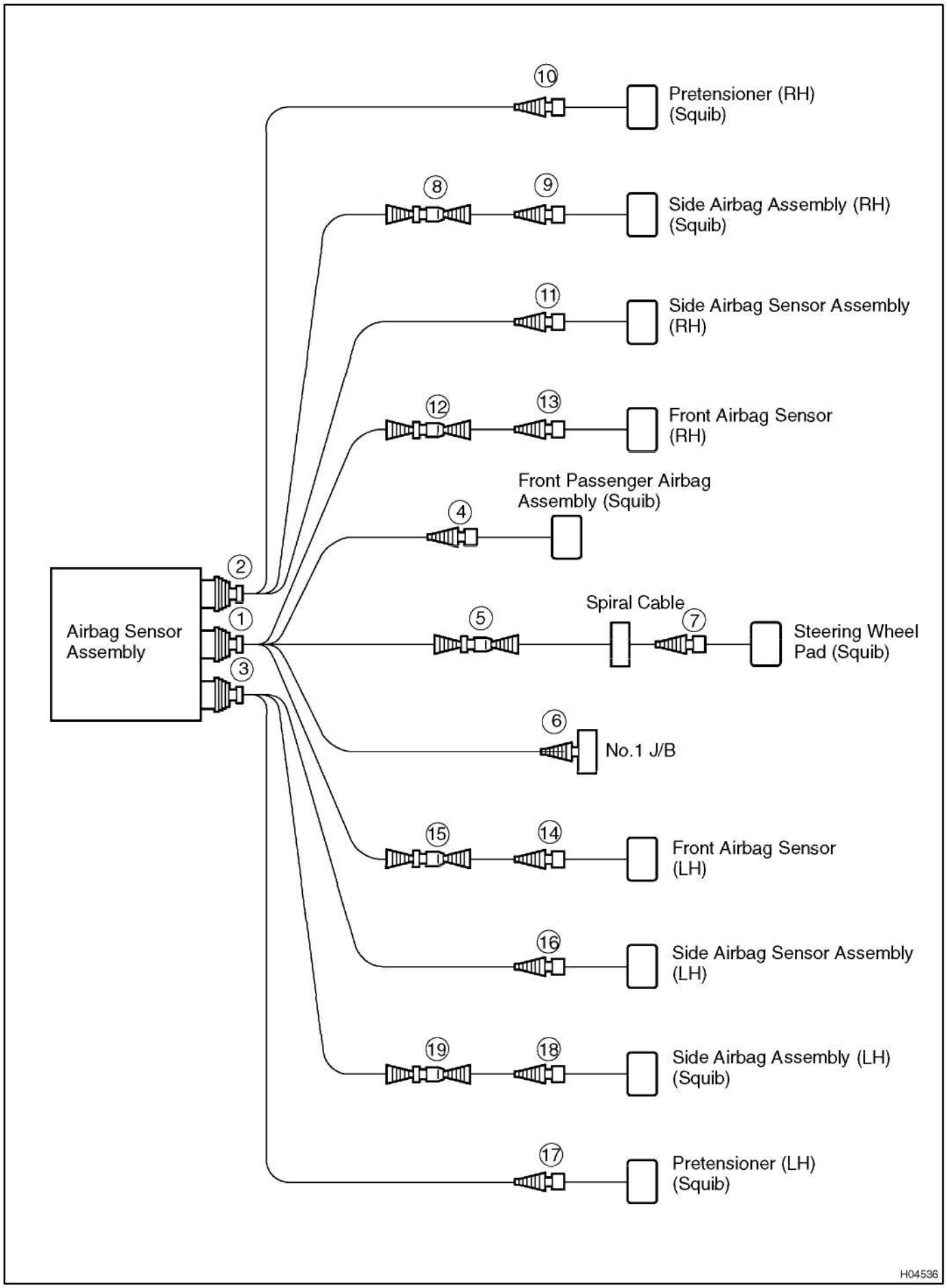
When release of the airbag activation prevention mechanism is directed in the troubleshooting procedure, as shown in the illustration on the following pages, insert paper which has the same thickness as the male terminal, between the terminal and the short spring.

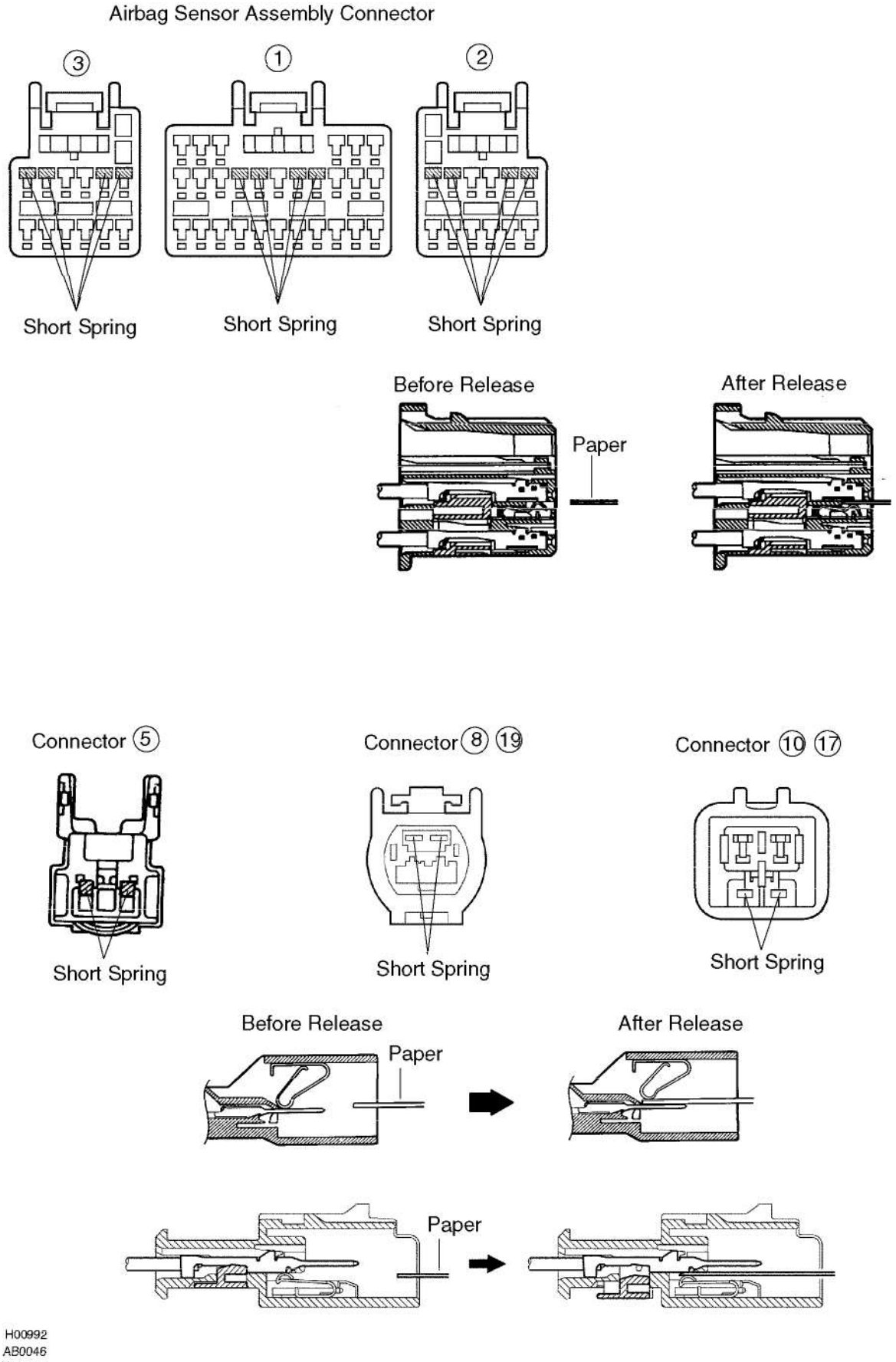
CAUTION:

Never release the airbag activation prevention mechanism on the steering wheel pad connector.

NOTICE:

- **Do not release the airbag activation prevention mechanism unless specifically directed by the troubleshooting procedure.**
- **If the inserted paper is too thick the terminal and short spring may be damaged, so always use paper with the same thickness as the male terminal.**


Airbag Sensor Assembly
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
Pretensioner (RH) (Squib)
Side Airbag Assembly (RH) (Squib)
Side Airbag Sensor Assembly (RH)
Front Airbag Sensor (RH)
Front Passenger Airbag Assembly (Squib)
Spiral Cable
Steering Wheel Pad (Squib)
No.1 J/B
Front Airbag Sensor (LH)
Side Airbag Sensor Assembly (LH)
Side Airbag Assembly (LH) (Squib)
Pretensioner (LH) (Squib)
H04536



H01356
H01233
AB0130 H00992
AB0045 AB0046
H02249 H02248

H01358

DI161-09

DIAGNOSTIC TROUBLE CODE CHART

If a malfunction code is displayed during the DTC check, check the circuit listed for that code in the table below (Proceed to the page given for that circuit.).

DTC No. (See Page)	Detection Item	Trouble Area	SRS Warning Light
11 (DI–165)	Short in D squib circuit (to ground)	• Steering wheel pad (squib) • Spiral cable • Airbag sensor assembly • Wire harness	ON
12 (DI–170)	Short in D squib circuit (to B+)	• Steering wheel pad (squib) • Spiral cable • Airbag sensor assembly • Wire harness	ON
13 (DI–174)	Short in D squib circuit	• Steering wheel pad (squib) • Spiral cable • Airbag sensor assembly • Wire harness	ON
14 (DI–178)	Open in D squib circuit	• Steering wheel pad (squib) • Spiral cable • Airbag sensor assembly • Wire harness	ON
15 (DI–182)	Front airbag sensor assembly (RH) malufunction	• Front airbag sensor assembly (RH) • Wire harness • Sub wire harness	ON
16 (DI–190)	Front airbag sensor assembly (LH) malufunction	• Front airbag sensor assembly (LH) • Wire harness • Sub wire harness	ON
31 (DI–198)	Airbag sensor assembly malfunction	Airbag sensor assembly	ON
32 (DI–200)	Side airbag sensor assembly (RH) malfunction	• Side airbag sensor assembly (RH) • Wire harness	Blink
33 (DI–206)	Side airbag sensor assembly (LH) malfunction	• Side airbag sensor assembly (LH) • Wire harness	Blink
41 (DI–212)	Short in side squib (RH) circuit (to ground)	• Side airbag assembly RH (squib) • Airbag sensor assembly • Wire harness • Sub wire harness	Blink
42 (DI–217)	Short in side squib (RH) circuit (to B+)	• Side airbag assembly RH (squib) • Airbag sensor assembly • Wire harness	Blink
43 (DI–221)	Short in side squib (RH) circuit	• Side airbag assembly RH (squib) • Airbag sensor assembly • Wire harness • Sub wire harness	Blink
44 (DI–225)	Open in side squib (RH) circuit	• Side airbag assembly RH (squib) • Airbag sensor assembly • Wire harness • Sub wire harness	Blink
45 (DI–229)	Short in side squib (LH) circuit (to ground)	• Side airbag assembly LH (squib) • Airbag sensor assembly • Wire harness • Sub wire harness	Blink

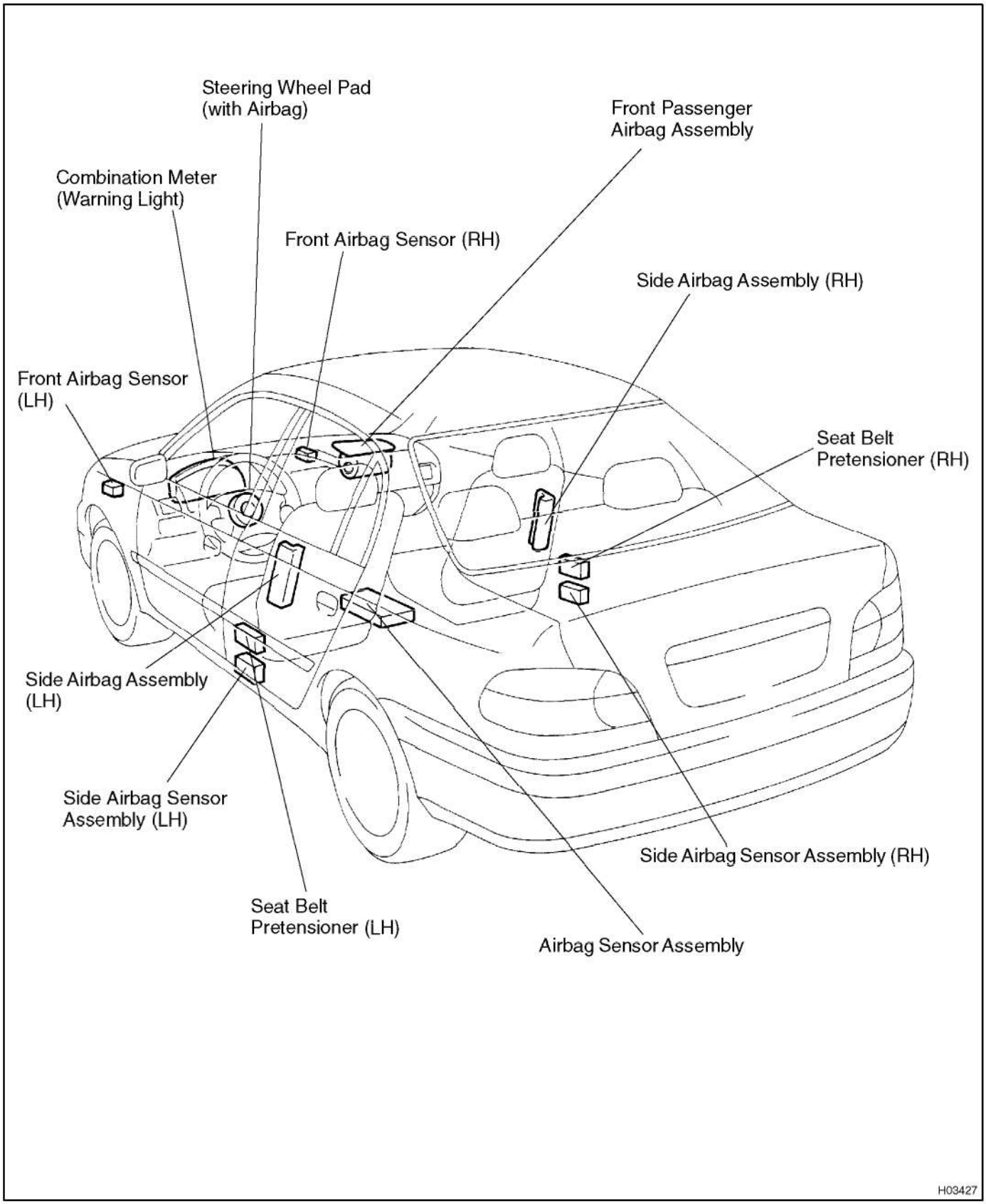
DTC No. (See Page)	Detection Item	Trouble Area	SRS Warning Light
46 (DI–234)	Short in side squib (LH) circuit (to B+)	• Side airbag assembly LH (squib) • Airbag sensor assembly • Wire harness • Sub wire harness	Blink
47 (DI–238)	Short in side squib (LH) circuit	• Side airbag assembly LH (squib) • Airbag sensor assembly • Wire harness • Sub wire harness	Blink
48 (DI–242)	Open in side squib (LH) circuit	• Side airbag assembly LH (squib) • Airbag sensor assembly • Wire harness • Sub wire harness	Blink
51 (DI–246)	Short in P squib circuit (to ground)	• Passenger airbag assembly (squib) • Airbag sensor assembly • Wire harness	ON
52 (DI–250)	Short in P squib circuit (to B+)	• Passenger airbag assembly (squib) • Airbag sensor assembly • Wire harness	ON
53 (DI–253)	Short in P squib circuit	• Passenger airbag assembly (squib) • Airbag sensor assembly • Wire harness	ON
54 (DI–256)	Open in P squib circuit	• Passenger airbag assembly (squib) • Airbag sensor assembly • Wire harness	ON
61 (DI–259)	Short in P/T squib (RH) circuit (to ground)	• Seat belt pretensioner RH (squib) • Airbag sensor assembly • Wire harness	Blink
62 (DI–263)	Short in P/T squib (RH) circuit (to B+)	• Seat belt pretensioner RH (squib) • Airbag sensor assembly • Wire harness	Blink
63 (DI–266)	Short in P/T squib (RH) circuit	• Seat belt pretensioner RH (squib) • Airbag sensor assembly • Wire harness	Blink
64 (DI–269)	Open in P/T squib (RH) circuit	• Seat belt pretensioner RH (squib) • Airbag sensor assembly • Wire harness	Blink
71 (DI–272)	Short in P/T squib (LH) circuit (to ground)	• Seat belt pretensioner LH (squib) • Airbag sensor assembly • Wire harness	Blink
72 (DI–276)	Short in P/T squib (LH) circuit (to B+)	• Seat belt pretensioner LH (squib) • Airbag sensor assembly • Wire harness	Blink
73 (DI–279)	Short in P/T squib (LH) circuit	• Seat belt pretensioner LH (squib) • Airbag sensor assembly • Wire harness	Blink
74 (DI–282)	Open in P/T squib (LH) circuit	• Seat belt pretensioner LH (squib) • Airbag sensor assembly • Wire harness	Blink
Normal (DI–285)	System normal	–	OFF
	Voltage source drop	• Battery • Airbag sensor assembly	ON

HINT:

- When the SRS warning light remains lit up and the DTC is the normal code, this means a voltage source drops.
  This malfunction is not stored in memory by the airbag sensor assembly and if the power source voltage returns to normal, the SRS warning light will automatically go out.
- When 2 or more codes are indicated, the codes will be displayed in numeral order starting from the lowest numbered code.
- If a code not listed on the chart is displayed, the airbag sensor assembly is faulty.

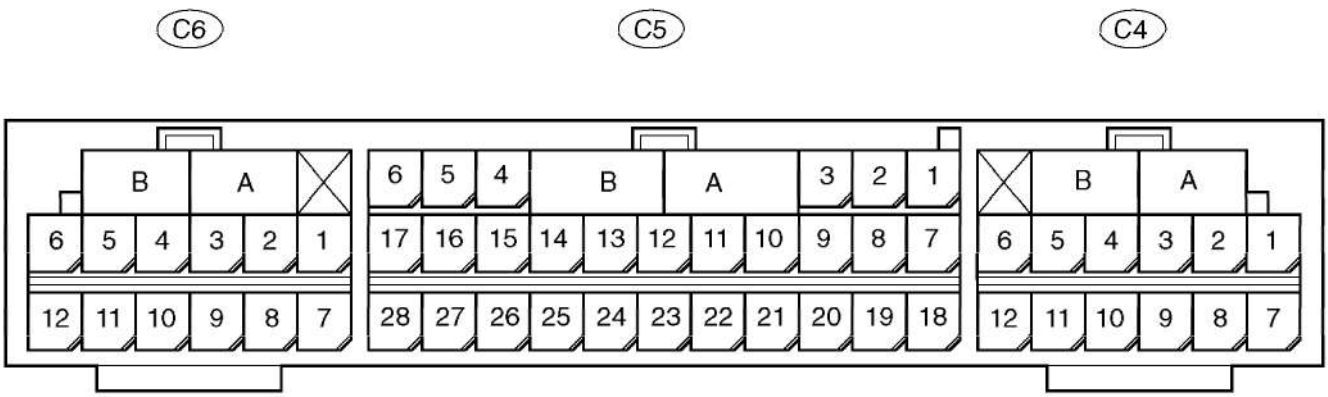
DI1N1-05

PARTS LOCATION



DI1N2–05

TERMINALS OF ECU



H01357

No.	Symbol	Terminal Name
A	–	Electrical Connector Check Mechanism
B	–	Electrical Connector Check Mechanism
C5 – 3	LA	SRS Warning Light
C5 – 5	IG2	Power Source (IGN Fuse)
C5 – 6	ACC	Power Source (CIG Fuse)
C5 – 9	SR+	Front Airbag Sensor (RH)
C5 – 10	P+	Squib (Passenger)
C5 – 11	P–	Squib (Passenger)
C5 – 12	SIL	Diagnosis
C5 – 13	D–	Squib (Driver)
C5 – 14	D+	Squib (Driver)
C5 – 15	SL+	Front Airbag Sensor (LH)
C5 – 19	Tc	Diagnosis
C5 – 20	SR–	Front Airbag Sensor (RH)
C5 – 26	SL–	Front Airbag Sensor (LH)
C5 – 27	E1	Ground
C5 – 28	E2	Ground
C4 – 1	SFL–	Squib (Side, LH)
C4 – 2	SFL+	Squib (Side, LH)
C4 – 5	PL+	Squib (Seat Belt Pretensioner, LH)
C4 – 6	PL–	Squib (Seat Belt Pretensioner, LH)
C4 – 7	ESL	Side Airbag Sensor (LH)
C4 – 9	FSL	Side Airbag Sensor (LH)
C4 – 10	SSL+	Side Airbag Sensor (LH)
C4 – 12	VUPL	Side Airbag Sensor (LH)

No.	Symbol	Terminal Name
C6 – 1	PR–	Squib (Seat Belt Pretensioner, RH)
C6 – 2	PR+	Squib (Seat Belt Pretensioner, RH)
C6 – 5	SFR+	Squib (Side, RH)
C6 – 6	SFR–	Squib (Side, RH)
C6 – 7	VUPR	Side Airbag Sensor (RH)
C6 – 9	SSR+	Side Airbag Sensor (RH)
C6 – 10	FSR	Side Airbag Sensor (RH)
C6 – 12	ESR	Side Airbag Sensor (RH)

DI164-07

PROBLEM SYMPTOMS TABLE

Proceed with troubleshooting of each circuit in the table below.

Symptom	Suspect Area	See page
• With the ignition switch in ACC or ON position, the SRS warning light sometimes lights up after approx. 6 seconds have elapsed. • SRS warning light is always lit up even when ignition switch is in the LOCK position.	• SRS warning light circuit (Always lights up when ignition switch is in LOCK position.)	DI–288
• With the ignition switch in ACC or ON position, the SRS warning light does not light up.	• SRS warning light circuit (Does not light up when ignition switch is turned to ACC or ON.)	DI–290
• DTC is not displayed. • SRS warning light is always lit up at the time of DTC check procedure. • DTC is displayed without Tc and E1 terminal connection.	• Tc terminal circuit	DI–294

DI33A–01

CIRCUIT INSPECTION

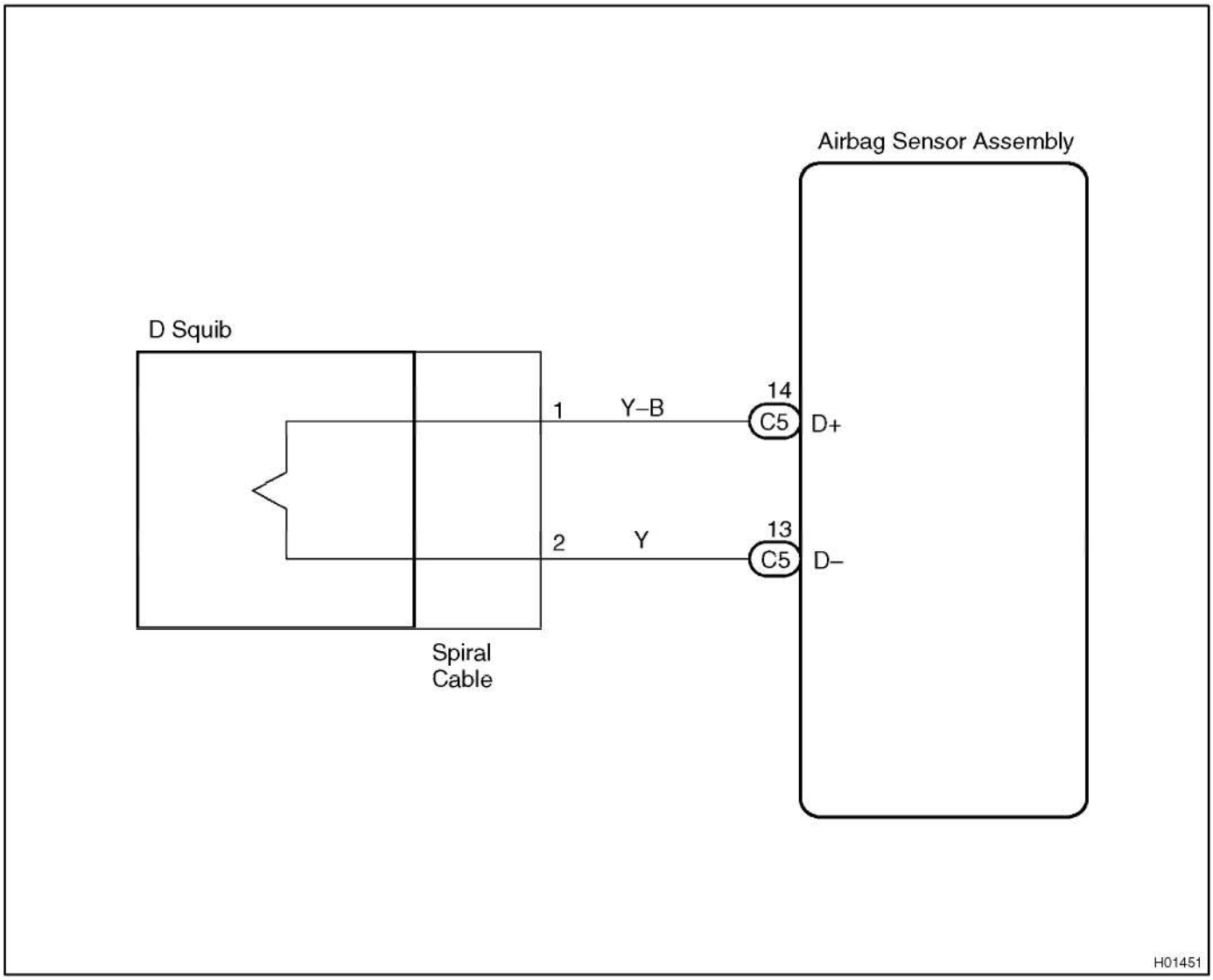
DTC	11	Short in D Squib Circuit (to Ground)

CIRCUIT DESCRIPTION

The D squib circuit consists of the airbag sensor assembly, spiral cable and steering wheel pad.
It causes the SRS to deploy when the SRS deployment conditions are satisfied.
For details of the function of each component, see OPERATION on page RS–2.
DTC 11 is recorded when a ground short is detected in the D squib circuit.

DTC No.	DTC Detecting Condition	Trouble Area
11	• Short circuit in D squib wire harness (to ground) • D squib malfunction • Spiral cable malfunction • Airbag sensor assembly malfunction	• Steering wheel pad (D squib) • Spiral cable • Airbag sensor assembly • Wire harness

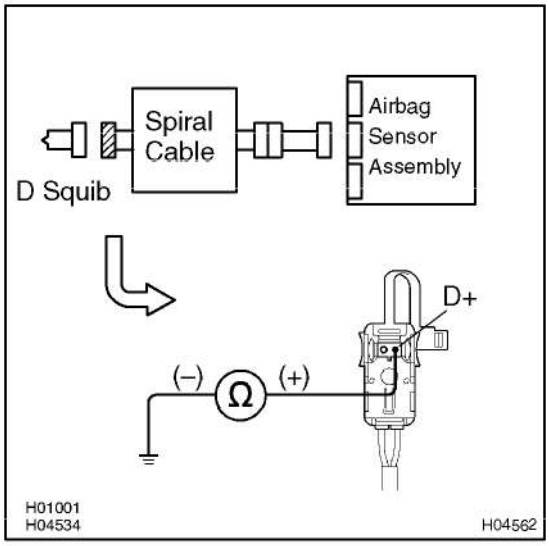
WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Prepare for inspection. (See step 1 on page DI–285)**

2	**Check D squib circuit.**



CHECK:

For the connector (on the spiral cable side) between the spiral cable and the steering wheel pad, measure the resistance between D+ and body ground.

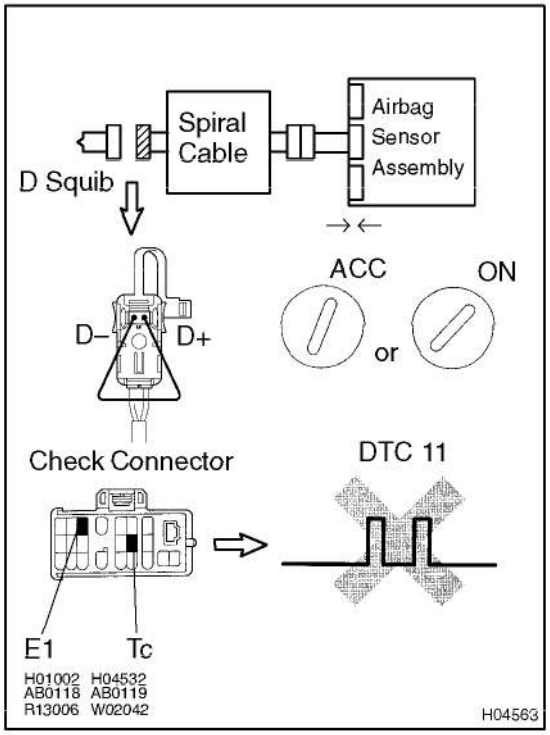
OK:

Resistance: 1 MΩ or Higher

NG	**Go to step 5.**

OK

3	Check airbag sensor assembly.



PREPARATION:

(a) Connect the connector to the airbag sensor assembly.
(b) Using a service wire, connect D+ and D– of the connector (on the spiral cable side) between the spiral cable and the steering wheel pad.
(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See step 5 on page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 11 is not output.

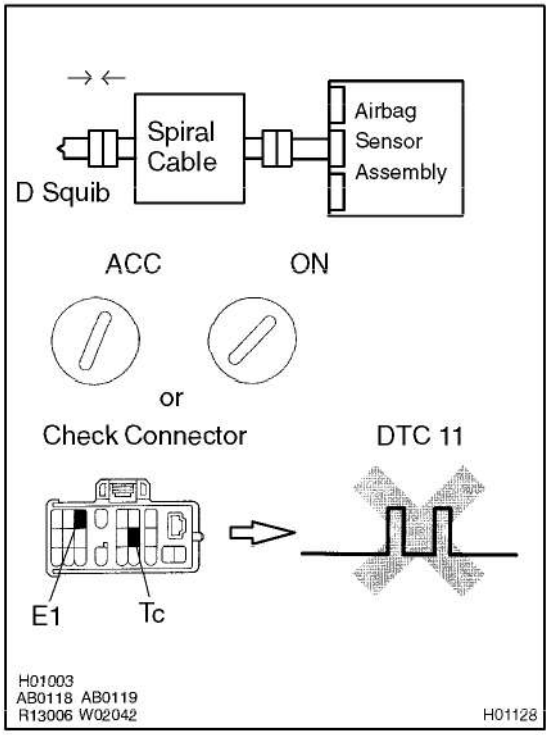
HINT:

Codes other than code 11 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

4	Check D squib.



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the steering wheel pad connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See step 5 on page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 11 is not output.

HINT:

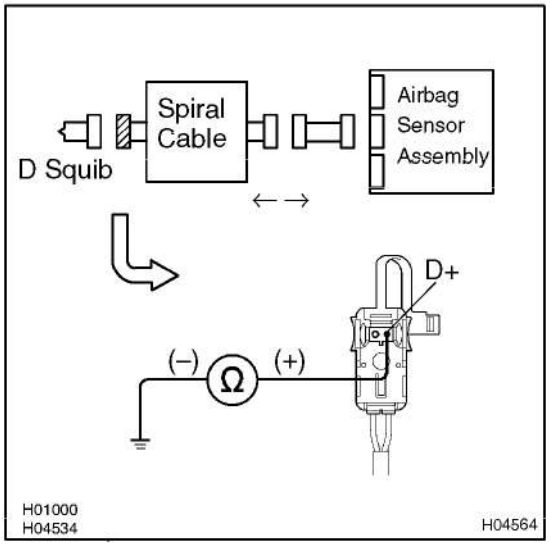
Codes other than code 11 may be output at this time, but they are not relevant to this check.

NG → **Replace steering wheel pad.**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check. If the malfunctioning part can not be detected by the simulation method, replace all SRS components including the wire harness.

5	Check spiral cable.



PREPARATION:

Disconnect the connector between the airbag sensor assembly and the spiral cable.

CHECK:

For the connector (on the spiral cable side) between the steering wheel pad and the spiral cable, measure the resistance between D+ and body ground.

OK:

Resistance: 1 MΩ or Higher

NG → **Repair or replace spiral cable.**

OK

Repair or replace harness or connector between airbag sensor assembly and spiral cable.

D03B–01

DTC	12	Short in D Squib Circuit (to B+)

CIRCUIT DESCRIPTION

The D squib circuit consists of the airbag sensor assembly, spiral cable and steering wheel pad.
It causes the SRS to deploy when the SRS deployment conditions are satisfied.
For details of the function of each component, see page OPERATION on page RS–2.
DTC 12 is recorded when a B+ short is detected in the D squib circuit.

DTC No.	DTC Detecting Condition	Trouble Area
12	• Short circuit in D squib wire harness (to B+) • D squib malfunction • Spiral cable malfunction • Airbag sensor assembly malfunction	• Steering wheel pad (D squib) • Spiral cable • Airbag sensor assembly • Wire harness

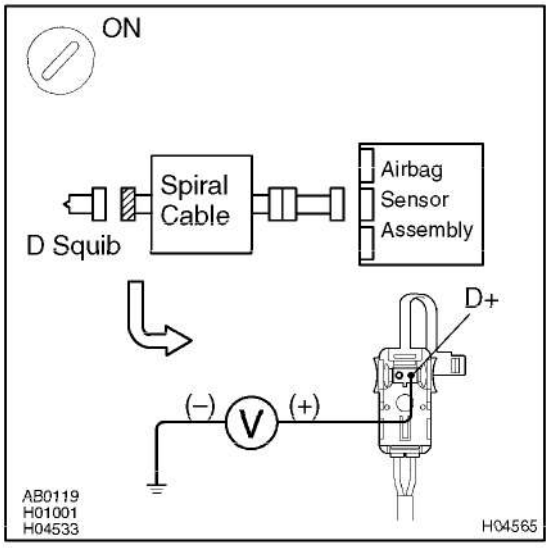
WIRING DIAGRAM

See page DI–165.

INSPECTION PROCEDURE

1	Prepare for inspection. (See step 1 on page DI–285)

2	Check D squib circuit.



CHECK:

(a) Turn ignition switch to ON.

(b) For the connector (on the spiral cable side) between the spiral cable and the steering wheel pad, measure the voltage between D+ and body ground.

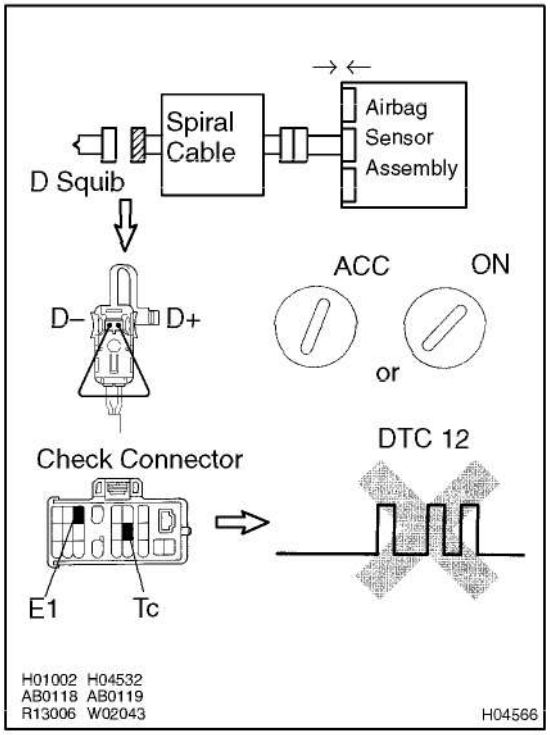
OK:

Voltage: 0 V

NG → **Go to step 5.**

OK

3	Check airbag sensor assembly.



PREPARATION:

(a) Connect the connector to the airbag sensor assembly.
(b) Using a service wire, connect D+ and D– of the connector (on the spiral cable side) between the spiral cable and the steering wheel pad.
(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See step 5 on page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 12 is not output.

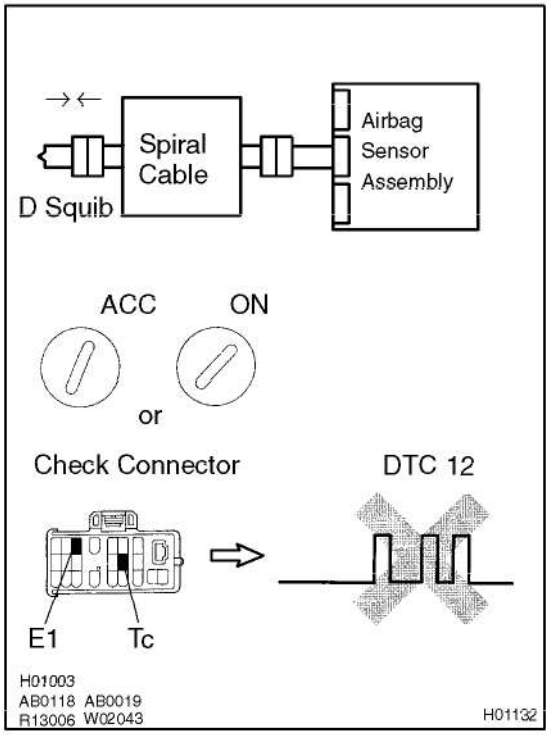
HINT:

Codes other than code 12 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

4	Check D squib.



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the steering wheel pad connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See step 5 on page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 12 is not output.

HINT:

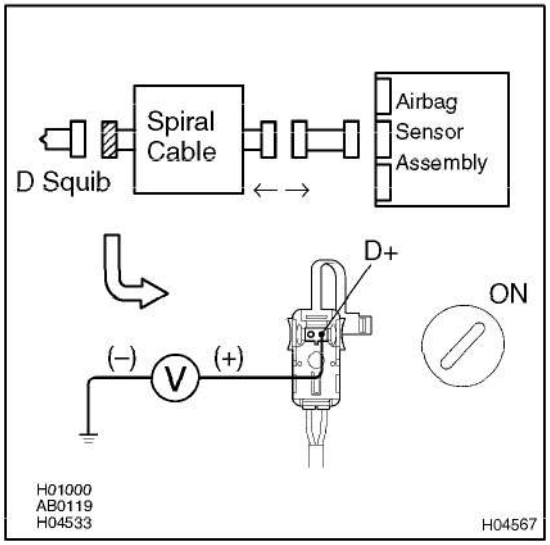
Codes other than code 12 may be output at this time, but they are not relevant to this check.

NG → **Replace steering wheel pad.**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check. If the malfunctining part can not be detected by the simulation method, replace all SRS components including wire harness.

5	Check spiral cable.



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect the connector between the airbag sensor assembly and the spiral cable.
(c) Turn ignition switch ON.

CHECK:

For the connector (on the spiral cable side) between the spiral cable and the steering wheel pad, measure the voltage between D+ and body ground.

OK:

Voltage: 0 V

NG → **Repair or replace spiral cable.**

OK →

Repair or replace harness or connector between airbag sensor assembly and spiral cable.

D030-01

DTC	13	Short in D Squib Circuit

CIRCUIT DESCRIPTION

The D squib circuit consists of the airbag sensor assembly, spiral cable and steering wheel pad.
It causes the airbag to deploy when the airbag deployment conditions are satisfied.
For details of the function of each component, see OPERATION on page RS–2.
DTC 13 is recorded when a short is detected in the D squib circuit.

DTC No.	DTC Detecting Condition	Trouble Area
13	• Short circuit between D+ wire harness and D– wire harness of squib • D squib malfunction • Spiral cable malfunction • Airbag sensor assembly malfunction	• Steering wheel pad (D squib) • Spiral cable • Airbag sensor assembly • Wire harness

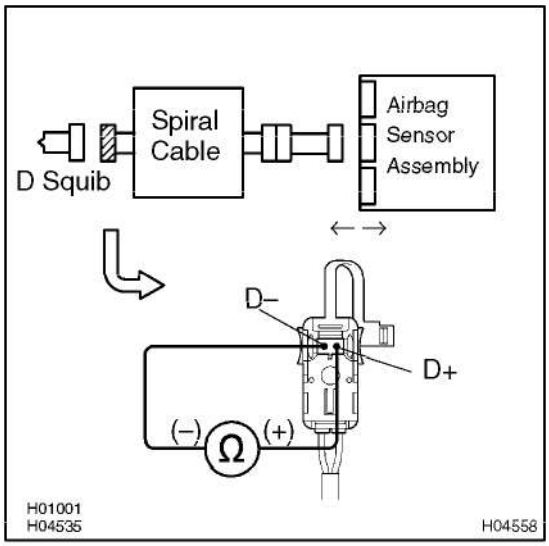
WIRING DIAGRAM

See page DI–165.

INSPECTION PROCEDURE

1	Prepare for inspection. (See step 1 on page DI–285)

2	Check D squib circuit.



PREPARATION:
Release airbag activation prevention mechanism of the connector (on the airbag sensor assembly side) between the airbag sensor assembly and the spiral cable.
(See page DI–152)

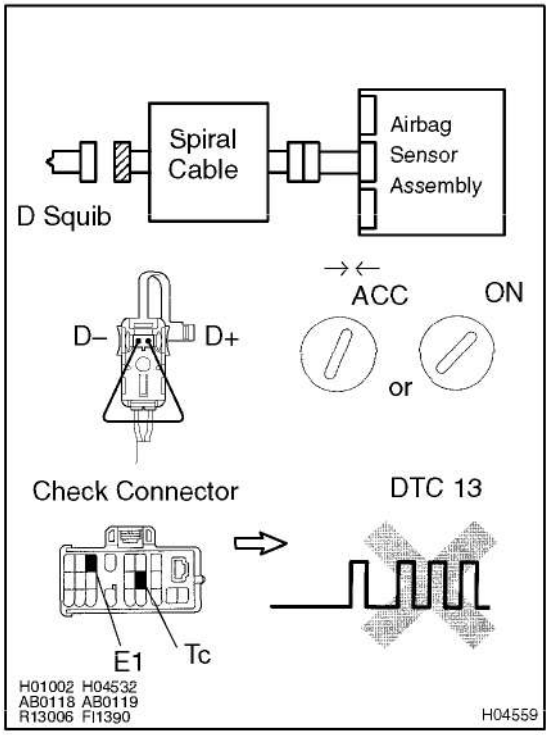
CHECK:
For the connector (on the spiral cable side) between the spiral cable and the steering wheel pad, measure the resistance between D+ and D–.

OK:
Resistance: 1 MΩ or Higher

NG	Go to step 5.

OK

3	Check airbag sensor assembly.



PREPARATION:

(a) Connect the connector to the airbag sensor assembly.
(b) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 13 is not output.

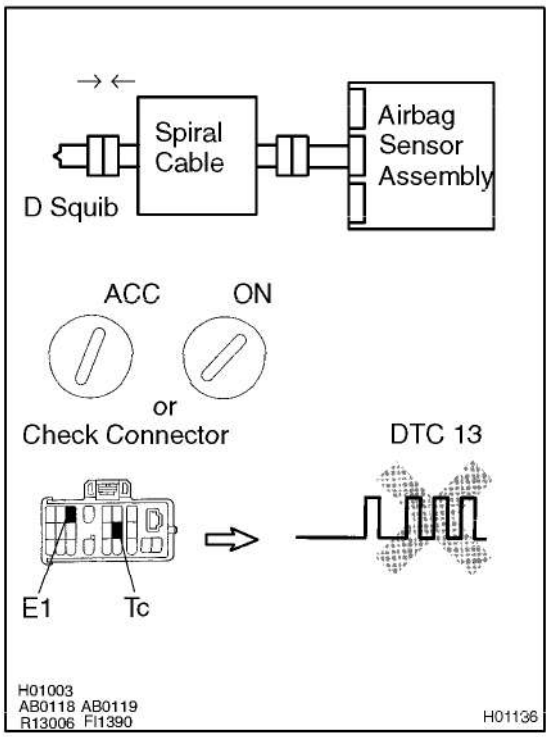
HINT:

Codes other than code 13 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

4	Check D squib.



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the steering wheel pad connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(b) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(c) Clear DTC stored in memory.
(See page DI–152)
(d) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(e) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(f) Check DTC.
(See page DI–152)

OK:

DTC 13 is not output.

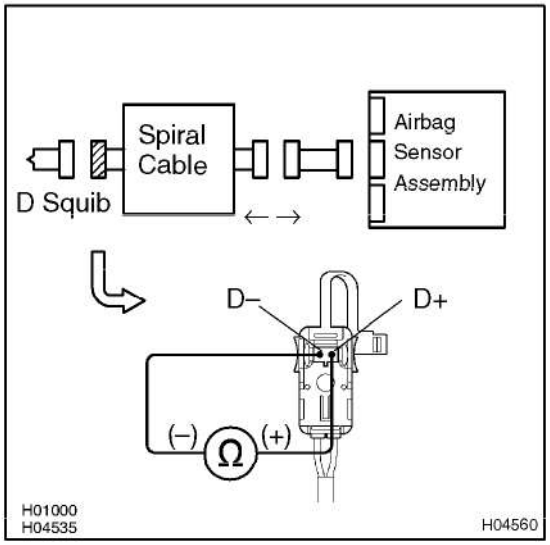
HINT:
Codes other than code 13 may be output at this time, but they are not relevant to this check.

NG → **Replace steering wheel pad.**

OK →

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

5	Check spiral cable.



PREPARATION:

(a) Disconnect the connector between the airbag sensor assembly and the spiral cable.

(b) Release airbag activation prevention mechanism of the spiral cable connector on the airbag sensor assembly side. (See page DI–152)

CHECK:

For the connector (on the spiral cable side) between the spiral cable and the steering wheel pad, measure the resistance between D+ and D–.

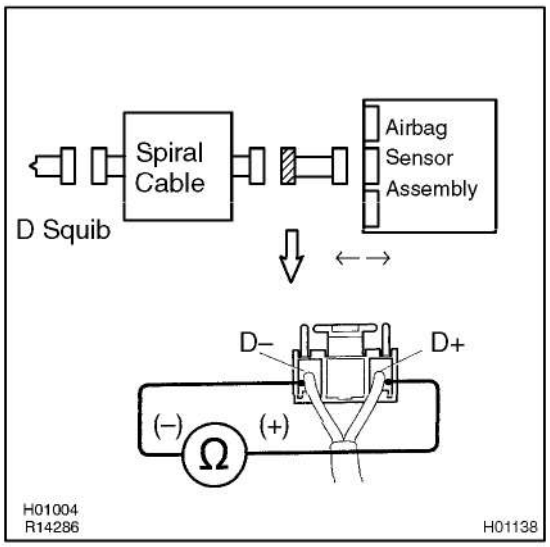
OK:

Resistance: 1 MΩ or Higher

NG	Repair or replace spiral cable.

OK

6	Check harness between airbag sensor assembly and spiral cable.



PREPARATION:

Release airbag activation prevention mechanism of the connector (on the airbag sensor assembly side) between the airbag sensor assembly and the spiral cable. (See page DI–152)

CHECK:

For the connector (on the spiral cable side) between the airbag sensor assembly and the spiral cable, measure the resistance between D+ and D–.

OK:

Resistance: 1 MΩ or Higher

NG	Repair or replace harness or connector between airbag sensor assembly and spiral cable.

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

D03D–01

DTC	14	Open in D Squib Circuit

CIRCUIT DESCRIPTION

The D squib circuit consists of the airbag sensor assembly, spiral cable and steering wheel pad.
It causes the airbag to deploy when the airbag deployment conditions are satisfied.
For details of the function of each component, see OPERATION on page RS–2.
DTC 14 is recorded when an open is detected in the D squib circuit.

DTC No.	DTC Detecting Condition	Trouble Area
14	• Open circuit in D+ wire harness or D– wire harness of squib • D squib malfunction • Spiral cable malfunction • Airbag sensor assembly malfunction	• Steering wheel pad (D squib) • Spiral cable • Airbag sensor assembly • Wire harness

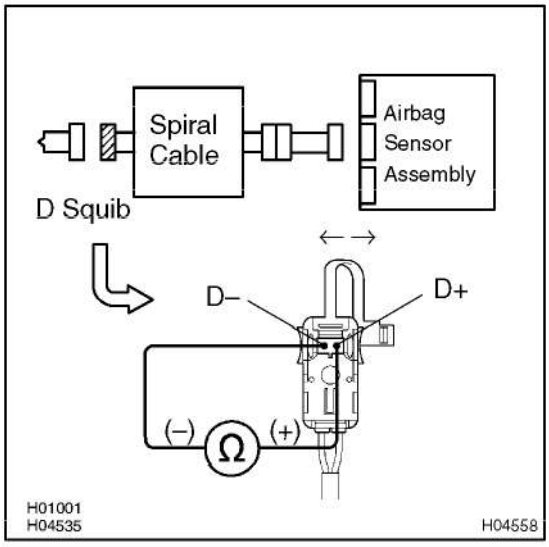
WIRING DIAGRAM

See page DI–165.

INSPECTION PROCEDURE

1	Prepare for inspection. (See step 1 on page DI–285)

2	Check D squib circuit.

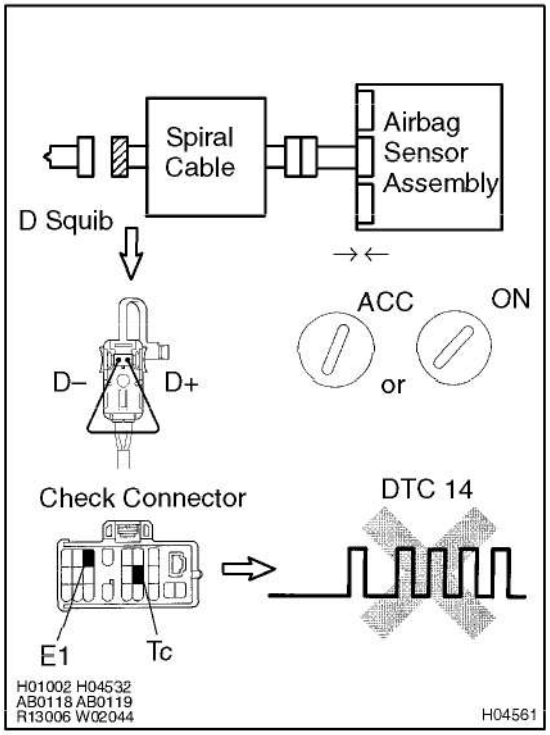


CHECK:
For the connector (on the spiral cable side) between the spiral cable and the steering wheel pad, measure the resistance between D+ and D–.
OK:
Resistance: Below 1 Ω

NG → **Go to step 5.**

OK

3	Check airbag sensor assembly.



PREPARATION:

(a) Connect the connector to the airbag sensor assembly.
(b) Using a service wire, connect D+ and D– of the connector (on the spiral cable side) between the spiral cable and the steering wheel pad.
(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 14 is not output.

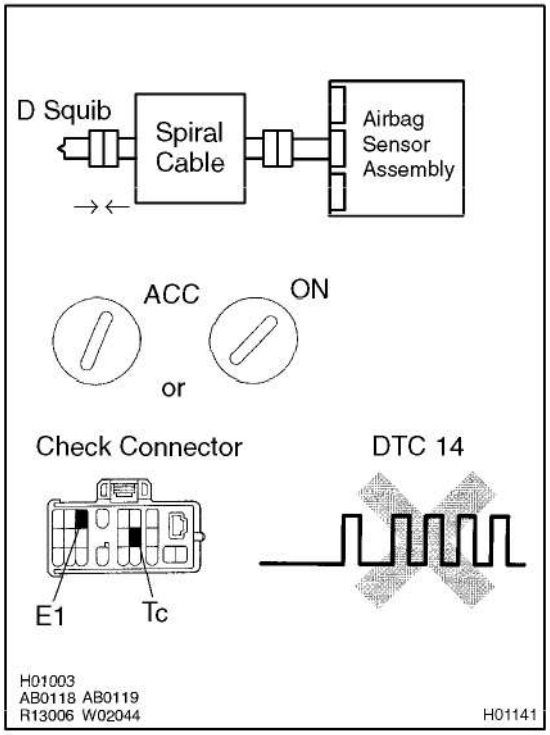
HINT:

Codes other than code 14 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

4	Check D squib.



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the steering wheel pad connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 14 is not output.

HINT:

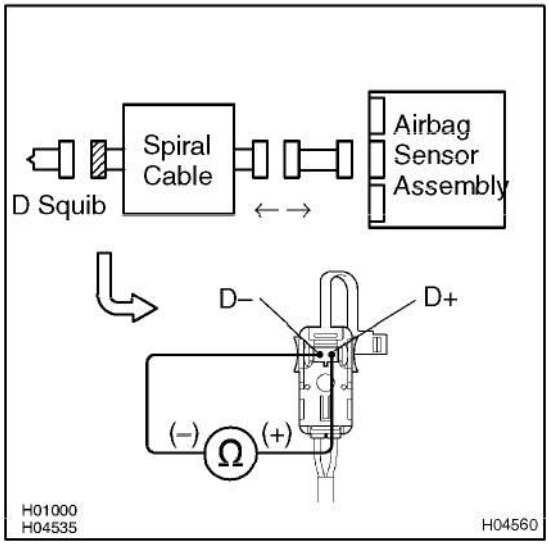
Codes other than code 14 may be output at this time, but they are not relevant to this check.

NG → **Replace steering wheel pad.**

OK →

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

5	Check spiral cable.



PREPARATION:
Disconnect the connector between the airbag sensor assembly and the spiral cable.

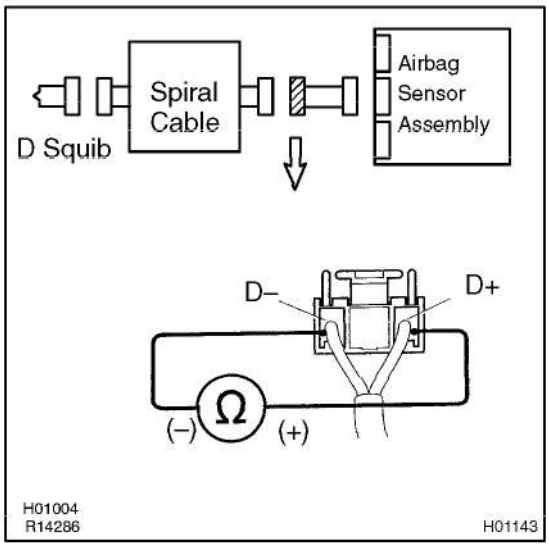
CHECK:
For the connector (on the spiral cable side) between the spiral cable and the steering wheel pad, measure the resistance between D+ and D–.

OK:
Resistance: Below 1 Ω

NG	Repair or replace spiral cable.

OK

6	Check harness between airbag sensor assembly and spiral cable.



CHECK:
For the connector (on the spiral cable side) between the airbag sensor assembly and the spiral cable, measure the resistance between D+ and D–.

OK:
Resistance: Below 1 Ω

NG	Repair or replace harness or connector between airbag sensor assembly and spiral cable.

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

D03E–01

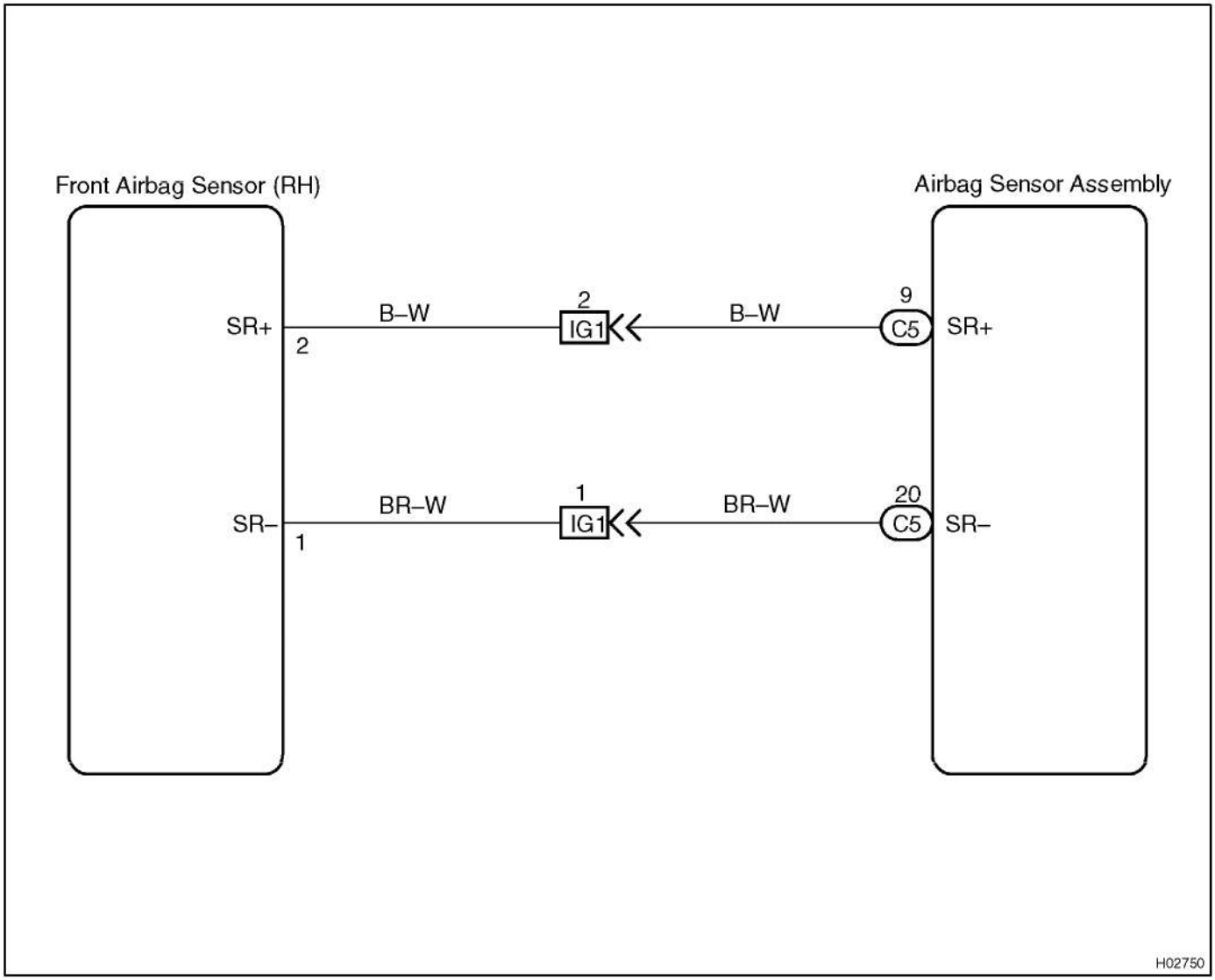
DTC	15	Front Airbag Sensor (RH) Malfunction

CIRCUIT DESCRIPTION

The front airbag sensor (RH) circuit consists of the airbag sensor assembly and front airbag sensor (RH).
For details of the function of each component, see OPERATION on page RS–2.
DTC 15 is recorded when malfunction is detected in the front airbag sensor (RH) circuit.

DTC No.	DTC Detecting Condition	Trouble Area
15	• Front airbag sensor (RH) malfunction	• Front airbag sensor (RH) • Wire harness • Relay harness

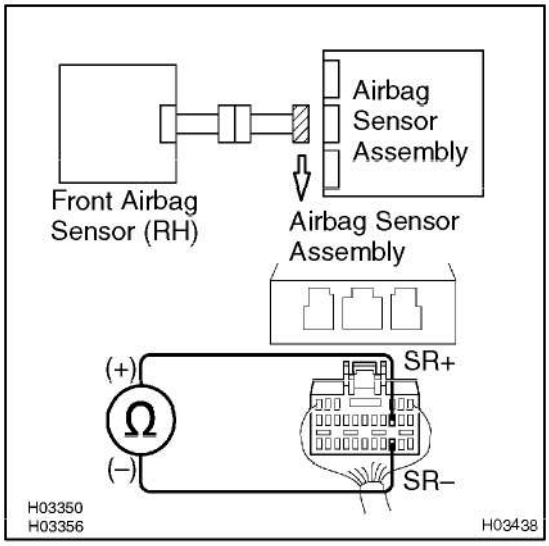
WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Prepare for inspection. (See step 1 on page DI–285)**

2	**Check front airbag sensor (RH) circuit.**



CHECK:

For the connector (on the airbag sensor assembly side) between the front airbag sensor (RH) and the airbag sensor assembly, measure the resistance between SR+ and SR–.

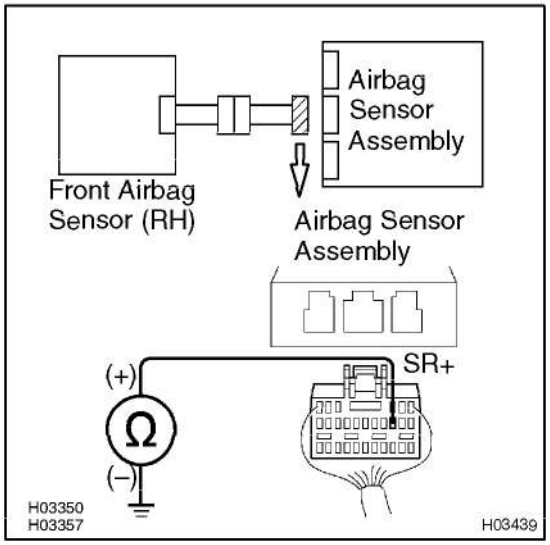
OK:

Resistance: 754 – 886 Ω

NG → **Go to step 6.**

OK

3	Check front airbag sensor (RH) circuit (to ground).



CHECK:

For the connector (on the airbag sensor assembly side) between the front airbag sensor (RH) and the airbag sensor assembly, measure the resistance between SR+ and body ground.

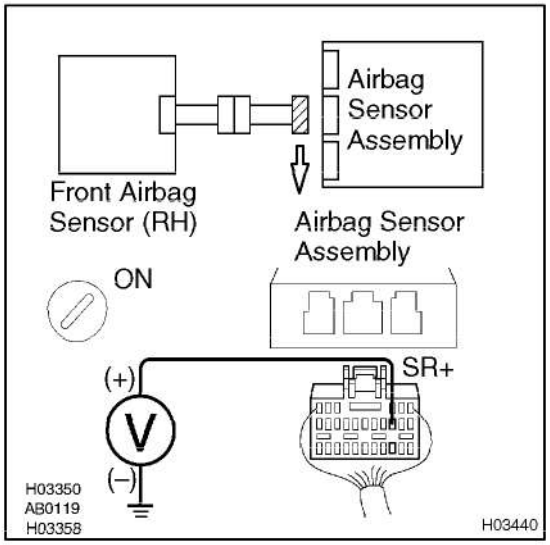
OK:

Resistance: 1 MΩ or Higher

NG → **Go to step 9.**

OK

4	Check front airbag sensor (RH) circuit (to B+).



PREPARATION:

(a) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

(b) Turn ignition switch to ON.

CHECK:

For the connector (on the airbag sensor assembly side) between the front airbag sensor (RH) and the airbag sensor assembly, measure the voltage between SR+ and body ground.

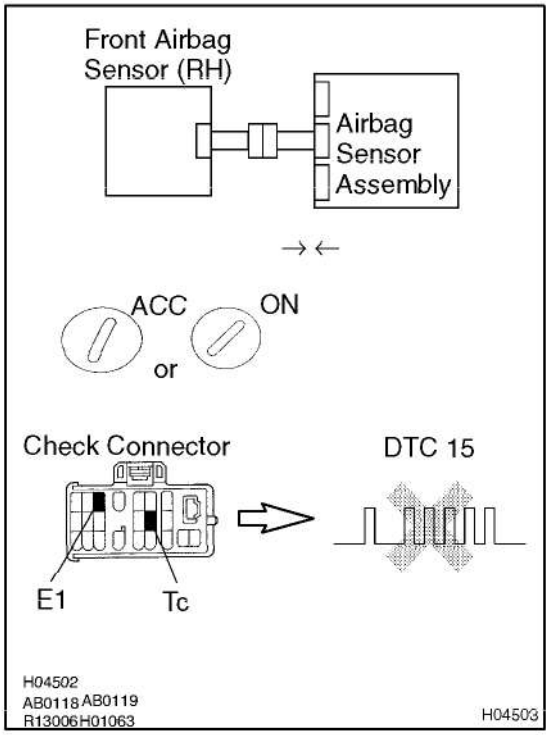
OK:

Voltage: Below 1 V

NG → **Go to step 11.**

OK

5	**Check airbag sensor assembly.**



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the front airbag sensor (RH) connector and airbag sensor assembly connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 15 is not output.

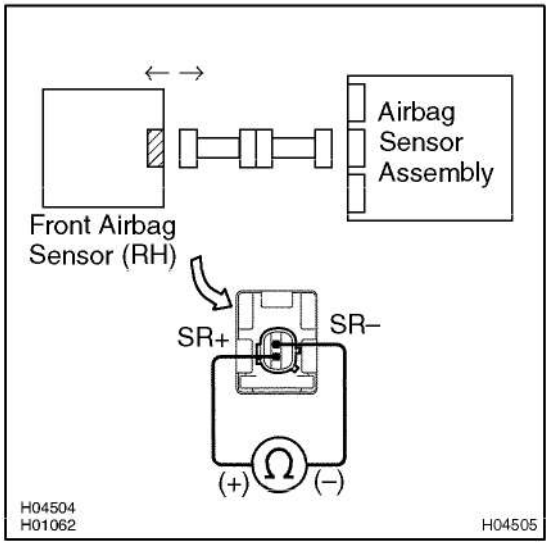
HINT:
Codes other than DTC 15 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

6	Check front airbag sensor (RH).

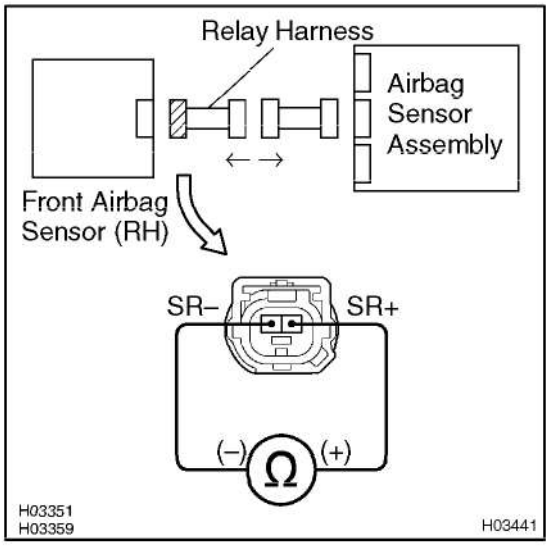


PREPARATION:
Disconnect the front airbag sensor connector (RH).
CHECK:
For the connector (on the front airbag sensor side), measure the resistance between SR+ and SR–.
OK:
Resistance: 754 – 886 Ω

NG → **Replace front airbag sensor (RH).**

OK

7	Check relay harness.

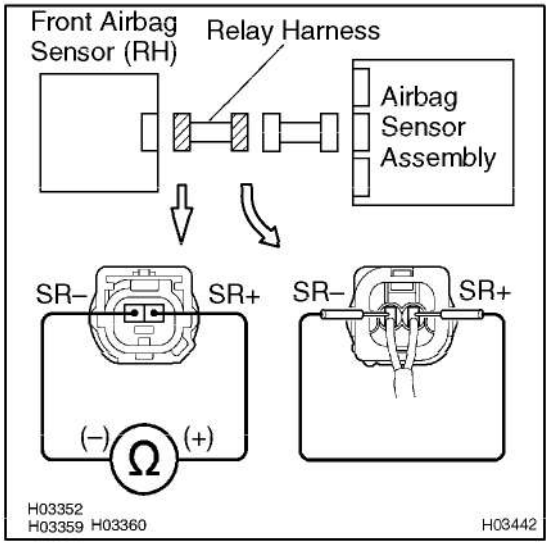


PREPARATION:
Disconnect the relay harness connector on the airbag sensor assembly side.
CHECK:
For the connector (on the relay harness side) between the front airbag sensor (RH) and the relay harness, measure the resistance between SR+ and SR–.
OK:
Resistance: 1 MΩ or Higher

NG → **Repair or replace relay harness.**

OK

8	Check relay harness.



PREPARATION:

Using service wire, connect SR+ and SR– of the connector (on the relay harness side), between the airbag sensor assembly and the relay harness.

CHECK:

For the connector (on the relay harness side) between the front airbag sensor (RH) and the relay harness, measure the resistance between SR+ and SR–.

OK:

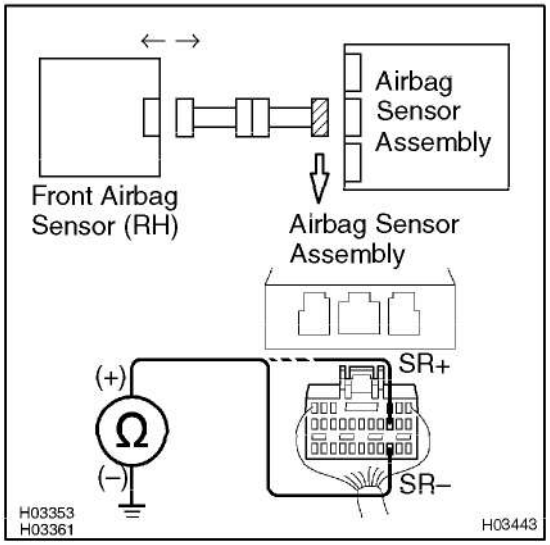
Resistance: Below 1 Ω

NG → **Repair or replace relay harness.**

OK →

Repair or replace harness or connector between airbag sensor assembly and relay harness.

9	Check wire harness (to ground).

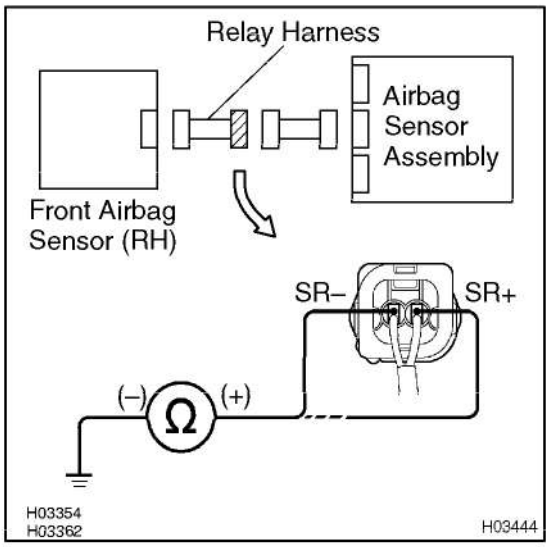


PREPARATION:
Disconnect the front airbag sensor connector (RH).
CHECK:
For the connector (on the airbag sensor assembly side) between the front airbag sensor (RH) and the airbag sensor assembly, measure the resistance between body ground and each of SR+ and SR–.
OK:
Resistance: 1 MΩ or Higher

OK	Replace front airbag sensor (RH).

NG

10	Check relay harness (to ground).



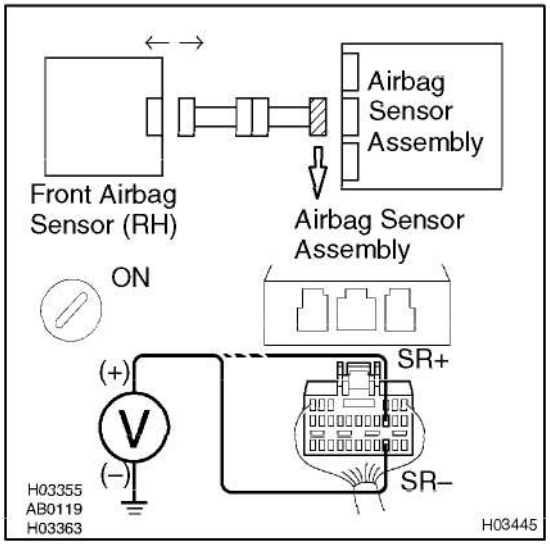
PREPARATION:
Disconnect the relay harness connector on the airbag sensor assembly side.
CHECK:
For the connector (on the relay harness side) between the front airbag sensor (RH) and the relay harness, measure the resistance between body ground and each of SR+ and SR–.
OK:
Resistance: Below 1 MΩ or Higher

NG	Repair or replace relay harness.

OK

Repair or replace harness or connector between airbag sensor assembly and relay harness.

11	Check wire harness (to B+).



PREPARATION:

(a) Disconnect the front airbag sensor connector (RH).

(b) Turn ignition switch to ON.

CHECK:

For the connector (on the airbag sensor assembly side) between the front airbag sensor (RH) and the airbag sensor assembly, measure the voltage between body ground and each of SR+ and SR–.

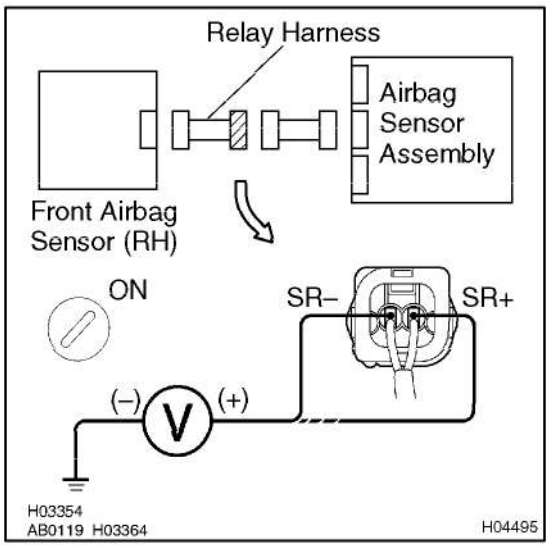
OK:

Voltage: Below 1 V

OK	Replace front airbag sensor (RH).

NG

12	Check relay harness (to B+).



PREPARATION:

Disconnect the relay harness connector on the airbag sensor assembly side.

CHECK:

For the connector (on the relay harness side) between the front airbag sensor (RH) and the relay harness, measure the voltage between body ground and each of SR+ and SR–.

OK:

Voltage: Below 1 V

NG	Repair or replace relay harness.

OK

Repair or replace harness or connector between airbag sensor assembly and relay harness.

D03F–01

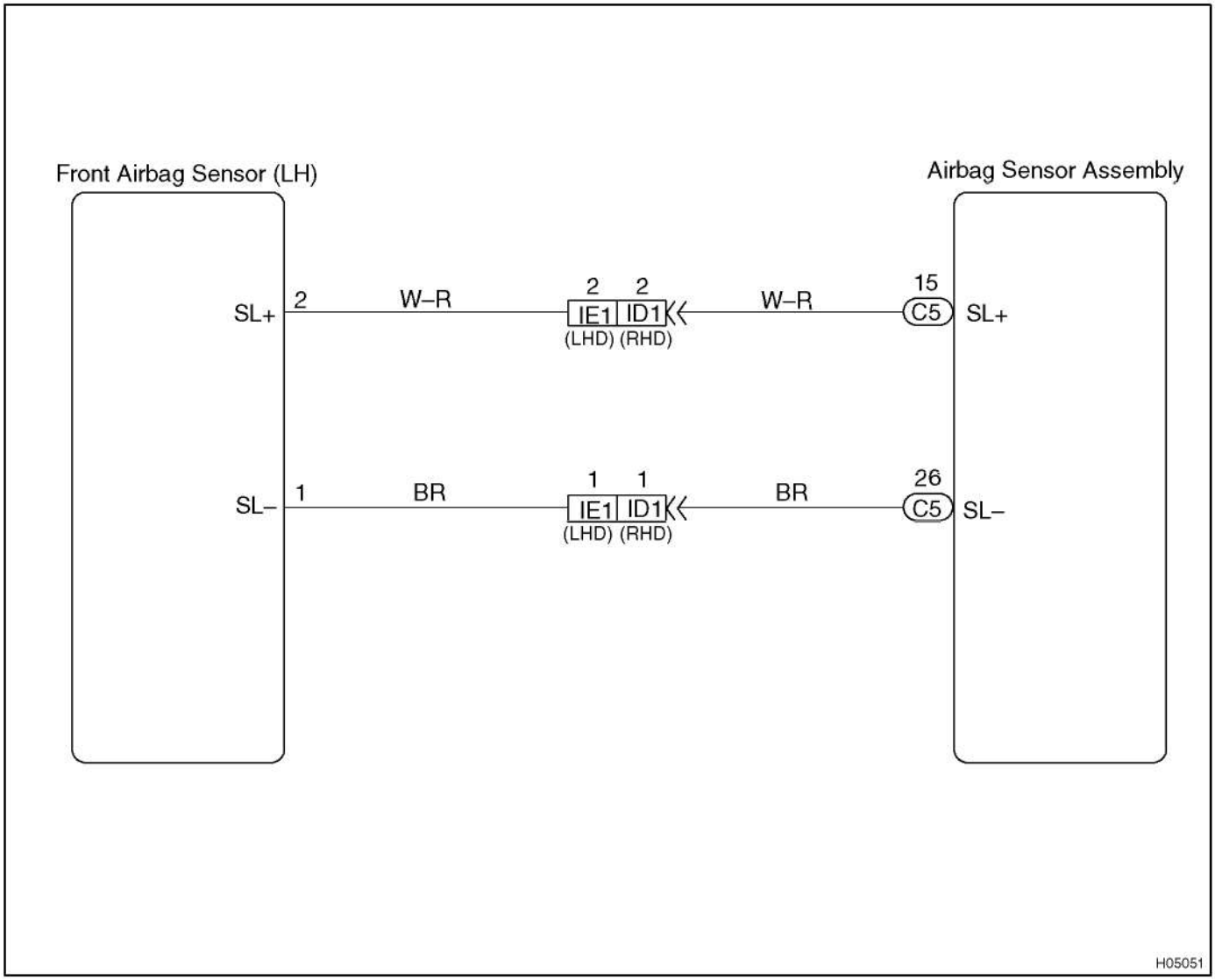
DTC	16	Front Airbag Sensor (LH) Malfunction

CIRCUIT DESCRIPTION

The front airbag sensor (LH) circuit consists of the airbag sensor assembly and front airbag sensor (LH).
For details of the function of each component, see OPERATION on page RS–2.
DTC 16 is recorded when malfunction is detected in the front airbag sensor (LH) circuit.

DTC No.	DTC Detecting Condition	Trouble Area
16	• Front airbag sensor (LH) malfunction	• Front airbag sensor (LH) • Wire harness • Relay harness

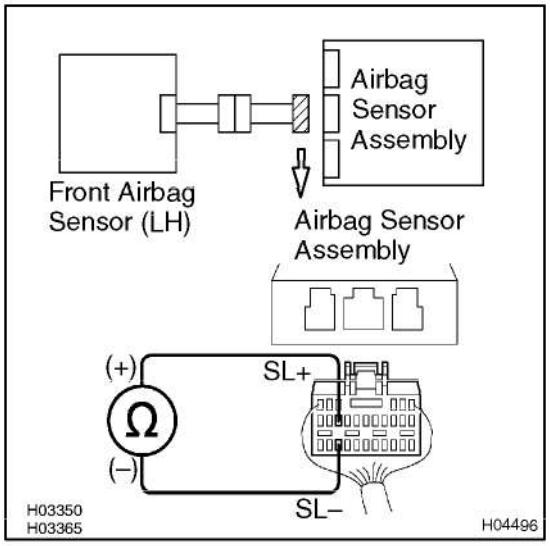
WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Prepare for inspection. (See step 1 on page DI–285)**

2	**Check front airbag sensor (LH) circuit.**



CHECK:

For the connector (on the airbag sensor assembly side) between the front airbag sensor (LH) and the airbag sensor assembly, measure the resistance between SL+ and SL–.

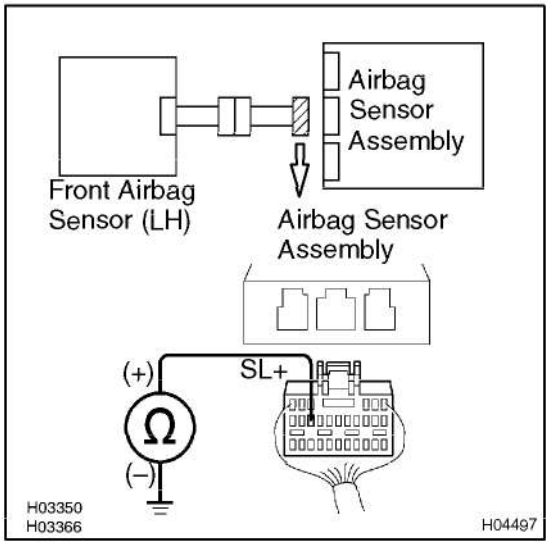
OK:

Resistance: 754 – 886 Ω

NG → **Go to step 6.**

OK

3	Check front airbag sensor (LH) circuit (to ground).



CHECK:

For the connector (on the airbag sensor assembly side) between the front airbag sensor (LH) and the airbag sensor assembly, measure the resistance between SL+ and body ground.

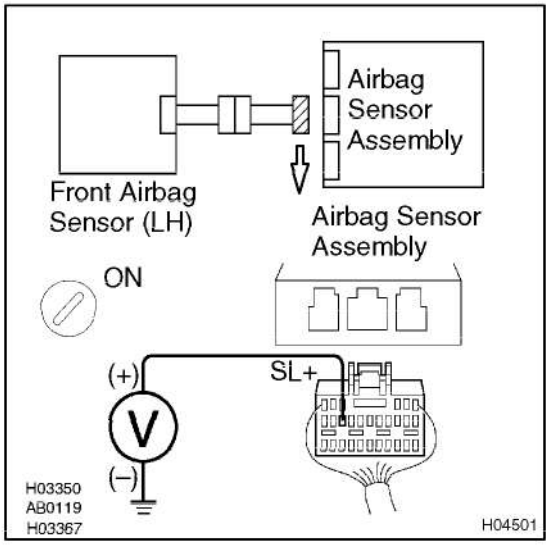
OK:

Resistance: 1 MΩ or Higher

NG → **Go to step 9.**

OK

4	Check front airbag sensor (LH) circuit (to B+).



PREPARATION:

(a) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

(b) Turn ignition switch to ON.

CHECK:

For the connector (on the airbag sensor assembly side) between the front airbag sensor (LH) and the airbag sensor assembly, measure the voltage between SL+ and body ground.

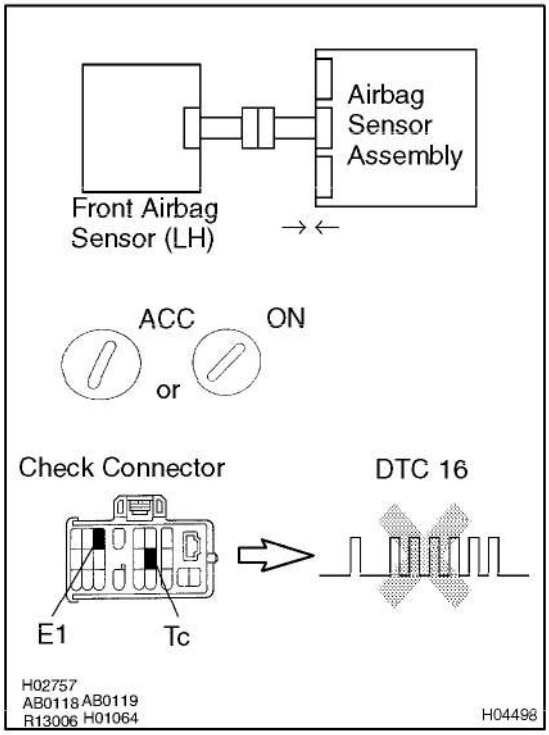
OK:

Voltage: Below 1 V

NG → **Go to step 11.**

OK

5	Check airbag sensor assembly.



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the front airbag sensor (LH) connector and airbag sensor assembly connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 16 is not output.

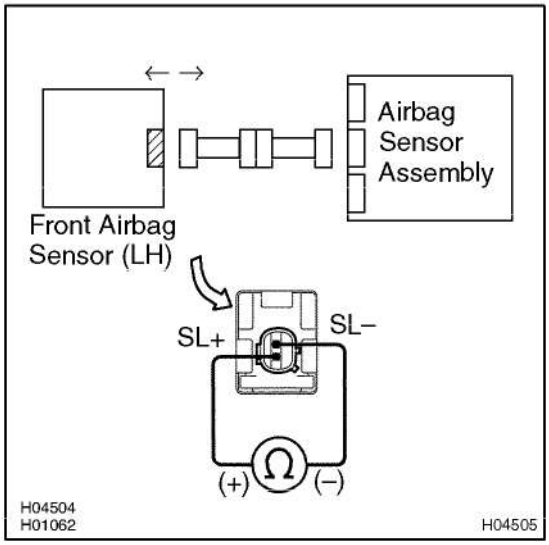
HINT:
Codes other than DTC 16 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

6	Check front airbag sensor (LH).

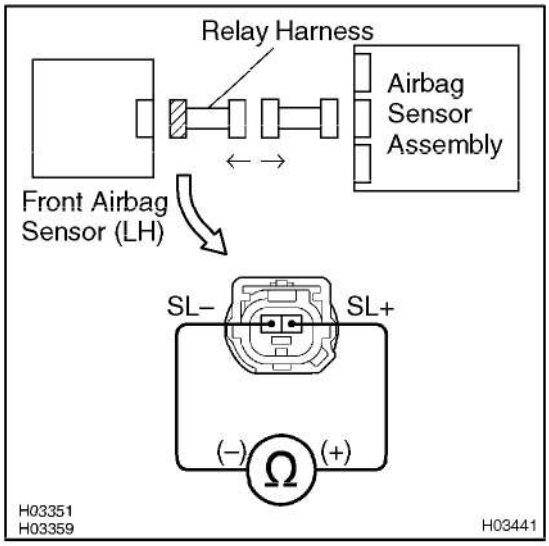


PREPARATION:
Disconnect the front airbag sensor connector (LH).
CHECK:
For the connector (on the front airbag sensor side), measure the resistance between SL+ and SL–.
OK:
Resistance: 754 – 886 Ω

NG → **Replace front airbag sensor (LH).**

OK

7	Check relay harness.

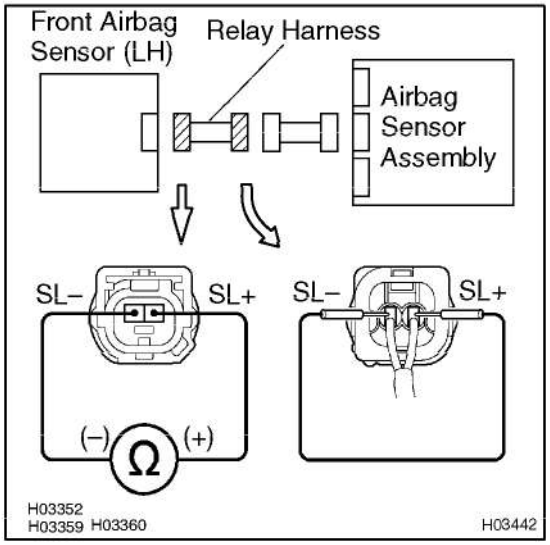


PREPARATION:
Disconnect the relay harness connector on the airbag sensor assembly side.
CHECK:
For the connector (on the relay harness side) between the front airbag sensor (LH) and the relay harness, measure the resistance between SL+ and SL–.
OK:
Resistance: 1 MΩ or Higher

NG → **Repair or replace relay harness.**

OK

8	Check relay harness.



PREPARATION:

Using service wire, connect SL+ and SL– of the connector (on the relay harness side), between the airbag sensor assembly and the relay harness.

CHECK:

For the connector (on the relay harness side) between the front airbag sensor (LH) and the relay harness, measure the resistance between SL+ and SL–.

OK:

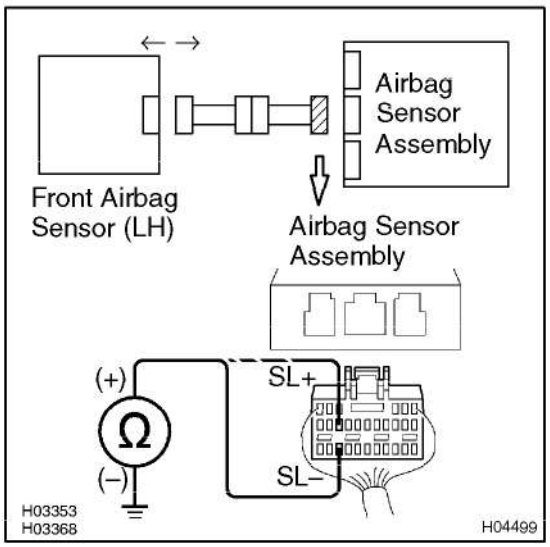
Resistance: Below 1 Ω

NG → **Repair or replace relay harness.**

OK

Repair or replace harness or connector between airbag sensor assembly and relay harness.

9	Check wire harness (to ground).

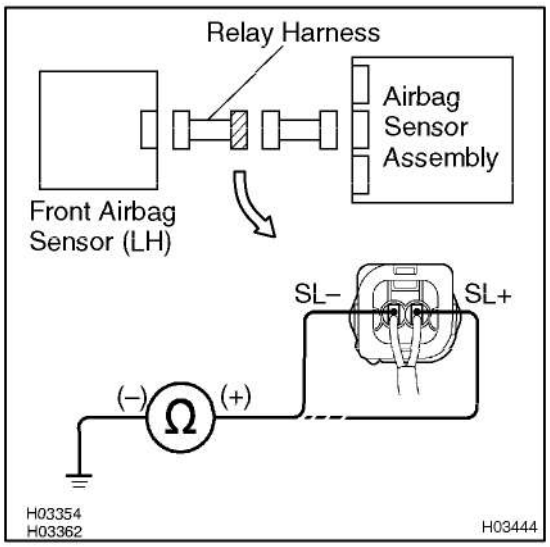


PREPARATION:
Disconnect the front airbag sensor connector (LH).
CHECK:
For the connector (on the airbag sensor assembly side) between the front airbag sensor (LH) and the airbag sensor assembly, measure the resistance between body ground and each of SL+ and SL–.
OK:
Resistance: 1 MΩ or Higher

OK	Replace front airbag sensor (LH).

NG

10	Check relay harness (to ground).



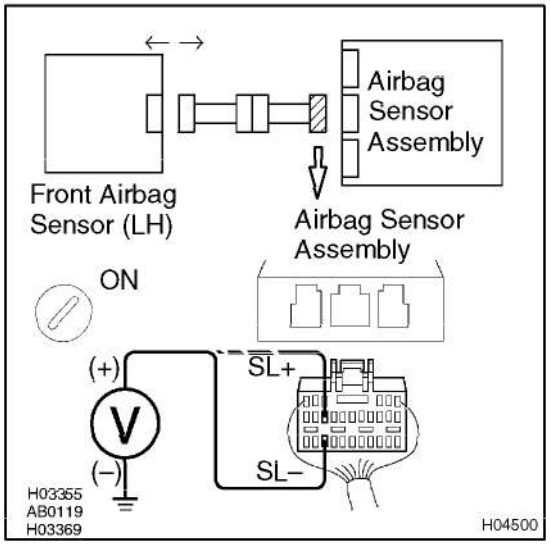
PREPARATION:
Disconnect the relay harness connector on the airbag sensor assembly side.
CHECK:
For the connector (on the relay harness side) between the front airbag sensor (LH) and the relay harness, measure the resistance between body ground and each of SL+ and SL–.
OK:
Resistance: Below 1 MΩ or Higher

NG	Repair or replace relay harness.

OK

Repair or replace harness or connector between airbag sensor assembly and relay harness.

11	Check wire harness (to B+).

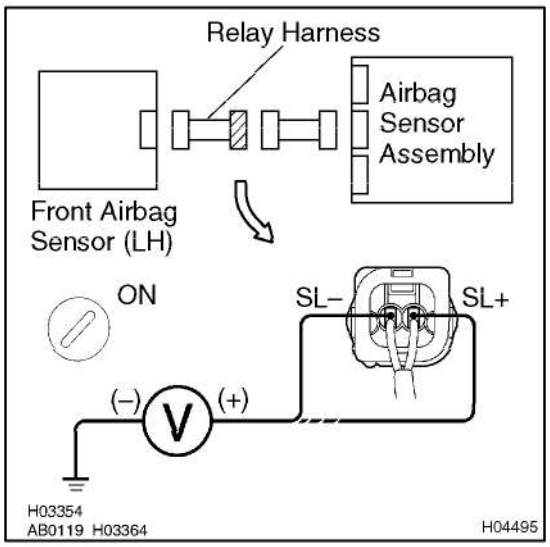


PREPARATION:
Disconnect the front airbag sensor connector (LH).
CHECK:
For the connector (on the airbag sensor assembly side) between the front airbag sensor (LH) and the airbag sensor assembly, measure the voltage between body ground and each of SL+ and SL–.
OK:
Voltage: Below 1 V

NG → **Replace front airbag sensor (LH).**

OK

12	Check relay harness (to B+).



PREPARATION:
Disconnect the relay harness connector on the airbag sensor assembly side.
CHECK:
For the connector (on the relay harness side) between the front airbag sensor (LH) and the relay harness, measure the voltage between body ground and each of SL+ and SL–.
OK:
Voltage: Below 1 V

NG → **Repair or replace relay harness.**

OK

Repair or replace harness or connector between airbag sensor assembly and relay harness.

D03G–01

DTC	31	Airbag Sensor Assembly Malfunction

CIRCUIT DESCRIPTION

The airbag sensor assembly consists of a airbag sensor, safing sensor, drive circuit, diagnosis circuit and ignition control, etc.
It receives signals from the airbag sensor, judges whether or not the SRS must be activated, and detects diagnosis system malfunction.
DTC 31 is recorded when occurrence of a malfunction in the airbag sensor assembly is detected.

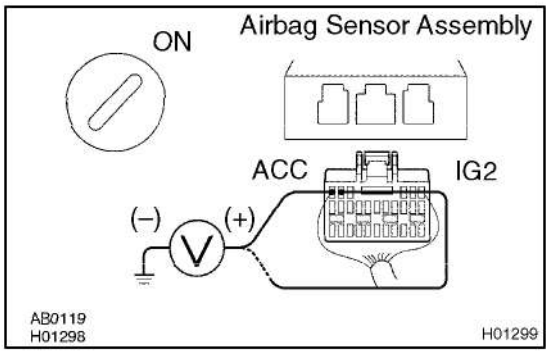
DTC No.	DTC Detecting Condition	Trouble Area
31	• Airbag sensor assembly malfunction	• Airbag sensor assembly

INSPECTION PROCEDURE

HINT:
When a malfunction code other than code 31 is displayed at the same time, first repair the malfunction indicated by the malfunction code other than code 31.

1	**Prepare for inspection. (See step 1 on page DI–285)**

2	**Check voltage at IG2 and ACC of airbag sensor assembly.**

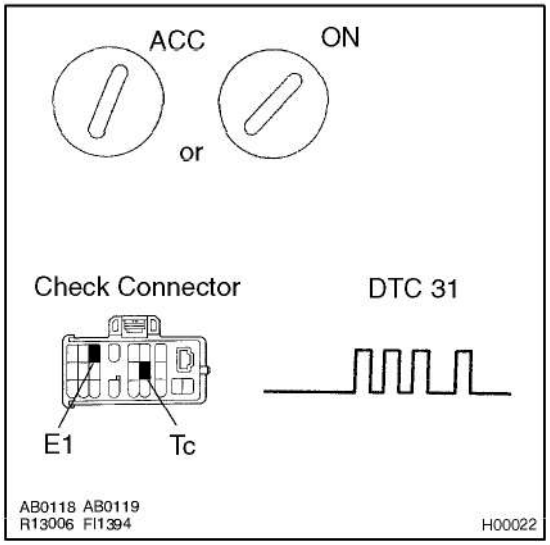


PREPARATION:
Turn ignition switch ON.
CHECK:
Measure the voltage between body ground and each of terminals IG2 and ACC of the airbag sensor assembly connector.
OK:
Voltage: Below 16 V

NG → **Check that an abnormality occurs on the battery and charging system.**

OK

3	Is DTC 31 output again?



PREPARATION:

Clear DTC.

(See step 5 on page DI–152)

CHECK:

(a) Turn ignition switch to LOCK, and wait at least for 20 seconds.

(b) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.

(c) Repeat operation in step (a) and (b) at least 5 times.

(d) Check DTC.
(See page DI–152)

NO → **Using simulation method, reproduce malfunction symptoms. (See page IN–18)**

YES

Replace airbag sensor assembly.

D03H–01

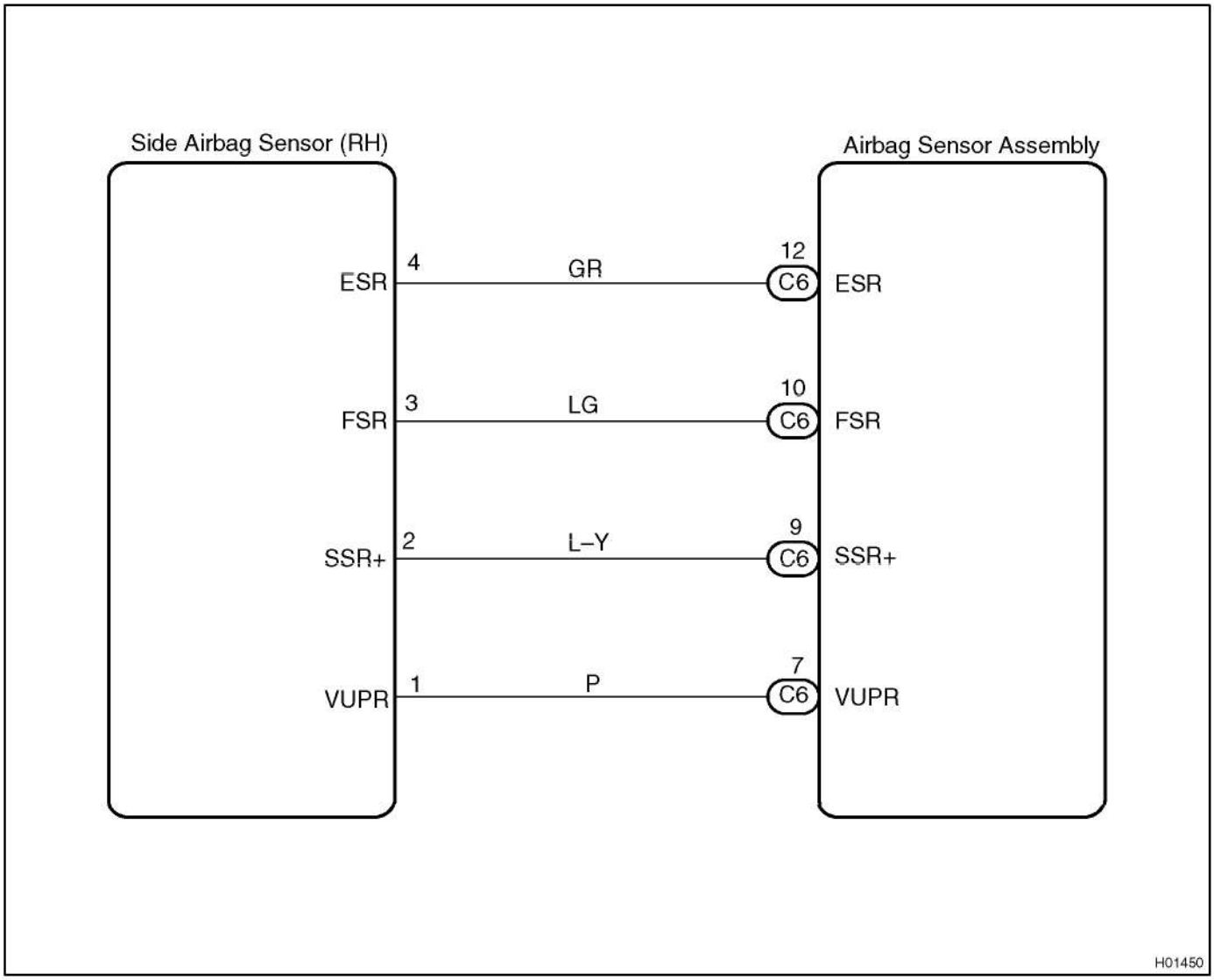
DTC	32	Side Airbag Sensor Assembly (RH) Malfunction

CIRCUIT DESCRIPTION

The side airbag sensor assembly (RH) consists of the safing sensor, diagnosis circuit and lateral deceleration sensor, etc.
It receives signals from the lateral deceleration sensor, judges whether or not the SRS must be activated, and diagnosis system malfunction.
DTC 32 is recorded when occurrence of a malfunction in the side airbag sensor assembly (RH) is detected.

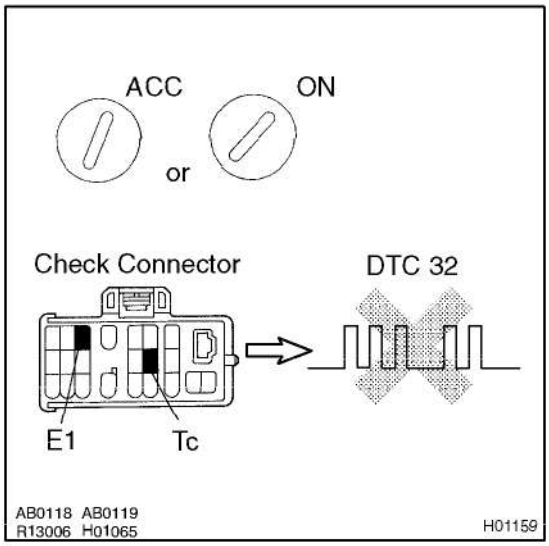
DTC No.	DTC Detecting Condition	Trouble Area
32	• Side airbag sensor assembly (RH) malfunction	• Side airbag sensor assembly (RH) • Wire harness

WIRING DIAGRAM



INSPECTION PROCEDURE

1	Is DTC 32 out put?



CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

HINT:
Codes other than code 32 may be output at this time, but they are not relevant to this check.

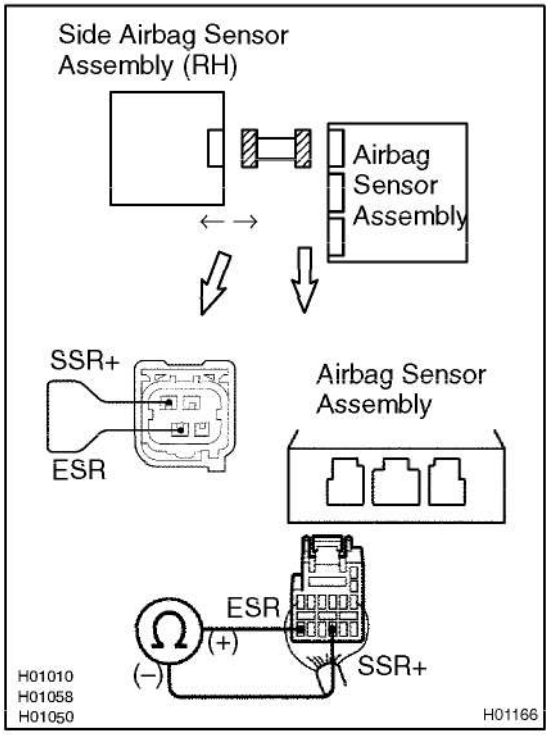
YES → **Go to step 8.**

NO

2	Is connector of side airbag sensor assembly (RH) properly connected?

3	Prepare for inspection. (See step 1 on page DI–285)

4	Check wire harness.



PREPARATION:

(a) Disconnect the side airbag sensor assembly (RH).

(b) Using a service wire, connect SSR+ and ESR of the connector (on the side airbag sensor assembly side) between the side airbag sensor assembly (RH) and the airbag sensor assembly.

CHECK:

For the connector (on the airbag sensor assembly side)between the side airbag sensor assembly (RH) and the airbag sensor assembly, measure the resistance between SSR+ and ESR.

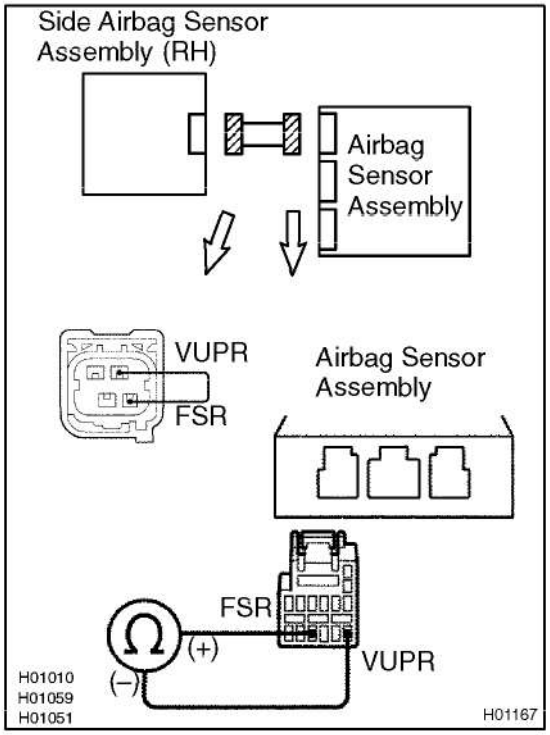
OK:

Resistance: Below 1 Ω

NG → **Repair or replace harness or connector between side airbag sensor assembly (RH) and airbag sensor assembly.**

OK

5	Check wire harness.



PREPARATION:

Using a service wire, connect VUPR and FSR of the connector (on the side airbag sensor assembly side) between the side airbag sensor assembly (RH) and the airbag sensor assembly.

CHECK:

For the connector (on the airbag sensor assembly side) between the side airbag sensor assembly (RH) and the airbag sensor assembly, measure the resistance between VUPR and FSR.

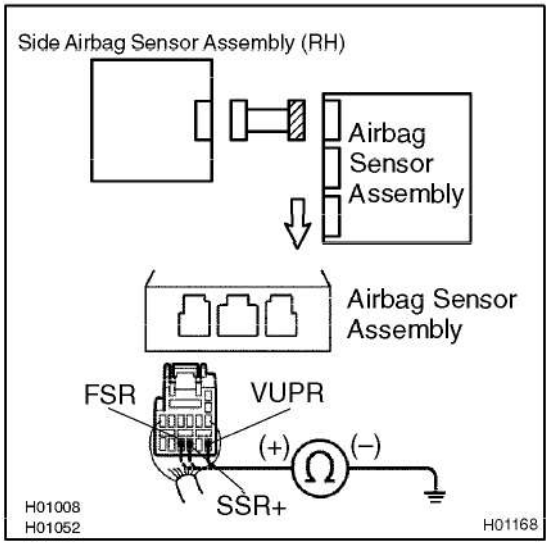
OK:

Resistance: Below 1 Ω

NG → **Repair or replace harness or connector between side airbag sensor assembly (RH) and airbag sensor assembly.**

OK

6	Check wire harness (to ground).



CHECK:

For the connector (on the airbag sensor assembly side) between the side airbag sensor assembly (RH) and the airbag sensor assembly, measure the resistance between body ground and each of SSR+, VUPR and FSR.

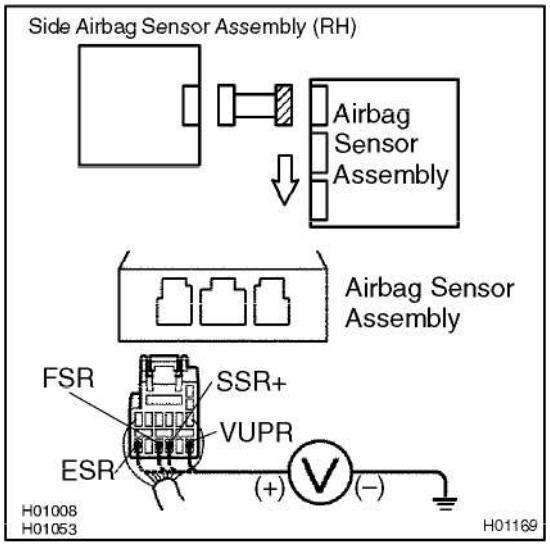
OK:

Resistance: Below 1 Ω

NG → **Repair or replace harness or connector between side airbag sensor assembly (RH) and airbag sensor assembly.**

OK

7	Check wire harness (to B+).



CHECK:

(a) Turn ignition switch to ON.

(b) For the connector (on the airbag sensor assembly side) between the side airbag sensor assembly (RH) and the airbag sensor assembly, measure the voltage between body ground and each of SSR+, VUPR, ESR and FSR.

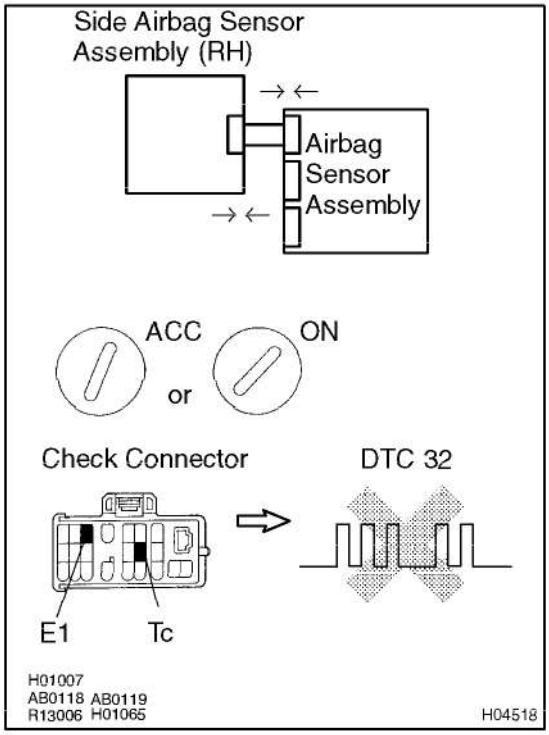
OK:

Voltage: 0 V

NG → **Repair or replace harness or connector between side airbag sensor assembly (RH) and airbag sensor assembly.**

OK

8	Is DTC 32 out put again?



PREPARATION:

(a) Connect the connector to the side airbag sensor assembly (RH).
(b) Connect the connector to the airbag sensor assembly.
(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See step 5 on page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

HINT:

Codes other than code 32 may be output at this time, but they are not relevant to this check.

NO → **Replace side airbag sensor assembly (RH).**

YES

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

D03I–01

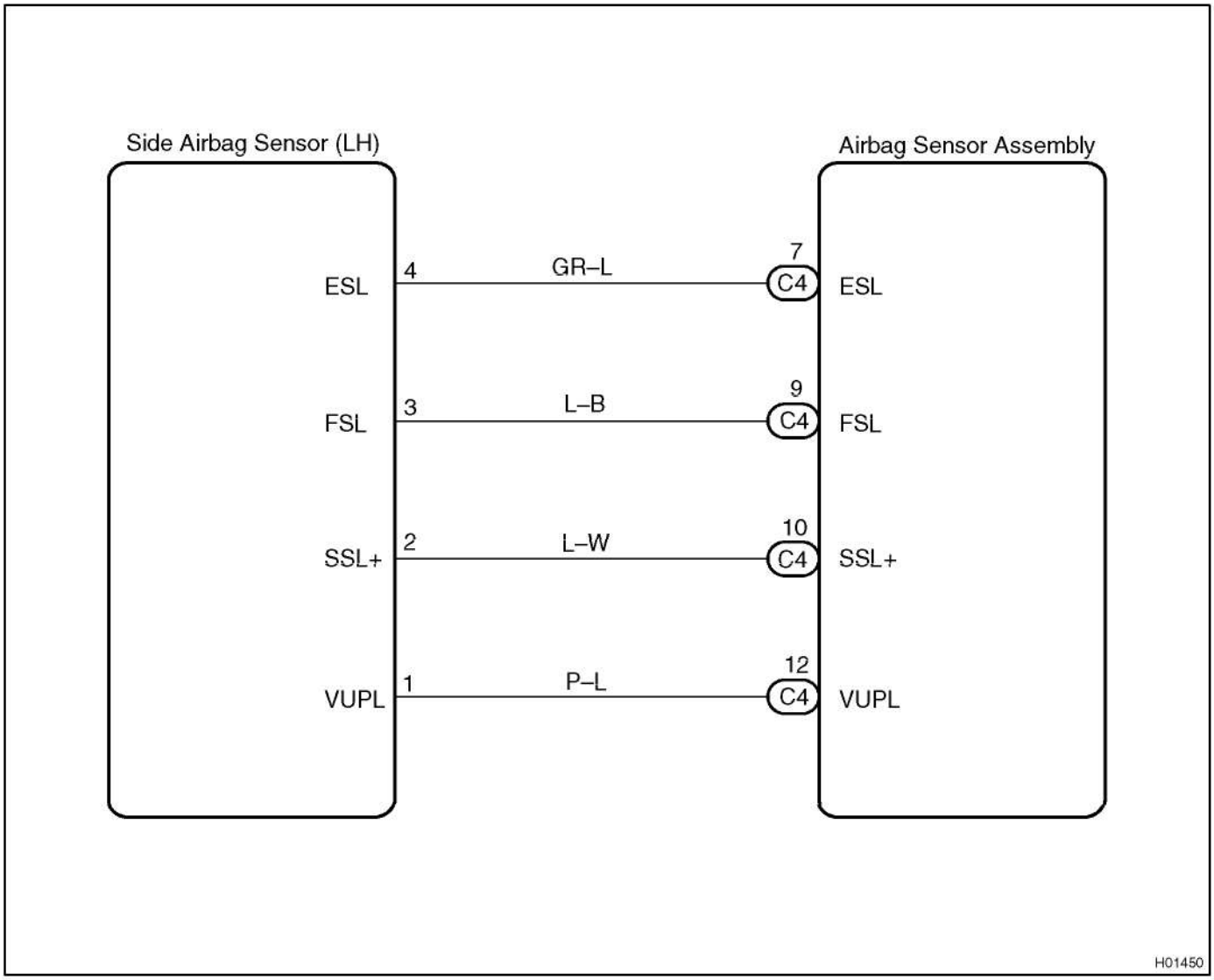
DTC	33	Side Airbag Sensor Assembly (LH) Malfunction

CIRCUIT DESCRIPTION

The side airbag sensor assembly (LH) consists of the safing sensor, diagnosis circuit and lateral deceleration sensor, etc.
It receives signals from the lateral deceleration sensor, judges whether or not the SRS must be activated, and diagnosis system malfunction.
DTC 33 is recorded when occurrence of a malfunction in the side airbag sensor assembly (LH) is detected.

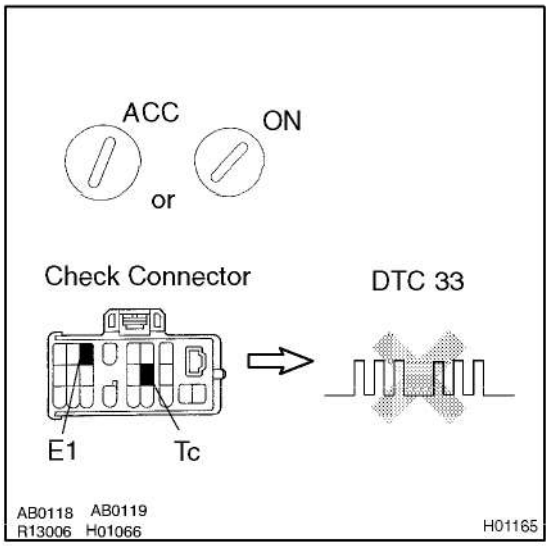
DTC No.	DTC Detecting Condition	Trouble Area
33	• Side airbag sensor assembly (LH) malfunction	• Side airbag sensor assembly (LH) • Wire harness

WIRING DIAGRAM



INSPECTION PROCEDURE

1	Is DTC 33 out put?



CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See step 5 on page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

HINT:
Codes other than code 33 may be output at this time, but they are not relevant to this check.

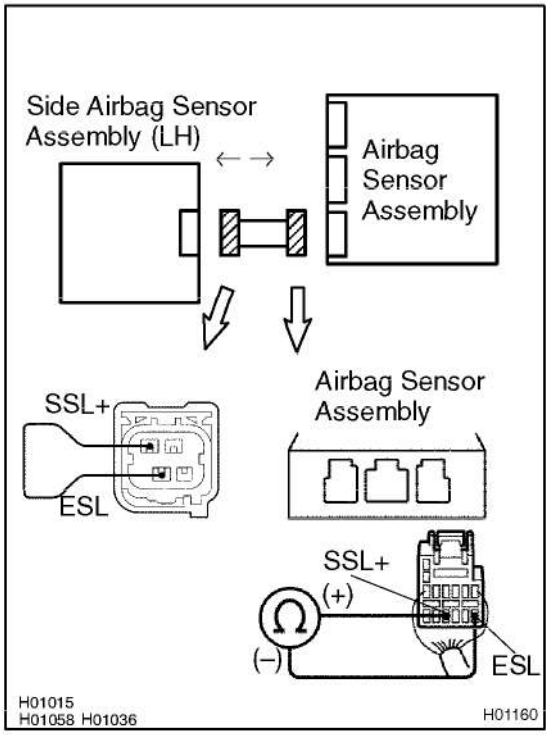
YES	Go to step 8.

NO

2	Are connector of side airbag sensor assembly (LH) properly connected?

3	Prepare for inspection. (See step 1 on page DI–285)

4	Check wire harness.



PREPARATION:

(a) Disconnect the side airbag sensor assembly (LH).

(b) Using a service wire, connect SSL+ and ESL of the connector (on the side airbag sensor assembly side) between the side airbag sensor assembly (LH) and the airbag sensor assembly.

CHECK:

For the connector (on the airbag sensor assembly side) between the side airbag sensor assembly (LH) and the airbag sensor assembly, measure the resistance between SSL+ and ESL.

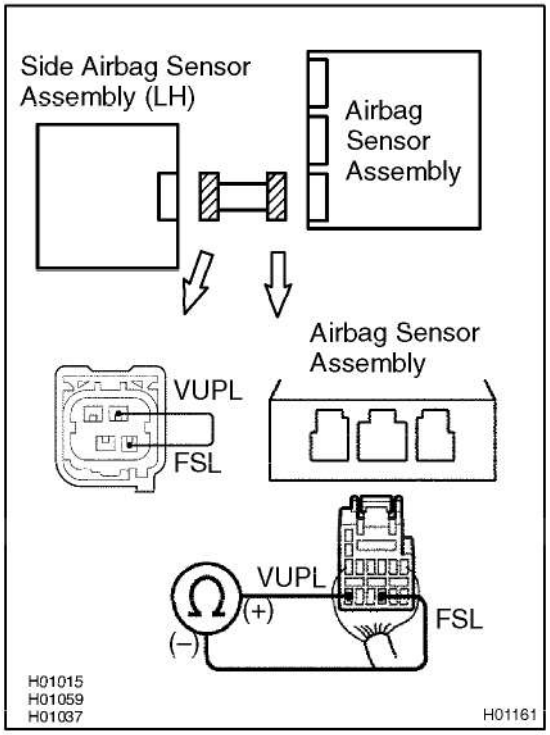
OK:

Resistance: Below 1 Ω

NG → **Repair or replace harness or connector between side airbag sensor assembly (LH) and airbag sensor assembly.**

OK

5	**Check wire harness.**



PREPARATION:

Using a service wire, connect VUPL and FSL of the connector (on the side airbag sensor assembly side) between the side airbag sensor assembly (LH) and the airbag sensor assembly.

CHECK:

For the connector (on the airbag sensor assembly side) between the side airbag sensor assembly (LH) and the airbag sensor assembly, measure the resistance between VUPL and FSL.

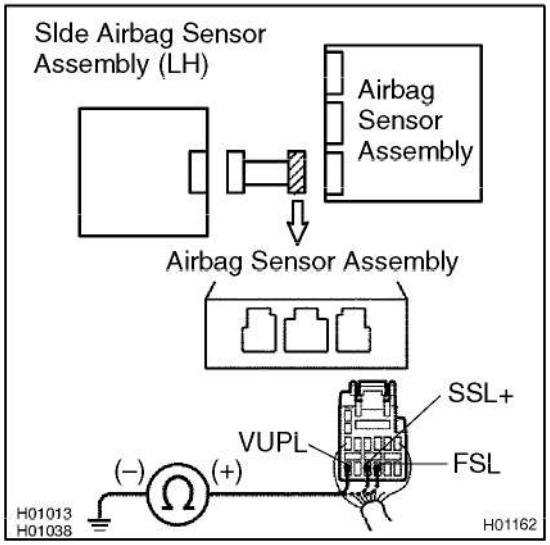
OK:

Resistance: Below 1 Ω

NG → **Repair or replace harness or connector between side airbag sensor assembly (LH) and airbag sensor assembly.**

OK

6	Check wire harness (to ground).



CHECK:

For the connector (on the airbag sensor assembly side) between the side airbag sensor assembly (LH) and the airbag sensor assembly, measure the resistance between body ground and each of SSL+, VUPL and FSL.

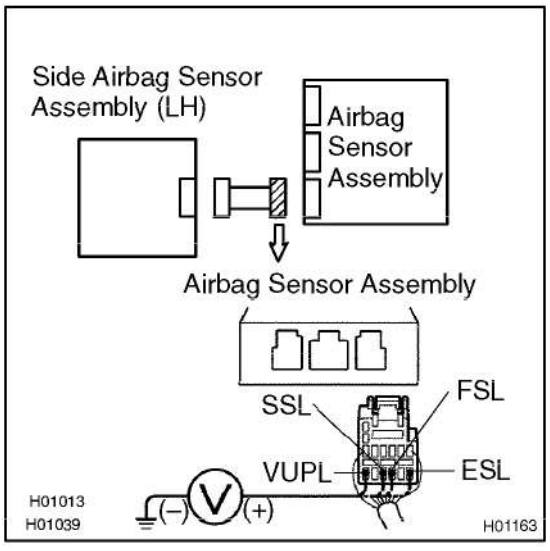
OK:

Resistance: 1 MΩ or Higher

NG → **Repair or replace harness or connector between side airbag sensor assembly (LH) and airbag sensor assembly.**

OK

7	Check wire harness (to B+).



CHECK:

(a) Turn ignition switch to ON.

(b) For the connector (on the airbag sensor assembly side) between the side airbag sensor assembly (LH) and the airbag sensor assembly, measure the voltage between body ground and each of SSL+, ESL, VUPL and FSL.

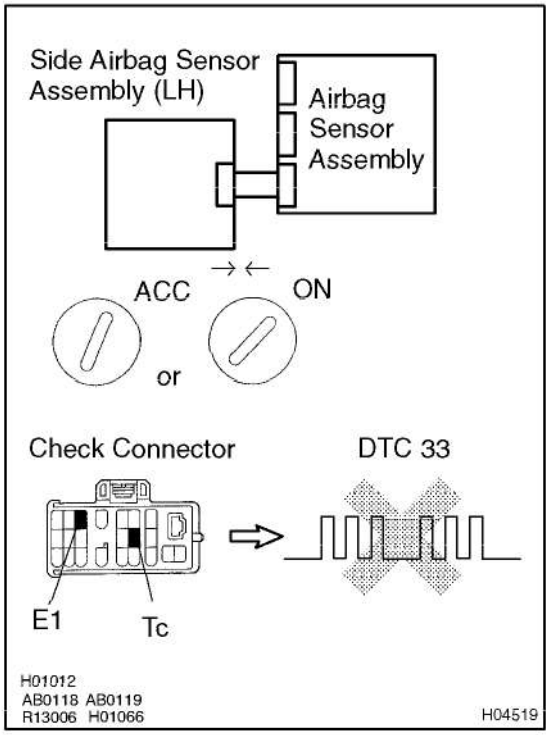
OK:

Voltage: 0 V

NG → **Repair or replace harness or connector between side airbag sensor assembly (LH) and airbag sensor assembly.**

OK

8	Is DTC 33 out put again?



PREPARATION:

(a) Connect the connector to the side airbag sensor assembly (LH).
(b) Connect the connector to the airbag sensor assembly.
(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See step 5 on page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

HINT:

Codes other than code 33 may be output at this time, but they are not relevant to this check.

NO → **Replace side airbag sensor assembly (LH).**

YES

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

D03J–01

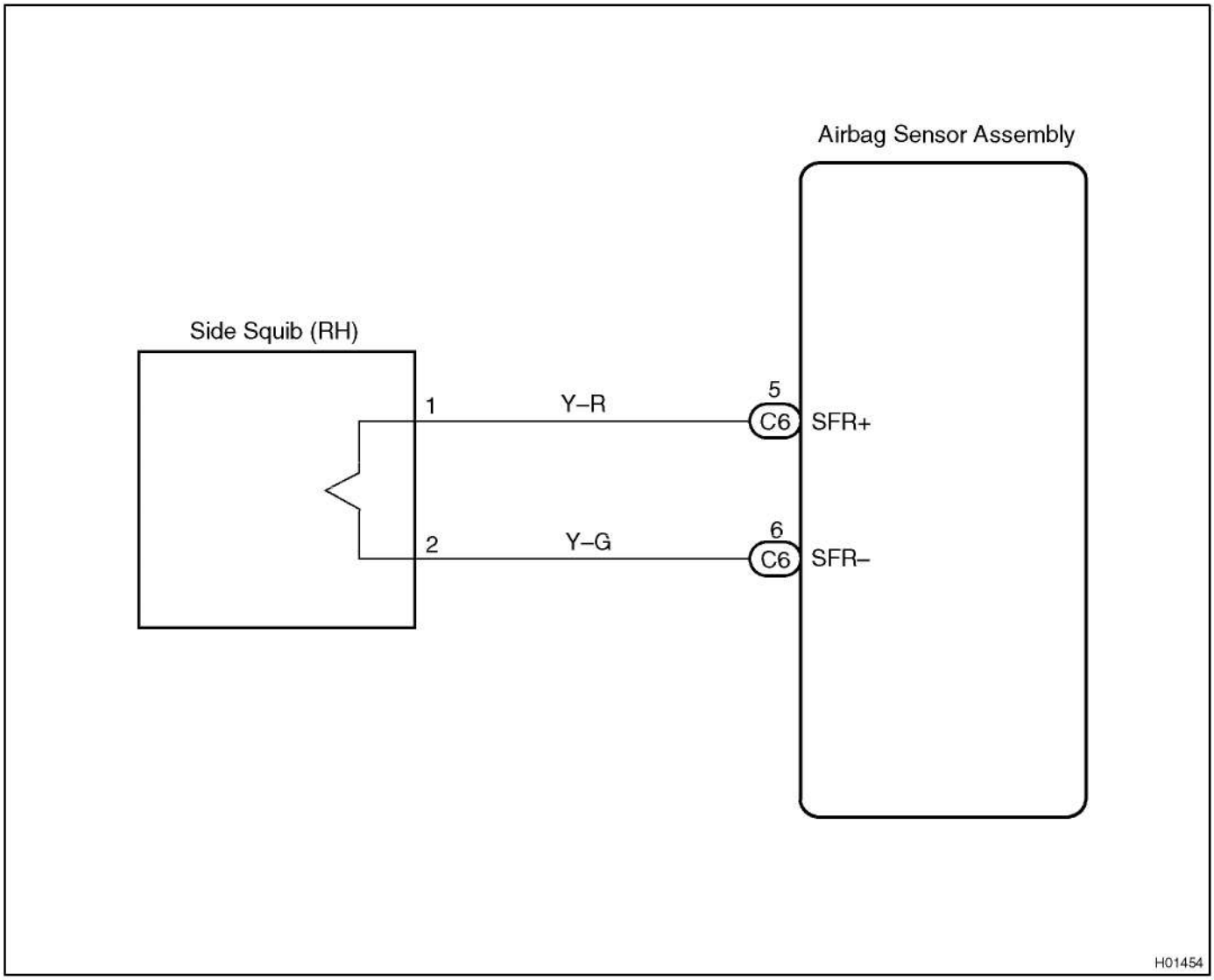
DTC	41	Short in Side Squib (RH) Circuit (to Ground)

CIRCUIT DESCRIPTION

The side squib circuit consists of the airbag sensor assembly and side airbag assembly (RH).
It causes the SRS to deploy when the SRS deployment conditions are satisfied.
For details of the function of each component, see OPERATION on page RS–2.
DTC 41 is recorded when ground short is detected in the side squib (RH) circuit.

DTC No.	DTC Detecting Condition	Trouble Area
41	• Short circuit in side squib (RH) wire harness (to ground) • Side squib (RH) malfunction • Airbag sensor assembly malfunction	• Side airbag assembly (RH) • Airbag sensor assembly • Wire harness

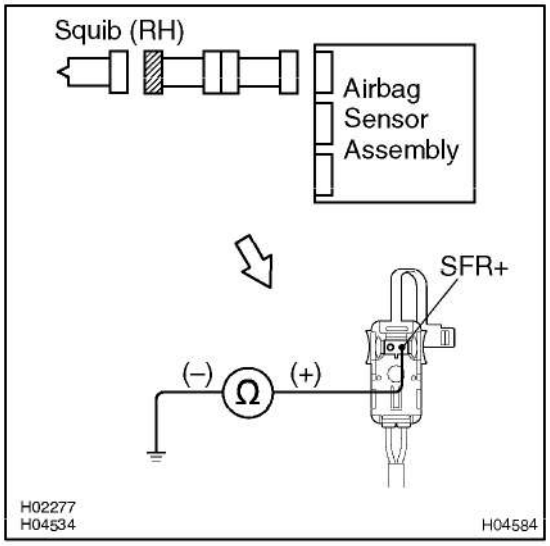
WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Prepare for inspection. (See step 1 on page DI–285)**

2	**Check side squib (RH) circuit.**



CHECK:

For the connector (on the side airbag assembly side) between the side airbag assembly (RH) and the airbag sensor assembly, measure the resistance between SFR+ and body ground.

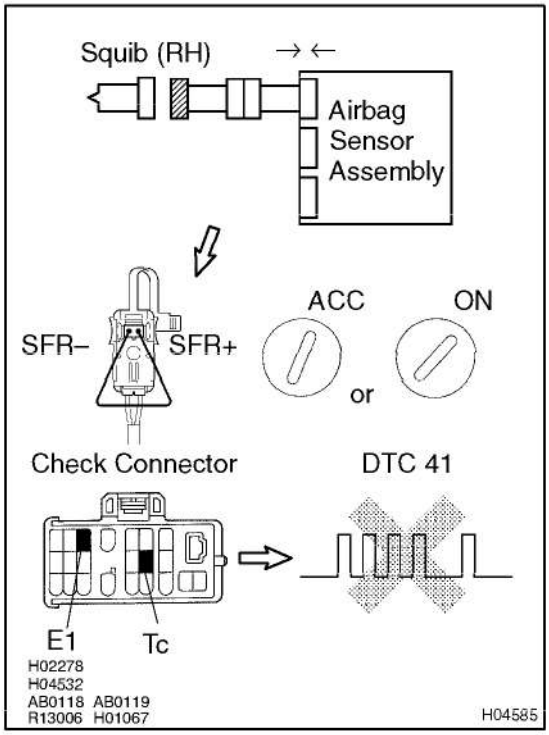
OK:

Resistance: 1 MΩ or Higher

NG	**Go to step 5.**

OK

3	Check airbag sensor assembly.



PREPARATION:

(a) Connect the connector to the airbag sensor assembly.

(b) Using a service wire, connect SFR+ and SFR– of the connector (on the side airbag assembly side) between the side airbag assembly (RH) and the airbag sensor assembly.

(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON and wait at least for 20 seconds.

(b) Clear DTC stored in memory.
(See step 5 on page DI–152)

(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.

(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.

(e) Check DTC.
(See page DI–152)

OK:

DTC 41 is not output.

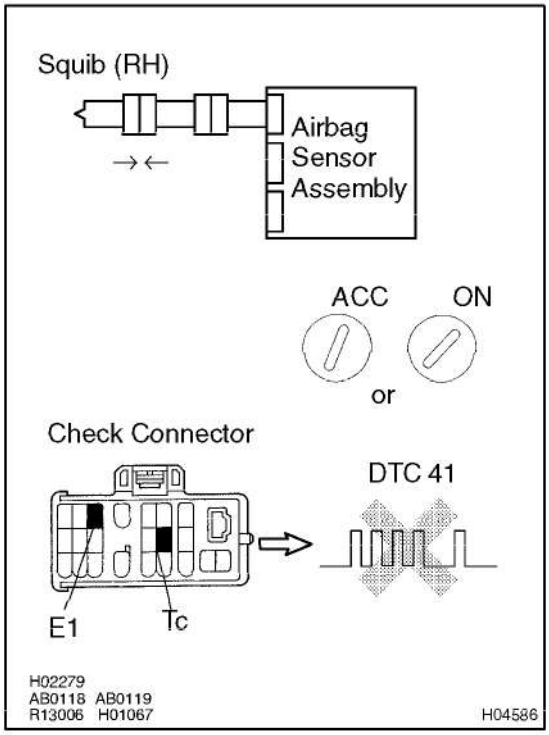
HINT:

Codes other than code 41 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

4	Check side squib (RH).



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the side airbag assembly (RH) connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See step 5 on page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 41 is not output.

HINT:

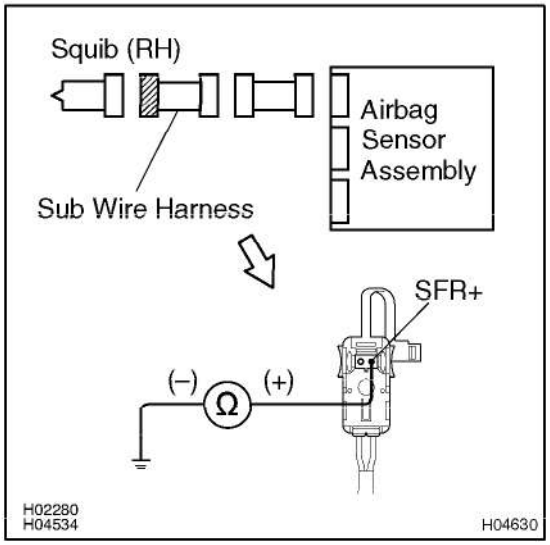
Codes other than code 41 may be output at this time, but they are not relevant to this check.

NG → **Replace side airbag assembly (RH).**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check. If the malfunctioning part can not be detected by the simulation method, replace all SRS components including the wire harness.

5	Check sub wire harness.



PREPARATION:
Disconnect the sub wire harness connector on the airbag sensor assembly side.

CHECK:
For the connector (on the sub wire harness side) between the side airbag assembly and the sub wire harness, measure the resistance between SFR+ and body ground.

OK:

Resistance: 1MΩ or Higher

NG → **Repair or replace sub wire harness.**

OK →

Repair or replace harness or connector between airbag sensor assembly and sub wire harness.

D03K–01

DTC	42	Short in Side Squib (RH) Circuit (to B+)

CIRCUIT DESCRIPTION

The side squib circuit consists of the airbag sensor assembly and side airbag assembly (RH).
It causes the SRS to deploy when the SRS deployment conditions are satisfied.
For details of the function of each component, see OPERATION on page RS–2.
DTC 42 is recorded when a B+ short is detected in the side squib (RH) circuit.

DTC No.	DTC Detecting Condition	Trouble Area
42	• Short circuit in side squib (RH) wire harness (to B+) • Side squib (RH) malfunction • Airbag sensor assembly malfunction	• Side airbag assembly (RH) • Airbag sensor assembly • Wire harness

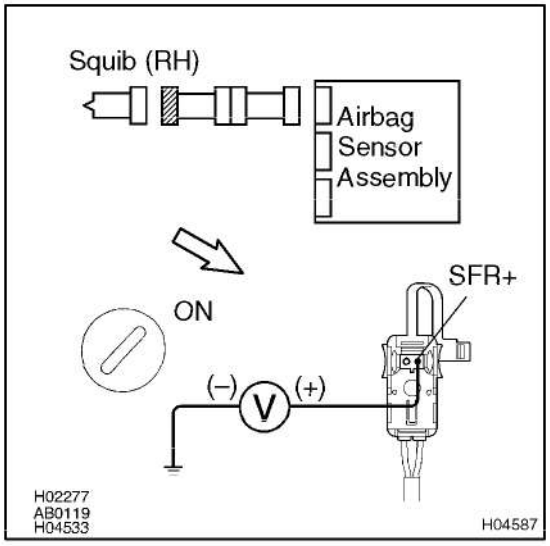
WIRING DIAGRAM

See page DI–212.

INSPECTION PROCEDURE

1	Prepare for inspection. (See step 1 on page DI–285)

2	Check side squib (RH) circuit.



CHECK:

(a) Turn ignition switch to ON

(b) For the connector (on the airbag sensor assembly side) between the side airbag assembly (RH) and the airbag sensor assembly, measure the voltage between the SFR+ and body ground.

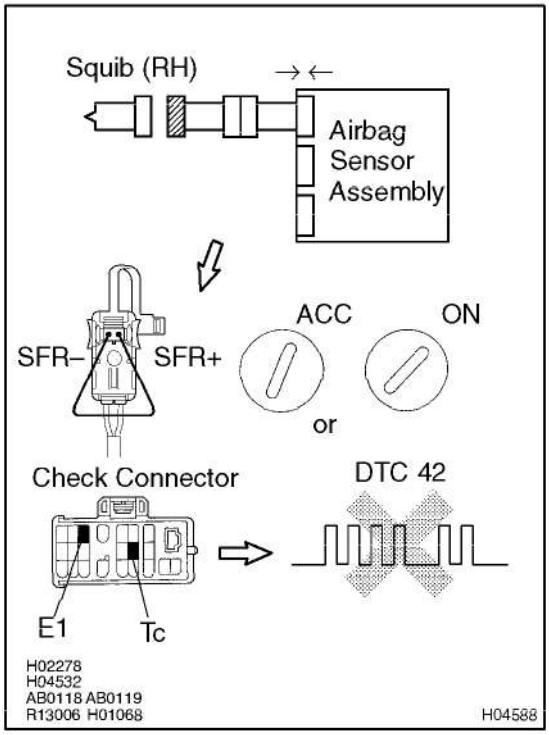
OK:

Voltage: 0 V

NG → **Go to step 5.**

OK

3	Check airbag sensor assembly.



PREPARATION:

(a) Connect the connector to the airbag sensor assembly.

(b) Using a service wire, connect SFR+ and SFR– of the connector (on the side airbag assembly side) between the side airbag assembly (RH) and the airbag sensor assembly.

(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON and wait at least for 20 seconds.

(b) Clear DTC stored in memory.
(See step 5 on page DI–152)

(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.

(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.

(e) Check DTC.
(See page DI–152)

OK:

DTC 42 is not output.

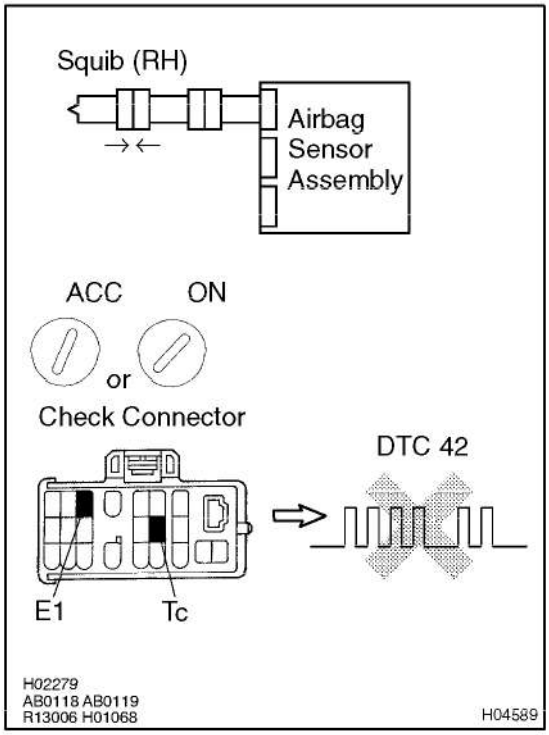
HINT:

Codes other than code 42 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

4	**Check side squib (RH).**



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the side airbag assembly (RH) connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See step 5 on page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 42 is not output.

HINT:

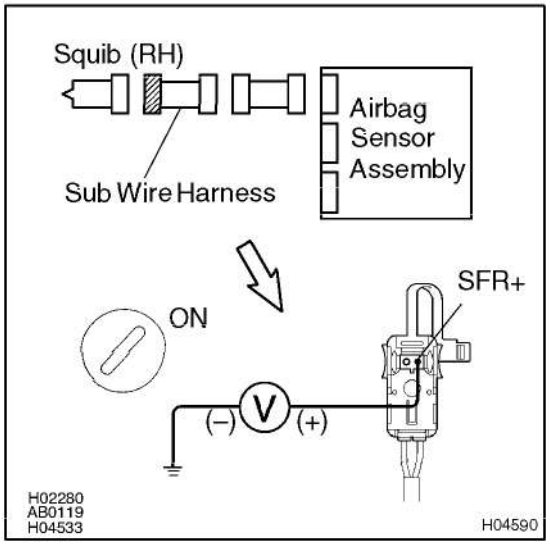
Codes other than code 42 may be output at this time, but they are not relevant to this check.

NG → **Replace side airbag assembly (RH).**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check. If the malfunctioning part can not be detected by the simulation method, replace all SRS components including the wire harness.

5	Check sub wire harness.



PREPARATION:
Disconnect the sub wire harness connector on the airbag sensor assembly side.

CHECK:
For the connector (on the sub wire harness side) between the side airbag assembly and the sub wire harness, measure the voltage between SFR+ and body ground.

OK:

Voltage: 0 V

NG → **Repair or replace sub wire harness.**

OK

Repair or replace harness or connector between airbag sensor assembly and sub wire harness.

D03L–01

DTC	43	Short in Side Squib (RH) Circuit

CIRCUIT DESCRIPTION

The side squib (RH) circuit consists of the airbag sensor assembly and side airbag assembly (RH).
It causes the SRS to deploy when the SRS deployment conditions are satisfied.
For details of the function of each component, see OPERATION on page RS–2.
DTC 43 is recorded when a short is detected in the side squib (RH) circuit.

DTC No.	DTC Detecting Condition	Trouble Area
43	• Short circuit between SFR+ wire harness and SFR– wire harness of squib • Side squib (RH) malfunction • Airbag sensor assembly malfunction	• Side airbag assembly (RH) • Airbag sensor assembly • Wire harness

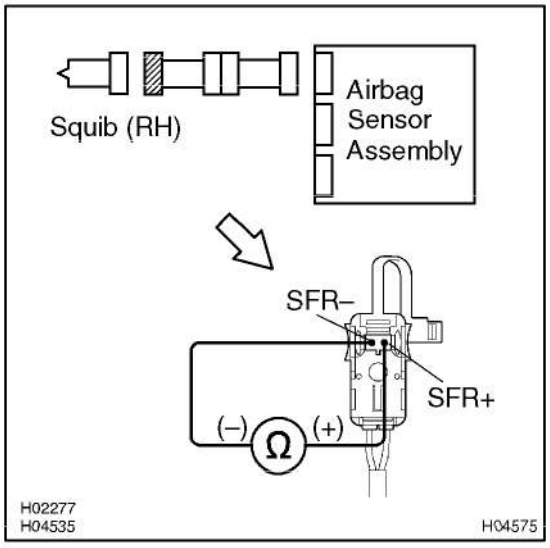
WIRING DIAGRAM

See page DI–212.

INSPECTION PROCEDURE

1	Prepare for inspection. (See step 1 on page DI–285)

2	Check side squib (RH) circuit.



PREPARATION:
Release airbag activation prevention mechanism of the connector (on the airbag sensor assembly side) between the airbag sensor assembly and the side airbag assembly (RH).
(See page DI–152)

CHECK:
For the connector (on the side airbag assembly side) between the side airbag assembly (RH) and the airbag sensor assembly, measure the resistance between SFR+ and SFR–.

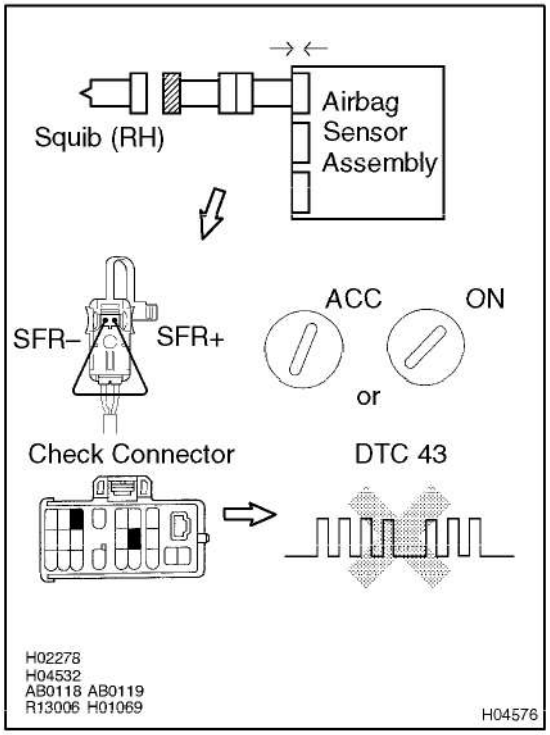
OK:

Resistance: 1 MΩ or Higher

NG → **Go to step 5.**

OK

3	Check airbag sensor assembly.



PREPARATION:

(a) Connect the connector to the airbag sensor assembly.
(b) Using a service wire, connect SFR+ and SFR– of the connector (on the side airbag assembly side) between the airbag sensor assembly and the side airbag assembly (RH).
(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 43 is not output.

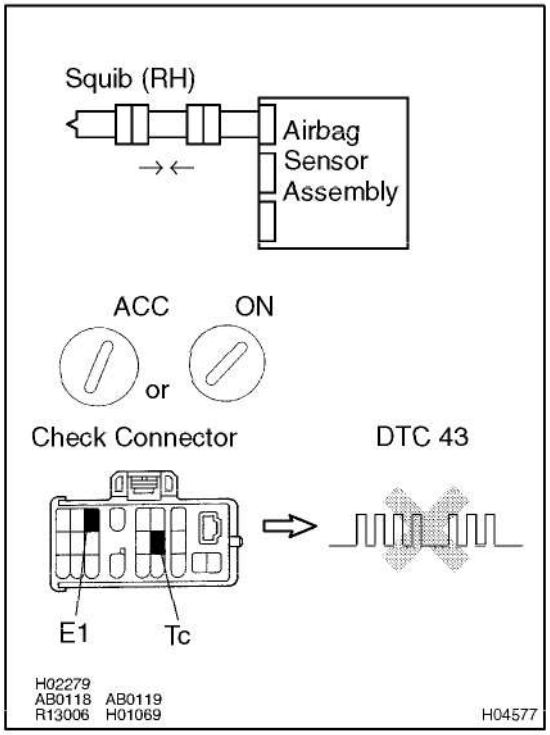
HINT:

Codes other than code 43 may be output at this time, but they are not relevant to this check.

NG	Replace airbag sensor assembly.

OK

4	Check side squib (RH).



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the side airbag assembly (RH) connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to LOOK, and wait at least for 20 second.
(b) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(c) Clear DTC stored in memory.
(See page DI–152)
(d) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(e) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(f) Check DTC.
(See page DI–152)

OK:

DTC 43 is not output.

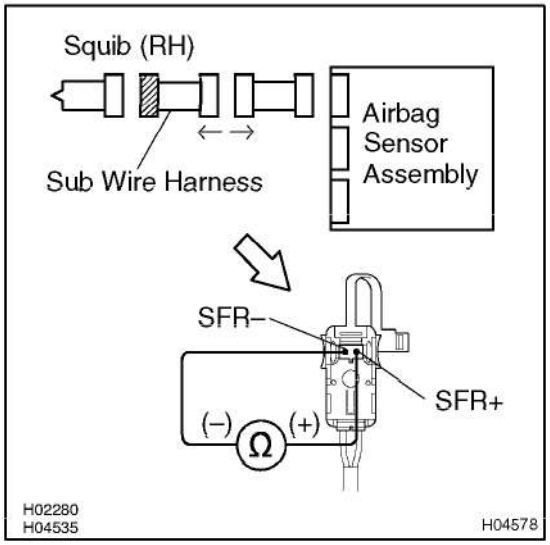
HINT:
Codes other than code 43 may be output at this time, but they are not relevant to this check.

NG → **Replace side airbag assembly (RH).**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

5	Check sub wire harness.



PREPARATION:

(a) Disconnect sub wire harness connector on the airbag sensor assembly side.

(b) Release airbag activation prevention mechanism of the sub wire harness connector on the airbag sensor assembly side. (See page DI–152)

CHECK:

For the connector (on the sub wire harness side) between the side airbag assembly and the sub wire harness, measure the resistance between SFR+ and SFR–.

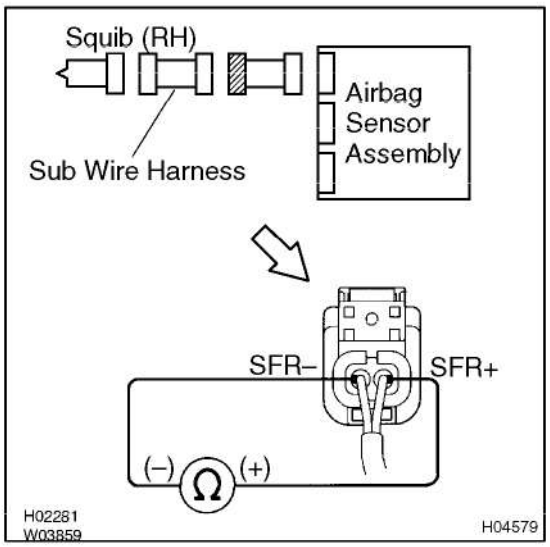
OK:

Resistance: 1 MΩ or Higher

NG	Repair or replace sub wire harness.

OK

6	Check harness between airbag sensor assembly and sub wire harness.



PREPARATION:

Release airbag activation prevention mechanism of the airbag sensor assembly connector. (See page DI–152)

CHECK:

For the connector (on the sub wire harness side) between the airbag sensor assembly and sub wire harness, measure the resistance between SFR+ and SFR–.

OK:

Resistance: 1 MΩ or Higher

NG	Repair or replace harness or connector between airbag sensor assembly and sub wire harness.

OK

For the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

D03M–01

DTC	44	Open in Side Squib (RH) Circuit

CIRCUIT DESCRIPTION

The side squib circuit consists of the airbag sensor assembly and side airbag assembly (RH).
It causes the SRS to deploy when the SRS deployment conditions are satisfied.
For details of the function of each component, see OPERATION on page RS–2.
DTC 44 is recorded when an open is detected in the side squib (RH) circuit.

DTC No.	DTC Detecting Condition	Trouble Area
44	• Open circuit in SFR+ wire harness or SFR– wire harness of squib • Side squib (RH) malfunction • Airbag sensor assembly malfunction	• Side airbag assembly (RH) • Airbag sensor assembly • Wire harness

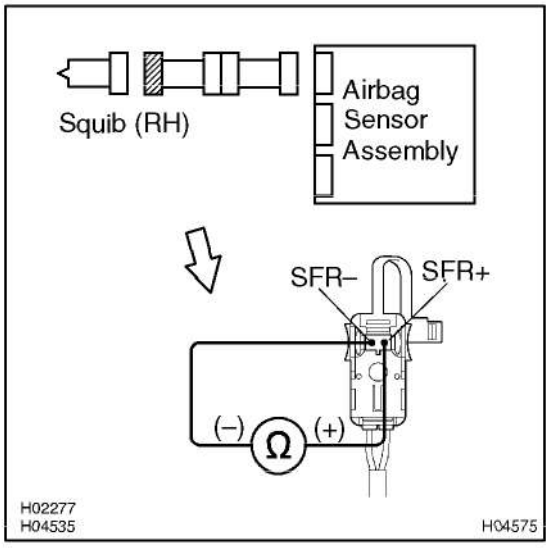
WIRING DIAGRAM

See page DI–212.

INSPECTION PROCEDURE

1	Prepare for inspection. (See step 1 on page DI–285)

2	Check side squib (RH) circuit.



CHECK:
For the connector (on the side airbag assembly side) between the side airbag assembly (RH) and the airbag sensor assembly, measure the resistance between SFR+ and SFR–.

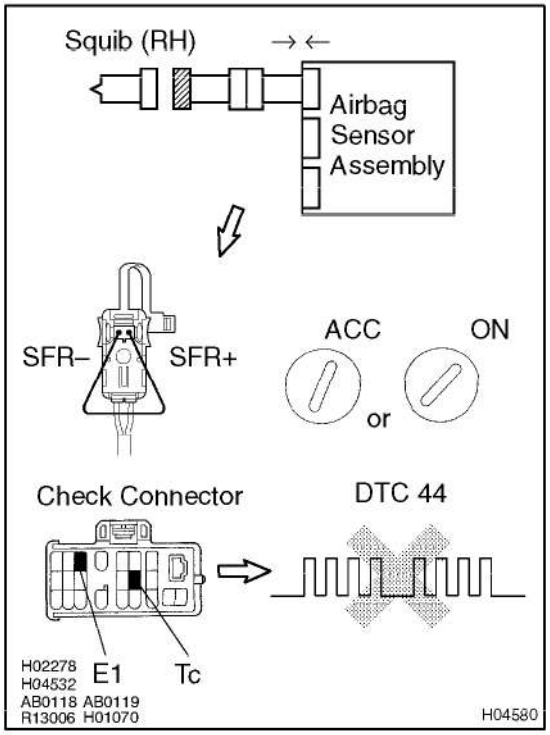
OK:

Resistance: Below 1 Ω

NG → **Go to step 5.**

OK

3	Check airbag sensor assembly.



PREPARATION:

(a) Connect the connector to the airbag sensor assembly.
(b) Using a service wire, connect SFR+ and SFR– of the connector (on the side airbag assembly side) between the side airbag assembly (RH) and the airbag sensor assembly.
(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

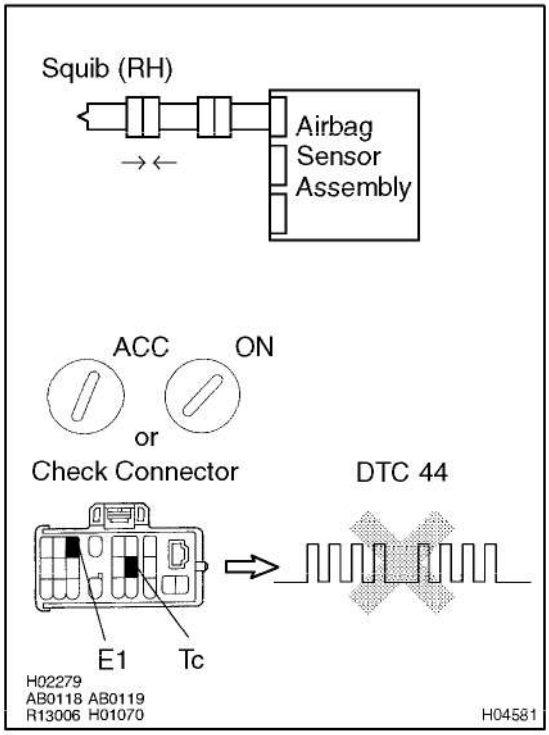
DTC 44 is not output.

HINT:
Codes other than code 44 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

4	**Check side squib (RH).**



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the side airbag assembly (RH) connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 44 is not output.

HINT:

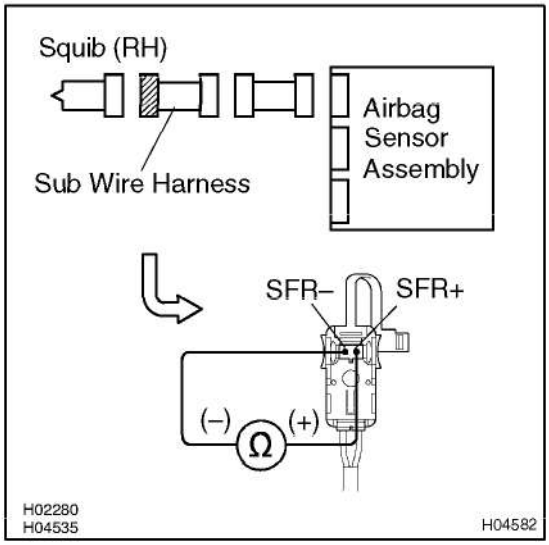
Codes other than code 44 may be output at this time, but they are not relevant to this check.

NG → **Replace side airbag assembly (RH).**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

5	Check sub wire harness.



PREPARATION:
Disconnect the sub wire harness connector on the airbag sensor assembly side.

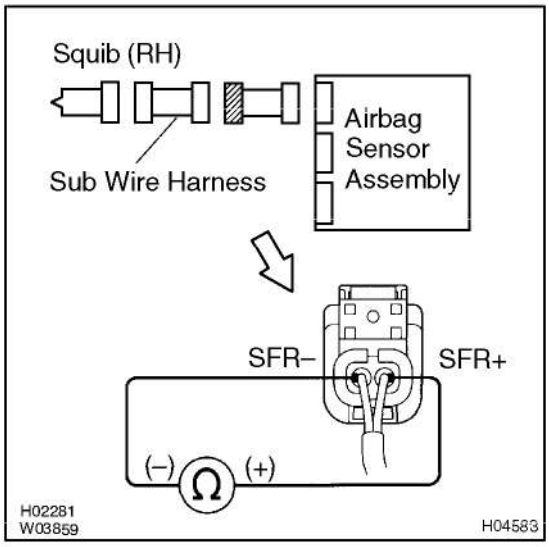
CHECK:
For the connector (on the sub wire harness side) between the side airbag assembly and the sub wire harness, measure the resistance between SFR+ and SFR–.

OK:
Resistance: Below 1 Ω

NG	Repair or replace sub wire harness.

OK

6	Check harness between airbag sensor assembly and sub wire harness.



CHECK:
For the connector (on the airbag sensor assembly side) between the airbag sensor assembly and the sub wire harness, measure the resistance SFR+ and SFR–.

OK:
Resistance: Below 1 Ω

NG	Repair or replace harness or connector between airbag sensor assembly and sub wire harness.

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

D03N-01

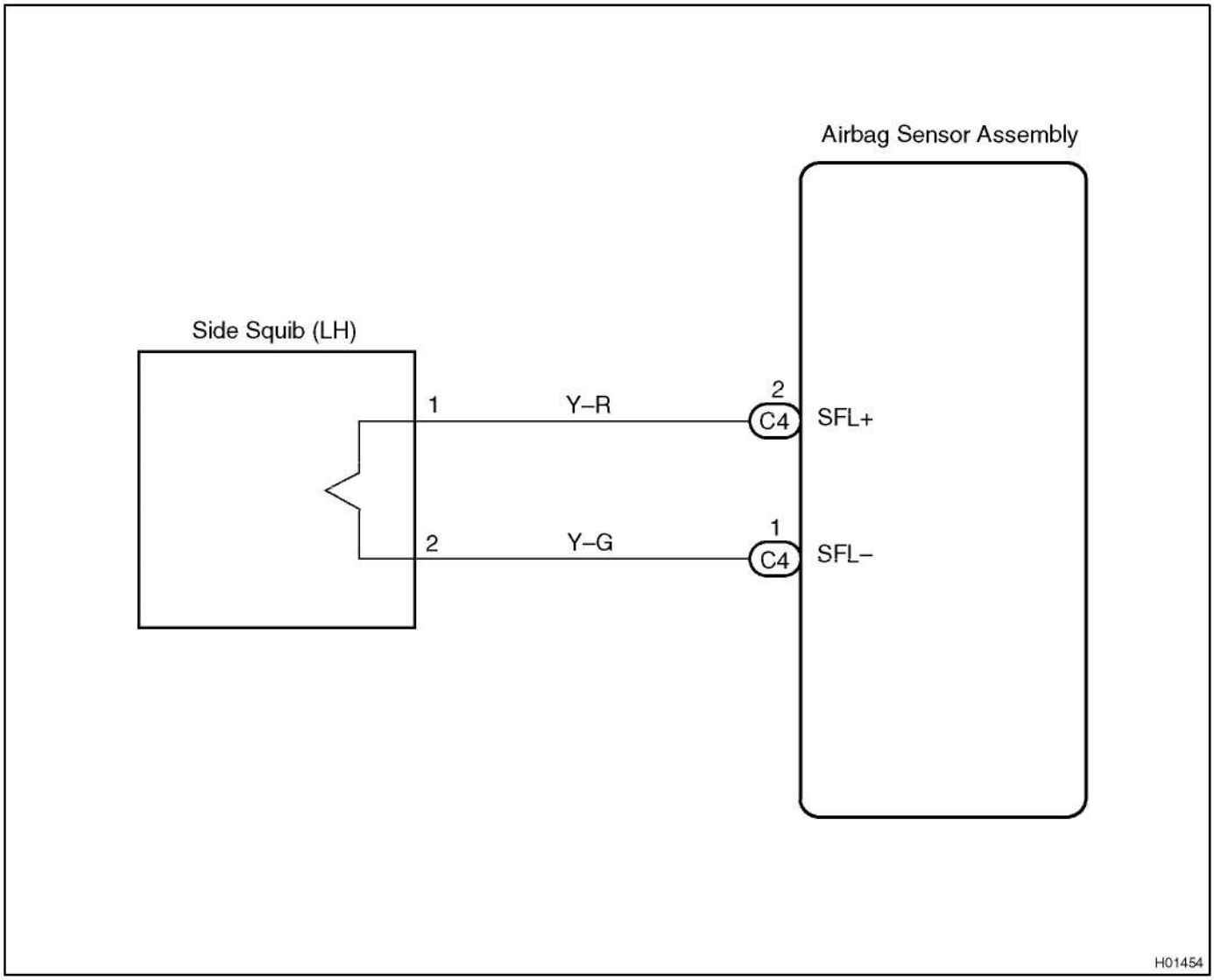
DTC	45	Short in Side Squib (LH) Circuit (to Ground)

CIRCUIT DESCRIPTION

The side squib circuit consists of the airbag sensor assembly and side airbag assembly (LH).
It causes the SRS to deploy when the SRS deployment conditions are satisfied.
For details of the function of each component, see OPERATION on page RS–2.
DTC 45 is recorded when ground short is detected in the side squib (LH) circuit.

DTC No.	DTC Detecting Condition	Trouble Area
45	• Short circuit in side squib (LH) wire harness (to ground) • Side squib (LH) malfunction • Airbag sensor assembly malfunction	• Side airbag assembly (LH) • Airbag sensor assembly • Wire harness

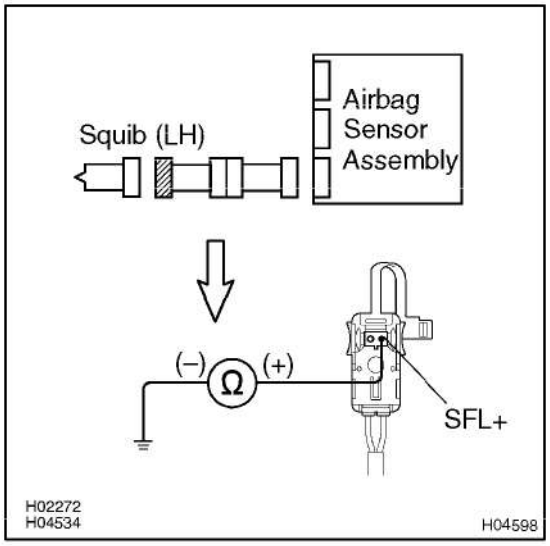
WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Prepare for inspection. (See step 1 on page DI–285)**

2	**Check side squib (LH) circuit.**



CHECK:

For the connector (on the side airbag assembly side) between the side airbag assembly (LH) and the airbag sensor assembly, measure the resistance between SFL+ and body ground.

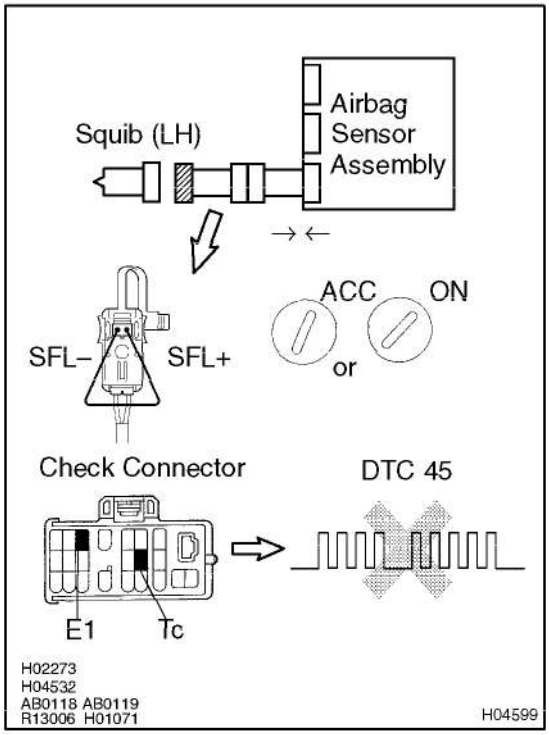
OK:

Resistance: 1 MΩ or Higher

NG → **Repair or replace harness or connector between side airbag assembly (LH) and airbag sensor assembly.**

OK

3	**Check airbag sensor assembly.**



PREPARATION:

(a) Connect the connector to the airbag sensor assembly.

(b) Using a service wire, connect SFL+ and SFL– of the connector (on the side airbag assembly side) between the side airbag assembly (LH) and the airbag sensor assembly.

(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON and wait at least for 20 seconds.

(b) Clear DTC stored in memory.
(See step 5 on page DI–152)

(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.

(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.

(e) Check DTC.
(See page DI–152)

OK:

DTC 45 is not output.

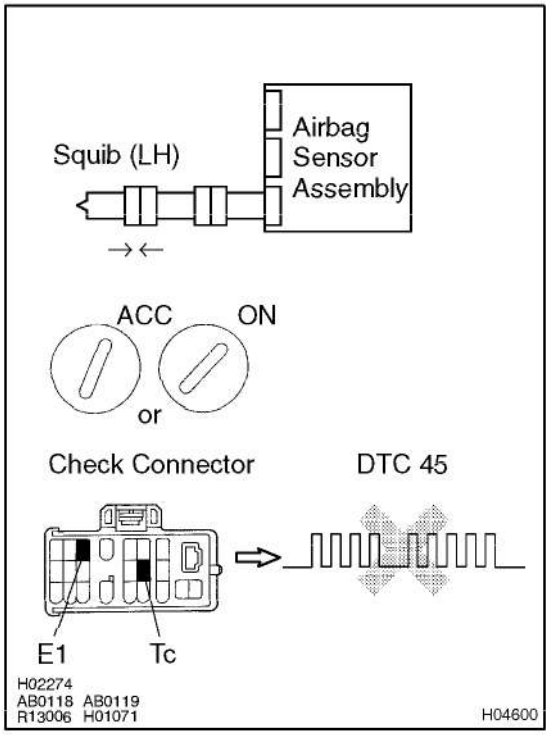
HINT:

Codes other than code 45 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

4	Check side squib (LH).



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the side airbag assembly (LH) connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See step 5 on page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 45 is not output.

HINT:

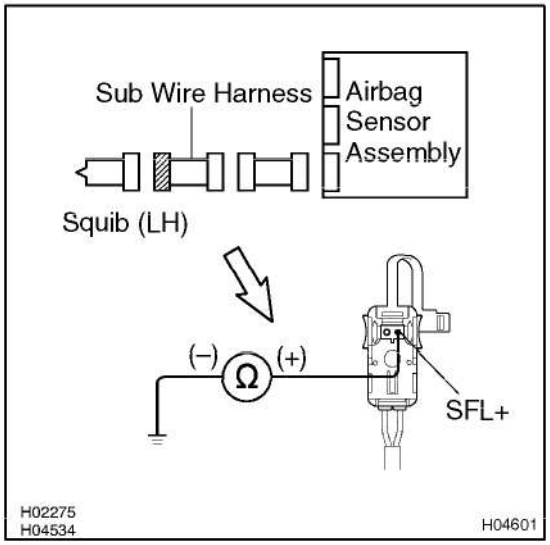
Codes other than code 45 may be output at this time, but they are not relevant to this check.

NG → **Replace side airbag assembly (LH).**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check. If the malfunctioning part can not be detected by the simulation method, replace all SRS components including the wire harness.

5	Check sub wire harness.



PREPARATION:

Disconnect the sub wire harness connector on the airbag sensor assembly side.

CHECK:

For the connector (on the sub wire harness side) between the side airbag assembly and the sub wire harness, measure the resistance between SFL+ and body ground.

OK:

Resistance: 1 MΩ or Higher

NG → **Repair or replace sub wire harness.**

OK

Repair or replace harness or connector between airbag sensor assembly and sub wire harness.

D030-01

DTC	46	Short in Side Squib (LH) Circuit (to B+)

CIRCUIT DESCRIPTION

The side squib circuit consists of the airbag sensor assembly and side airbag assembly (LH).
It causes the SRS to deploy when the SRS deployment conditions are satisfied.
For details of the function of each component, see OPERATION on page RS–2.
DTC 46 is recorded when a B+ short is detected in the side squib (LH) circuit.

DTC No.	DTC Detecting Condition	Trouble Area
46	• Short circuit in side squib (LH) wire harness (to B+) • Side squib (LH) malfunction • Airbag sensor assembly malfunction	• Side airbag assembly (LH) • Airbag sensor assembly • Wire harness

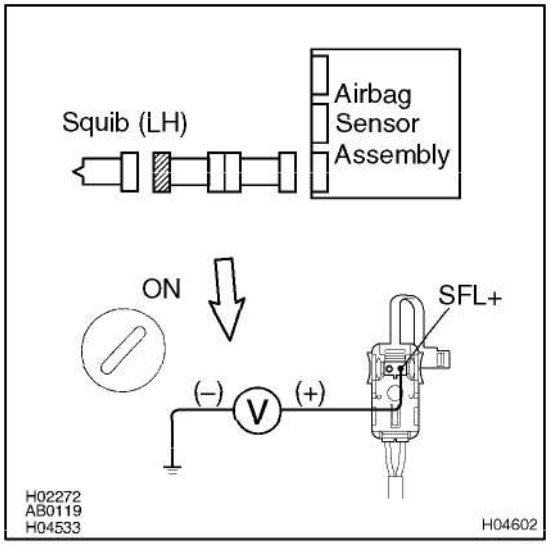
WIRING DIAGRAM

See page DI–229.

INSPECTION PROCEDURE

1	Prepare for inspection. (See step 1 on page DI–285)

2	Check side squib (LH) circuit.



CHECK:

(a) Turn ignition switch to ON.

(b) For the connector (on the side airbag assembly side) between the side airbag assembly (LH) and the airbag sensor assembly, measure the voltage between SFL+ and body ground.

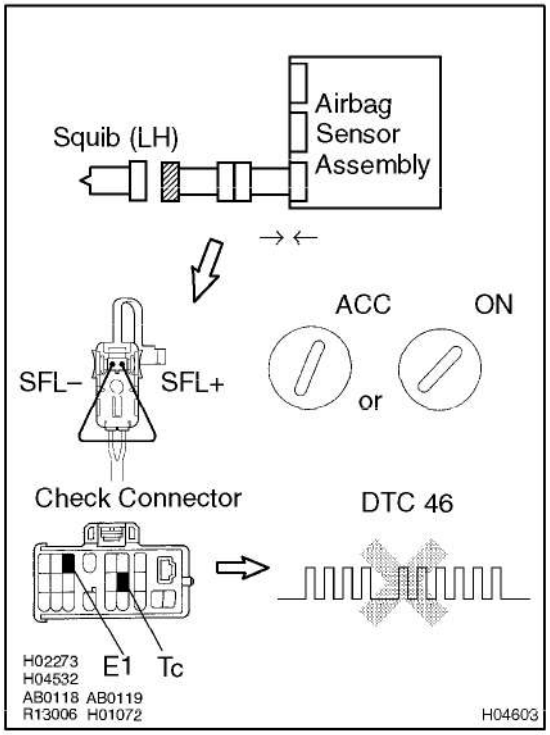
OK:

Voltage: 0 V

NG → **Go to step 5.**

OK

3	Check airbag sensor assembly.



PREPARATION:

(a) Connect the connector to the airbag sensor assembly.

(b) Using a service wire, connect SFL+ and SFL– of the connector (on the side airbag assembly side) between the side airbag assembly (LH) and the airbag sensor assembly.

(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON and wait at least for 20 seconds.

(b) Clear DTC stored in memory.
(See step 5 on page DI–152)

(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.

(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.

(e) Check DTC.
(See page DI–152)

OK:

DTC 46 is not output.

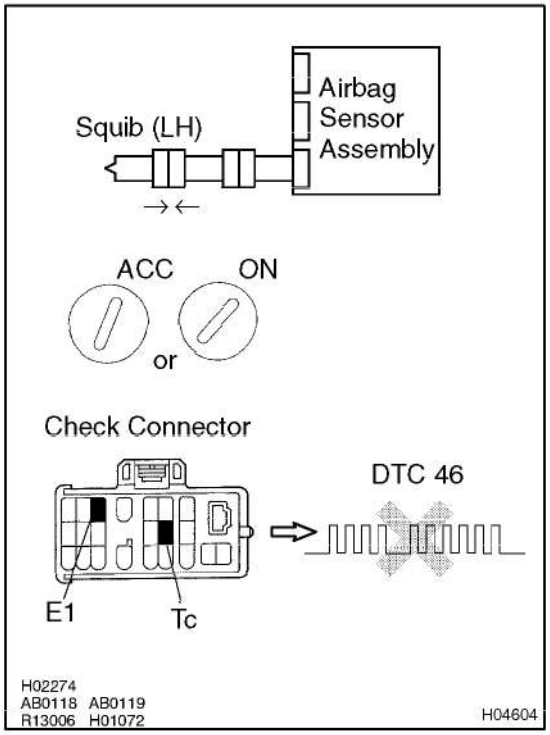
HINT:

Codes other than code 46 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

4	Check side squib (LH).



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the side airbag assembly (LH) connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See step 5 on page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 46 is not output.

HINT:

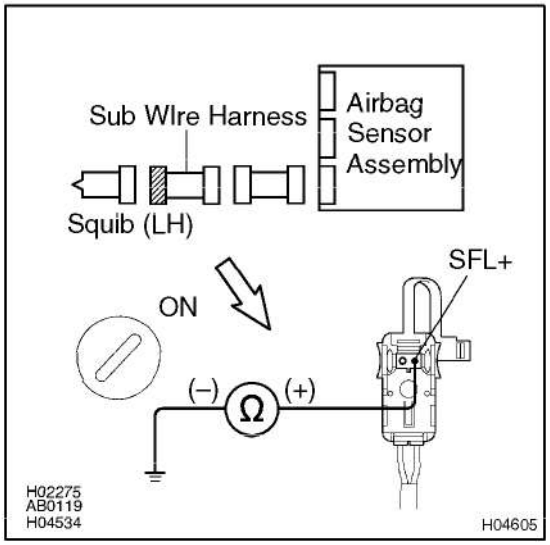
Codes other than code 46 may be output at this time, but they are not relevant to this check.

NG → **Replace side airbag assembly (LH).**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check. If the malfunctioning part can not be detected by the simulation method, replace all SRS components including the wire harness.

5	Check sub wire harness.



PREPARATION:
Disconnect the sub wire harness connector on the airbag sensor assembly side.

CHECK:
For the connector (on the sub wire harness side) between the side airbag assembly and the sub wire harness, measure the resistance between SFL+ and body ground.

OK:

Resistance: 1 MΩ or Higher

NG → **Repair or replace sub wire harness.**

OK

Repair or replace harness or connector between airbag sensor assembly and sub wire harness.

D03P–01

DTC	47	Short in Side Squib (LH) Circuit

CIRCUIT DESCRIPTION

The side squib (LH) circuit consists of the airbag sensor assembly and side airbag assembly (LH).
It causes the SRS to deploy when the SRS deployment conditions are satisfied.
For details of the function of each component, see OPERATION on page RS–2.
DTC 47 is recorded when a short is detected in the side squib (LH) circuit.

DTC No.	DTC Detecting Condition	Trouble Area
47	• Short circuit between SFL+ wire harness and SFL– wire harness of squib • Side squib (LH) malfunction • Airbag sensor assembly malfunction	• Side airbag assembly (LH) • Airbag sensor assembly • Wire harness

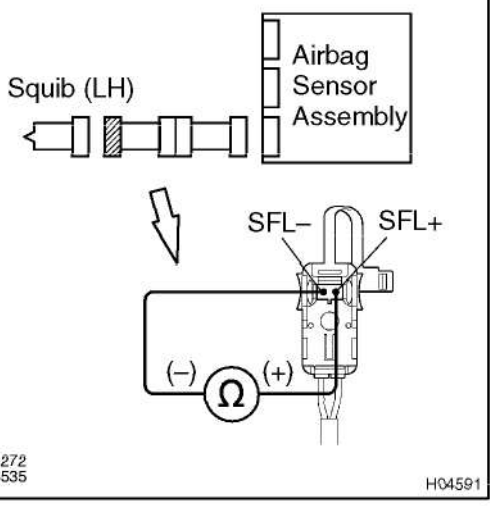
WIRING DIAGRAM

See page DI–229.

INSPECTION PROCEDURE

1	Prepare for inspection. (See step 1 on page DI–285)

2	Check side squib (LH) circuit.



PREPARATION:
Release airbag activation prevention mechanism of the connector (on the airbag sensor assembly side) between the airbag sensor assembly and the side airbag assembly (LH).
(See page DI–152)

CHECK:
For the connector (on the side airbag assembly side) between the side airbag assembly (LH) and the airbag sensor assembly, measure the resistance between SFL+ and SFL–.

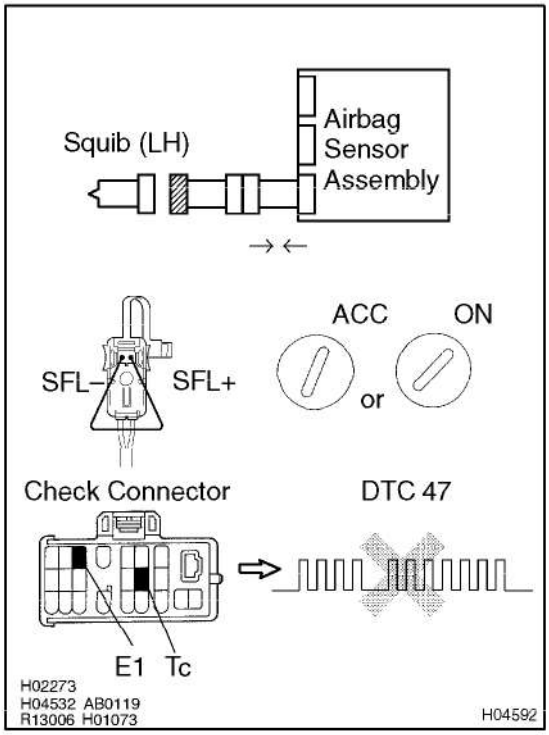
OK:

Resistance: 1 MΩ or Higher

NG → **Go to step 5.**

OK

3	**Check airbag sensor assembly.**



PREPARATION:

(a) Connect the connector to the airbag sensor assembly.
(b) Using a service wire, connect SFL+ and SFL– of the connector (on the side airbag assembly side) between the airbag sensor assembly and the side airbag assembly (LH).
(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 47 is not output.

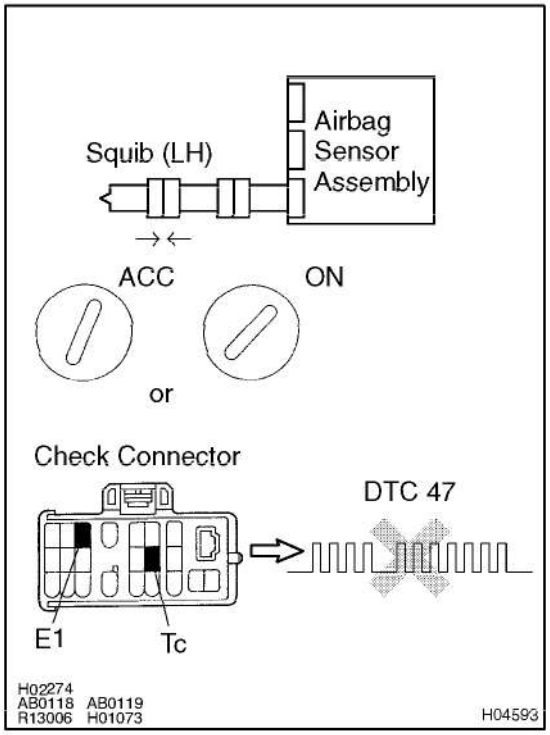
HINT:

Codes other than code 47 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

4	Check side squib (LH).



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the side airbag assembly (LH) connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to LOOK, and wait at least for 20 second.
(b) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(c) Clear DTC stored in memory.
(See page DI–152)
(d) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(e) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(f) Check DTC.
(See page DI–152)

OK:

DTC 47 is not output.

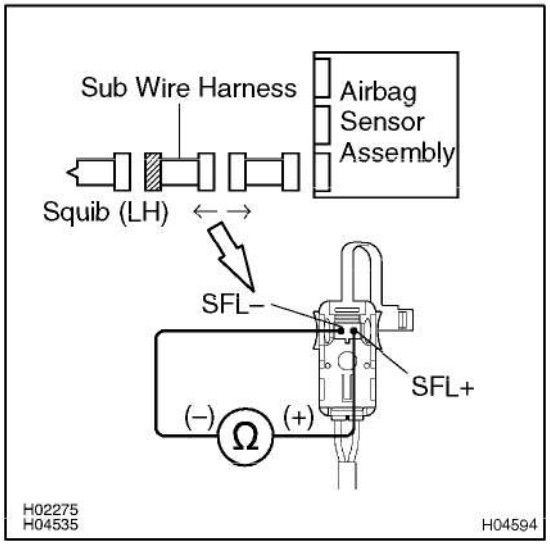
HINT:
Codes other than code 47 may be output at this time, but they are not relevant to this check.

NG → **Replace side airbag assembly (LH).**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

5	Check sub wire harness.



PREPARATION:

(a) Disconnect sub wire harness connector on the airbag sensor assembly side.

(b) Release airbag activation prevention mechanism of the sub wire harness connector on the airbag sensor assembly side. (See page DI–152)

CHECK:

For the connector (on the sub wire harness side) between the side airbag assembly and the sub wire harness, measure the resistance between SFL+ and SFL–.

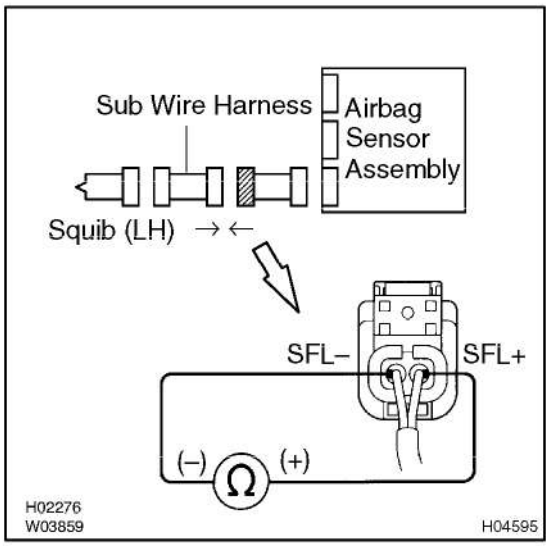
OK:

Resistance: 1 MΩ or Higher

NG	Repair or replace sub wire harness.

OK

6	Check harness between airbag sensor assembly and sub wire harness.



PREPARATION:

Release airbag activation prevention mechanism of the airbag sensor assembly connector. (See page DI–152)

CHECK:

For the connector (on the sub wire harness side) between the airbag sensor assembly and sub wire harness, measure the resistance between SFL+ and SFL–.

OK:

Resistance: 1 MΩ or Higher

NG	Repair or replace harness or connector between airbag sensor assembly and sub wire harness.

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

D03Q–01

DTC	48	Open in Side Squib (LH) Circuit

CIRCUIT DESCRIPTION

The side squib circuit consists of the airbag sensor assembly and side airbag assembly (LH).
It causes the SRS to deploy when the SRS deployment conditions are satisfied.
For details of the function of each component, see OPERATION on page DI–152.
DTC 48 is recorded when an open is detected in the side squib (LH) circuit.

DTC No.	DTC Detecting Condition	Trouble Area
48	• Open circuit in SFL+ wire harness or SFL– wire harness of squib • Side squib (LH) malfunction • Airbag sensor assembly malfunction	• Side airbag assembly (LH) • Airbag sensor assembly • Wire harness

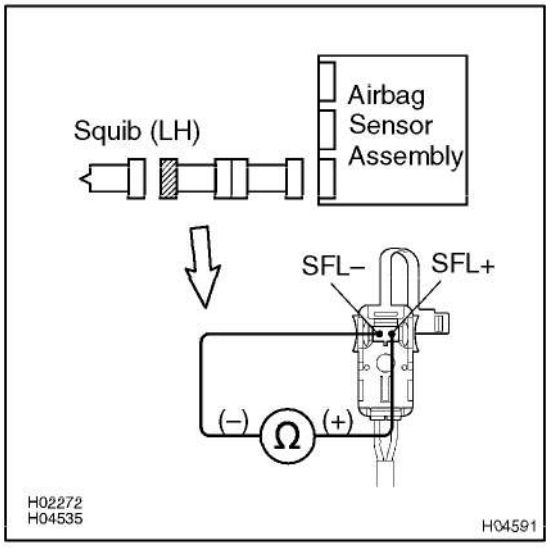
WIRING DIAGRAM

See page DI–229.

INSPECTION PROCEDURE

1	Prepare for inspection. (See step 1 on page DI–285)

2	Check side squib (LH) circuit.



CHECK:
For the connector (on the side airbag assembly side) between the side airbag assembly (LH) and the airbag sensor assembly, measure the resistance between SFL+ and SFL–.

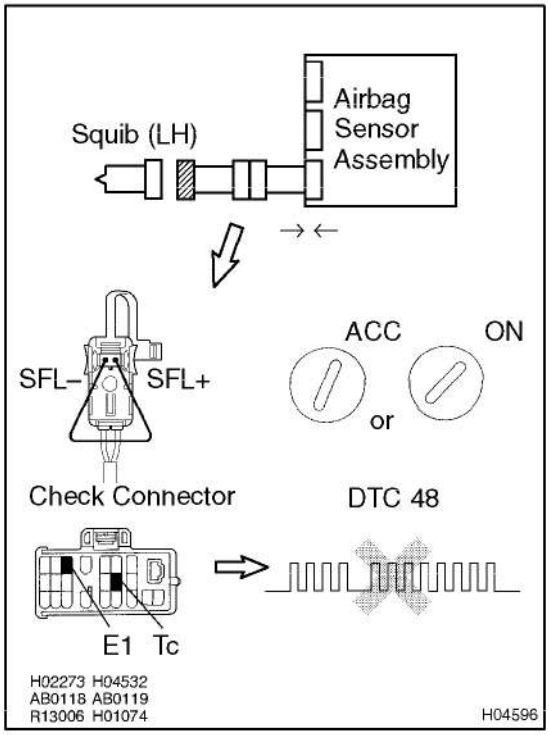
OK:

Resistance: Below 1 Ω

NG → **Go to step 5.**

OK

3	**Check airbag sensor assembly.**



PREPARATION:

(a) Connect the connector to the airbag sensor assembly.

(b) Using a service wire, connect SFL+ and SFL– of the connector (on the side airbag assembly side) between the side airbag assembly (LH) and the airbag sensor assembly.

(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON and wait at least for 20 seconds.

(b) Clear DTC stored in memory.
(See page DI–152)

(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.

(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.

(e) Check DTC.
(See page DI–152)

OK:

DTC 48 is not output.

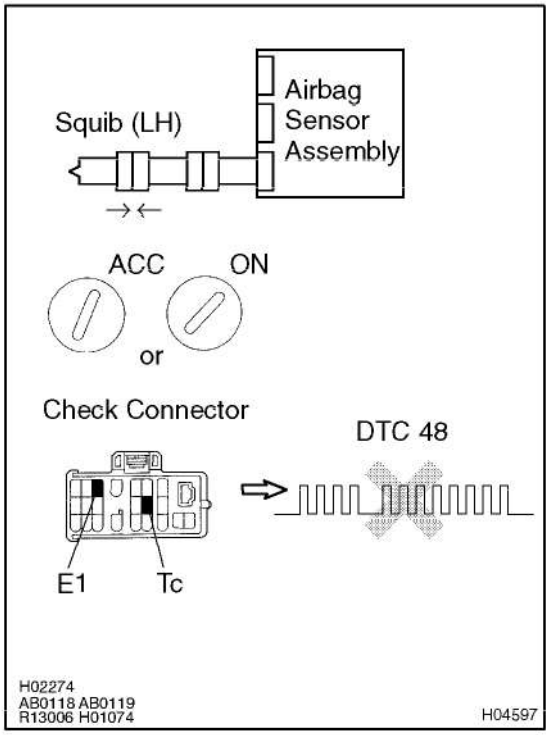
HINT:

Codes other than code 48 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

4	Check side squib (LH).



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the side airbag assembly (LH) connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 48 is not output.

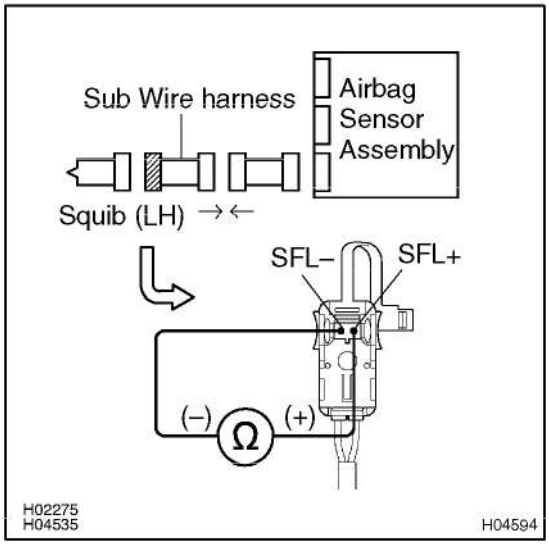
HINT:
Codes other than code 48 may be output at this time, but they are not relevant to this check.

NG → **Replace side airbag assembly (LH).**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

5	Check sub wire harness.



PREPARATION:
Disconnect the sub wire harness connector on the airbag sensor assembly side.

CHECK:
For the connector (on the sub wire harness side) between the side airbag assembly and the sub wire harness, measure the resistance between SFL+ and SFL–.

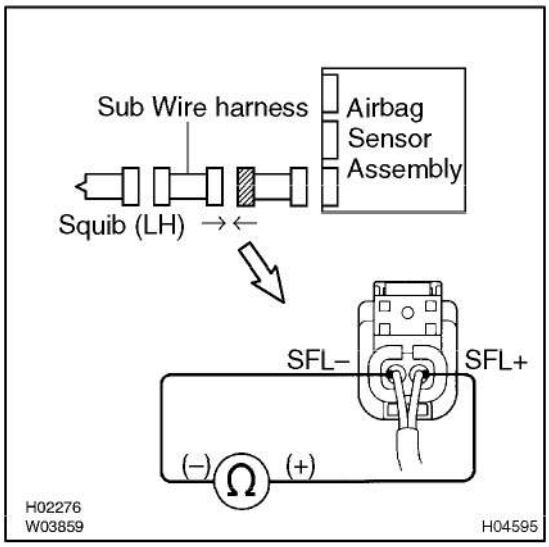
OK:

Resistance: Below 1 Ω

NG → **Repair or replace sub wire harness.**

OK

6	Check harness between airbag sensor assembly and sub wire harness.



CHECK:
For the connector (on the airbag sensor assembly side) between the airbag sensor assembly and the sub wire harness, measure the resistance between SFL+ and SFL–.

OK:

Resistance: Below 1 Ω

NG → **Repair or replace harness or connector between airbag sensor assembly and sub wire harness.**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

D03R-01

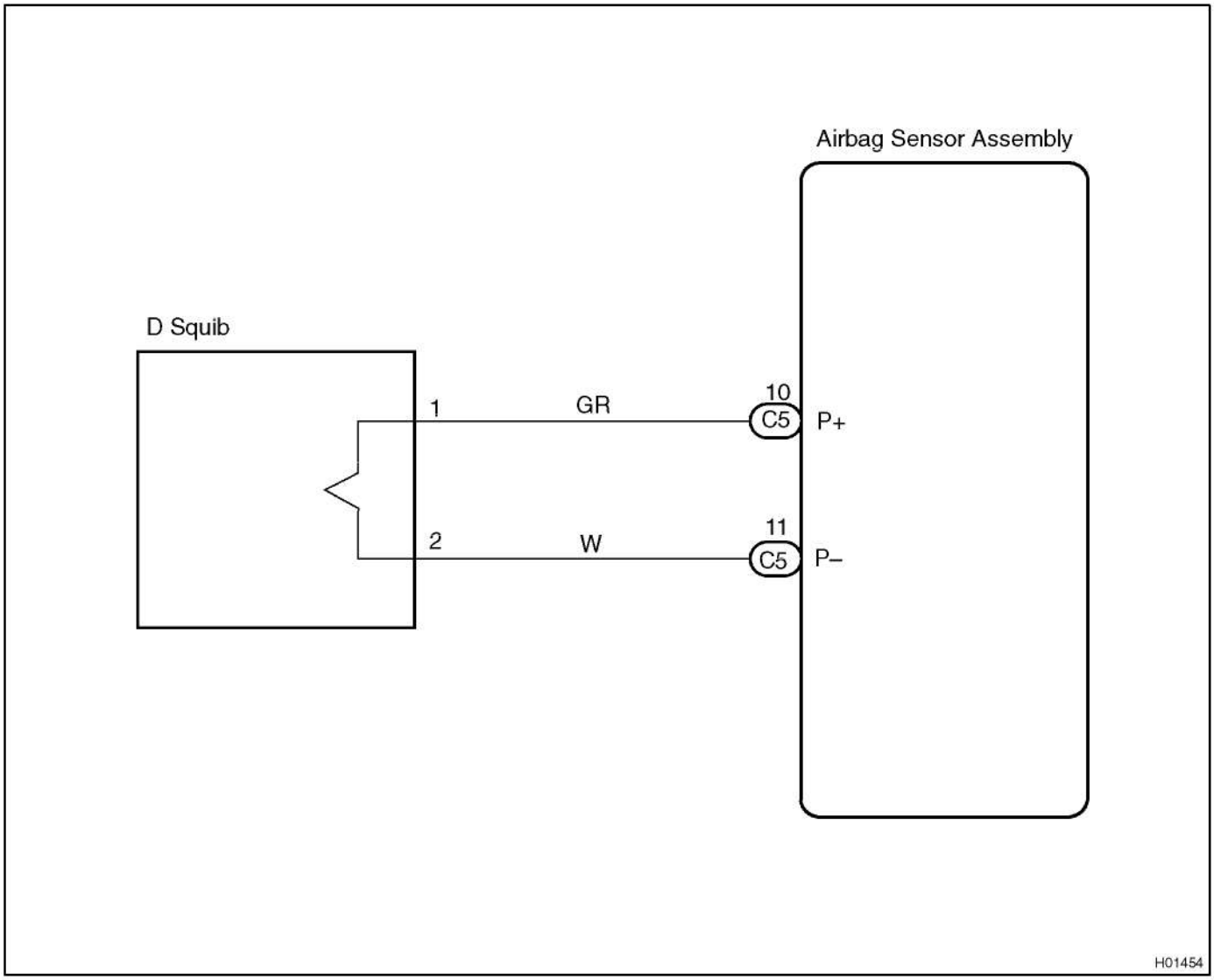
DTC	51	Short in P Squib Circuit (to Ground)

CIRCUIT DESCRIPTION

The P squib circuit consists of the airbag sensor assembly and front passenger airbag assembly.
It causes the SRS to deploy when the SRS deployment conditions are satisfied.
For details of the function of each component, see OPERATION on page RS–2.
DTC 51 is recorded when ground short is detected in the P squib circuit.

DTC No.	DTC Detecting Condition	Trouble Area
51	• Short circuit in P squib wire harness (to ground) • P squib malfunction • Airbag sensor assembly malfunction	• Front passenger airbag assembly (P squib) • Airbag sensor assembly • Wire harness

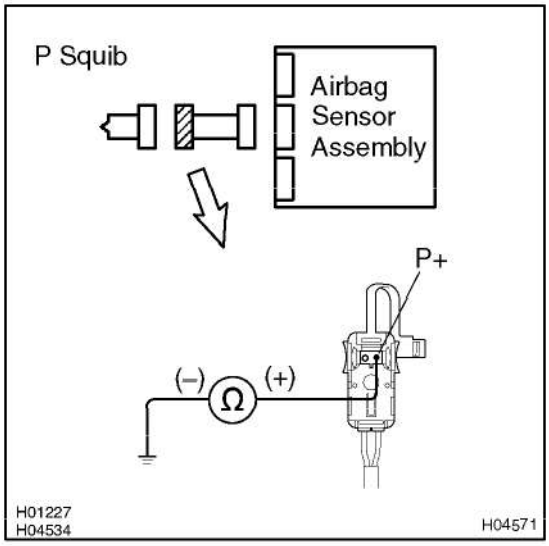
WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Prepare for inspection. (See step 1 on page DI–285)**

2	**Check P squib circuit.**



CHECK:

For the connector (on the front passenger airbag assembly side) between the front passenger airbag assembly and the airbag sensor assembly, measure the resistance between P+ and body ground.

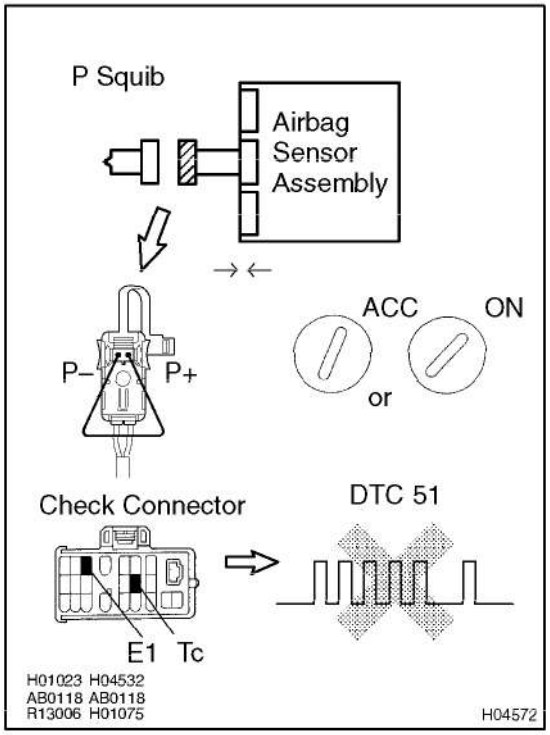
OK:

Resistance: 1 MΩ or Higher

NG → **Repair or replace harness or connector between front passenger airbag assembly and airbag sensor assembly.**

OK

3	Check airbag sensor assembly.



PREPARATION:

(a) Connect the connector to the airbag sensor assembly.
(b) Using a service wire, connect P+ and P– of the connector (on the front passenger airbag assembly side) between the front passenger airbag assembly and the airbag sensor assembly.
(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See step 5 on page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

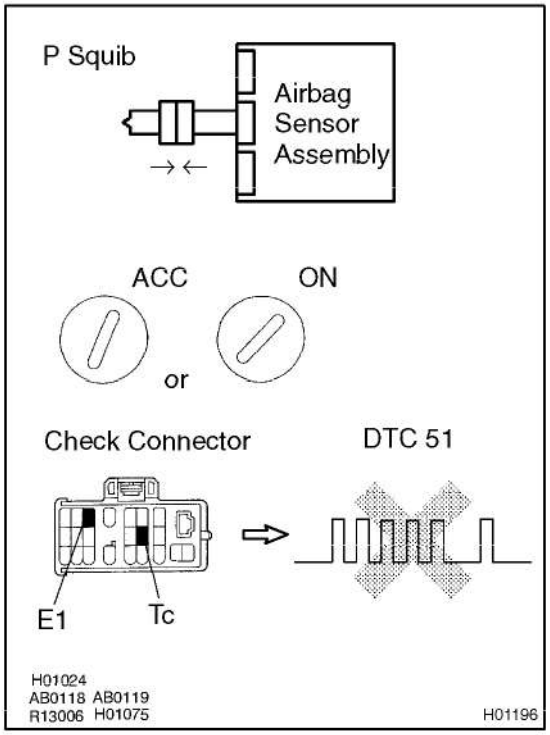
DTC 51 is not output.

HINT:
Codes other than code 51 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

4	**Check P squib.**



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the front passenger airbag assembly connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See stpe 5 on page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 51 is not output.

HINT:

Codes other than code 51 may be output at this time, but they are not relevant to this check.

NG → **Replace front passenger airbag assembly.**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check. If the malfunctioning part can not be detected by the simulation method, replace all SRS components including the wire harness.

D035–01

DTC	52	Short in P Squib Circuit (to B+)

CIRCUIT DESCRIPTION

The P squib circuit consists of the airbag sensor assembly and front passenger airbag assembly.
It causes the SRS to deploy when the SRS deployment conditions are satisfied.
For details of the function of each component, see OPERATION on page RS–2.
DTC 52 is recorded when a B+ short is detected in the P squib circuit.

DTC No.	DTC Detecting Condition	Trouble Area
52	• Short circuit in P squib wire harness (to B+) • P squib malfunction • Airbag sensor assembly malfunction	• Front passenger airbag assembly (P squib) • Airbag sensor assembly • Wire harness

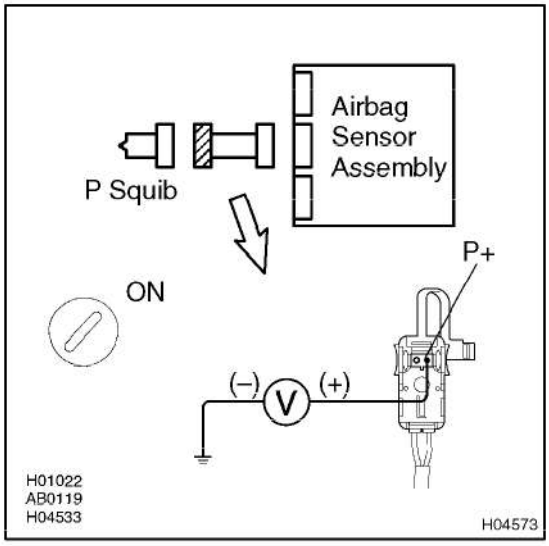
WIRING DIAGRAM

See page DI–246.

INSPECTION PROCEDURE

1	Prepare for inspection. (See step 1 on page DI–285)

2	Check P squib circuit.



CHECK:

(a) Turn ignition switch to ON.

(b) For the connector (on the front passenger airbag assembly side) between the front passenger airbag assembly and the airbag sensor assembly, measure the voltage between P+ and body ground.

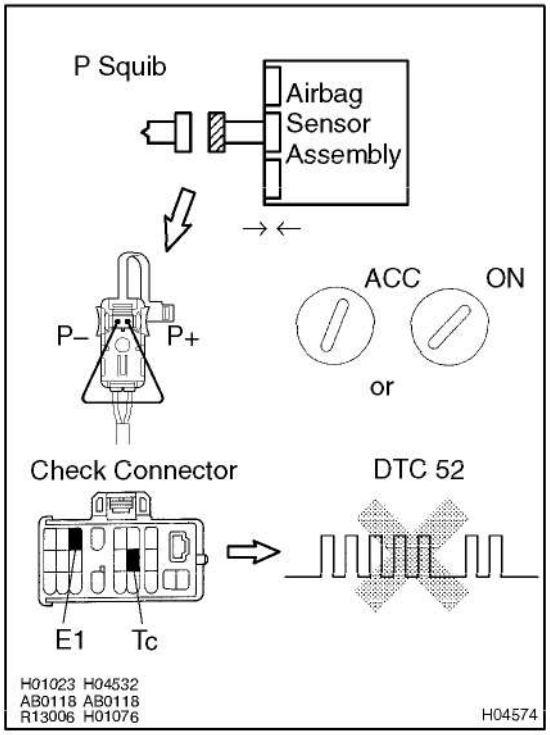
OK:

Voltage: 0 V

NG → **Repair or replace harness or connector between front passenger airbag assembly and airbag sensor assembly.**

OK

3	Check airbag sensor assembly.



PREPARATION:

(a) Connect the connector to the airbag sensor assembly.

(b) Using a service wire, connect P+ and P– of the connector (on the front passenger airbag assembly side) between the front passenger airbag assembly and the airbag sensor assembly.

(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON and wait at least for 20 seconds.

(b) Clear DTC stored in memory.
(See step 5 on page DI–152)

(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.

(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.

(e) Check DTC.
(See page DI–152)

OK:

DTC 52 is not output.

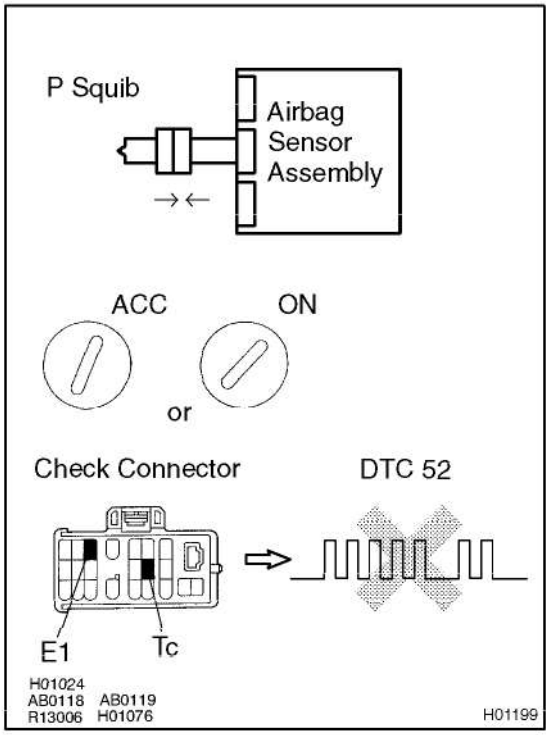
HINT:

Codes other than code 52 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

4	Check P squib.



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the front passenger airbag assembly connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 52 is not output.

HINT:

Codes other than code 52 may be output at this time, but they are not relevant to this check.

NG → **Replace front passenger airbag assembly.**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check. If the malfunctioning part can not be detected by the simulation method, replace all SRS components including the wire harness.

D03T–01

DTC	53	Short in P Squib Circuit

CIRCUIT DESCRIPTION

The P squib circuit consists of the airbag sensor assembly and front passenger airbag assembly.
It causes the SRS to deploy when the SRS deployment conditions are satisfied.
For details of the function of each component, see OPERATION on page RS–2.
DTC 53 is recorded when a short is detected in the P squib circuit.

DTC No.	DTC Detecting Condition	Trouble Area
53	• Short circuit in P squib wire harness • P squib malfunction • Airbag sensor assembly malfunction	• Front passenger airbag assembly (P squib) • Airbag sensor assembly • Wire harness

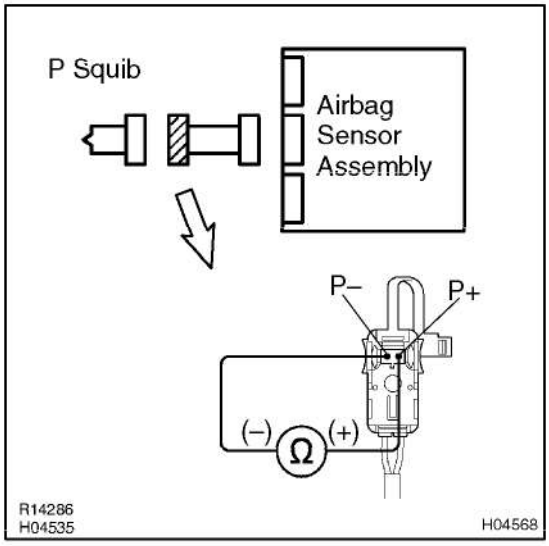
WIRING DIAGRAM

See page DI–246.

INSPECTION PROCEDURE

1	Prepare for inspection. (See step 1 on page DI–285)

2	Check P squib circuit.



PREPARATION:
Release airbag activation prevention mechanism of the connector (on the airbag sensor assembly side) between the front passenger airbag assembly and the airbag sensor assembly. (See page DI–152)

CHECK:
For the connector (on the front passenger airbag assembly side) between the airbag sensor assembly and the front passenger airbag assembly, measure the resistance between P+ and P–.

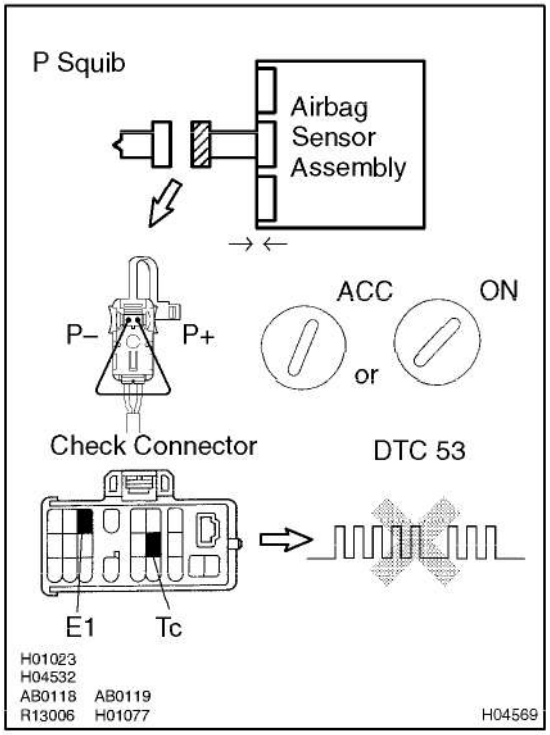
OK:

Resistance: 1 MΩ or Higher

NG → **Repair or replace harness or connector between front passenger airbag assembly and airbag sensor assembly.**

OK

3	Check airbag sensor assembly.



PREPARATION:

(a) Connect the connector to the airbag sensor assembly.
(b) Using a service wire, connect P+ and P– of the connector (on the front passenger airbag assembly side) between the airbag sensor assembly and the front passenger airbag assembly.
(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

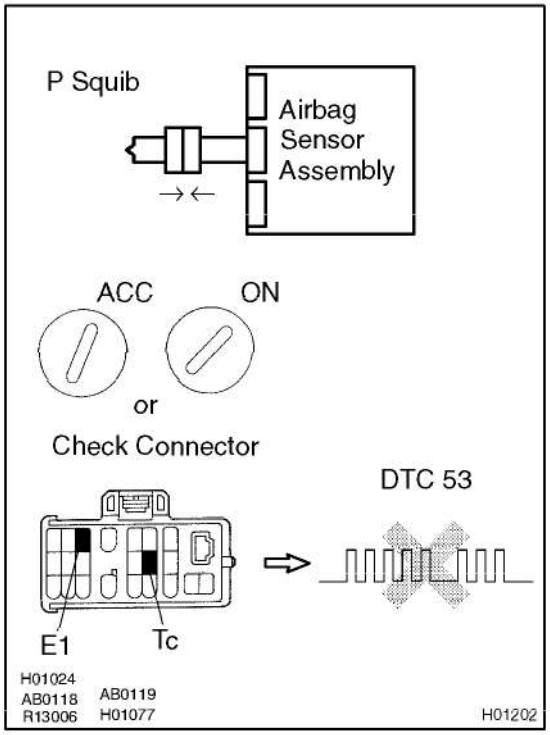
DTC 53 is not output.

HINT:
Codes other than code 53 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

4	Check P squib.



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the front passenger airbag assembly connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to LOOK, and wait at least for 20 seconds.
(b) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(c) Clear DTC stored in memory.
(See page DI–152)
(d) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(e) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(f) Check DTC.
(See page DI–152)

OK:

DTC 53 is not output.

HINT:
Codes other than code 53 may be output at this time, but they are not relevant to this check.

NG → **Replace front passenger airbag assembly.**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

D03U–01

DTC	54	Open in P Squib Circuit

CIRCUIT DESCRIPTION

The P squib circuit consists of the airbag sensor assembly and front passenger airbag assembly.
It causes the SRS to deploy when the SRS deployment conditions are satisfied.
For details of the function of each component, see OPERATION on page RS–2.
DTC 54 is recorded when an open is detected in the P squib circuit.

DTC No.	DTC Detecting Condition	Trouble Area
54	• Open circuit in P squib wire harness or P– wire harness of squib • P squib malfunction • Airbag sensor assembly malfunction	• Front passenger airbag assembly (P squib) • Airbag sensor assembly • Wire harness

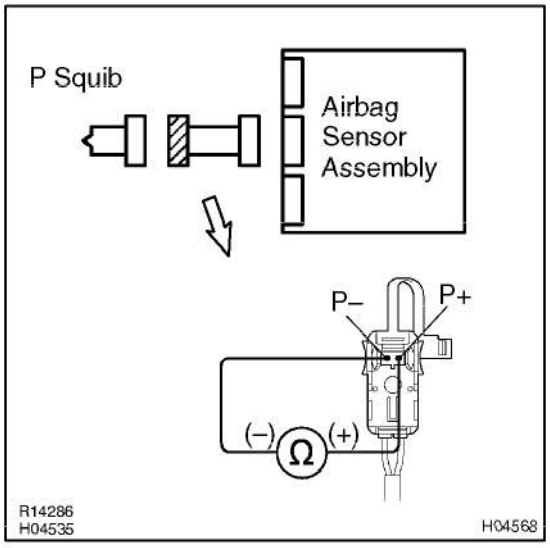
WIRING DIAGRAM

See page DI–246.

INSPECTION PROCEDURE

1	Prepare for inspection. (See step 1 on page DI–285)

2	Check P squib circuit.



CHECK:
For the connector (on the front passenger airbag assembly side) between the front passenger airbag assembly and the airbag sensor assembly, measure the resistance between P+ and P–.

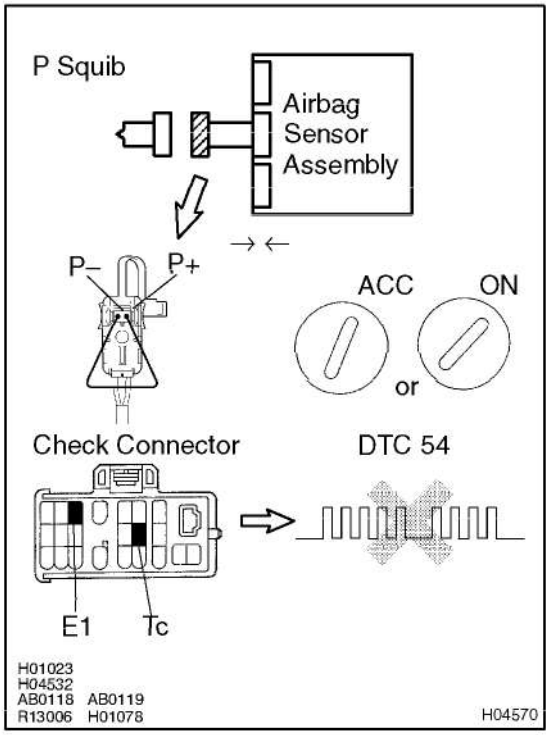
OK:

Resistance: Below 1 Ω

NG → **Repair or replace harness or connector between front passenger airbag assembly and airbag sensor assembly.**

OK

3	**Check airbag sensor assembly.**



PREPARATION:

(a) Connect the connector to the airbag sensor assembly.

(b) Using a service wire, connect P+ and P– of the connector (on the front passenger airbag assembly side) between the front passenger airbag assembly and the airbag sensor assembly.

(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON and wait at least for 20 seconds.

(b) Clear DTC stored in memory.
(See page DI–152)

(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.

(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.

(e) Check DTC.
(See page DI–152)

OK:

DTC 54 is not output.

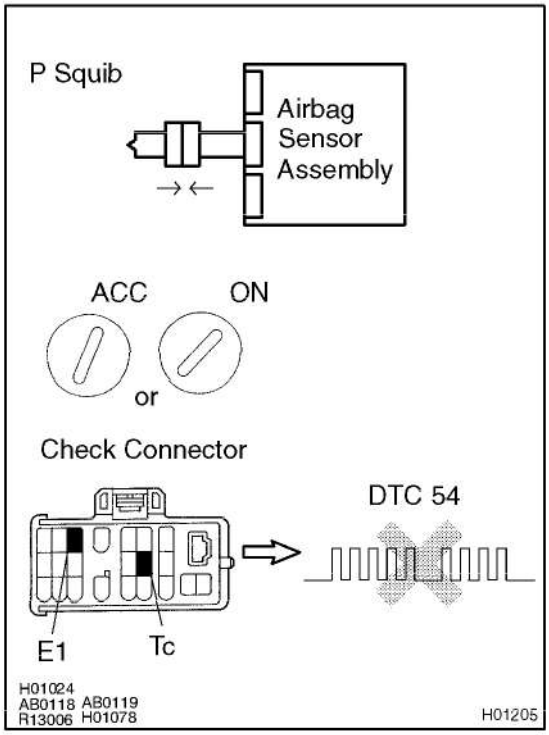
HINT:

Codes other than code 54 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

4	Check P squib.



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the front passenger airbag assembly connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 54 is not output.

HINT:

Codes other than code 54 may be output at this time, but they are not relevant to this check.

NG → **Replace front passenger airbag assembly.**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

D03V–01

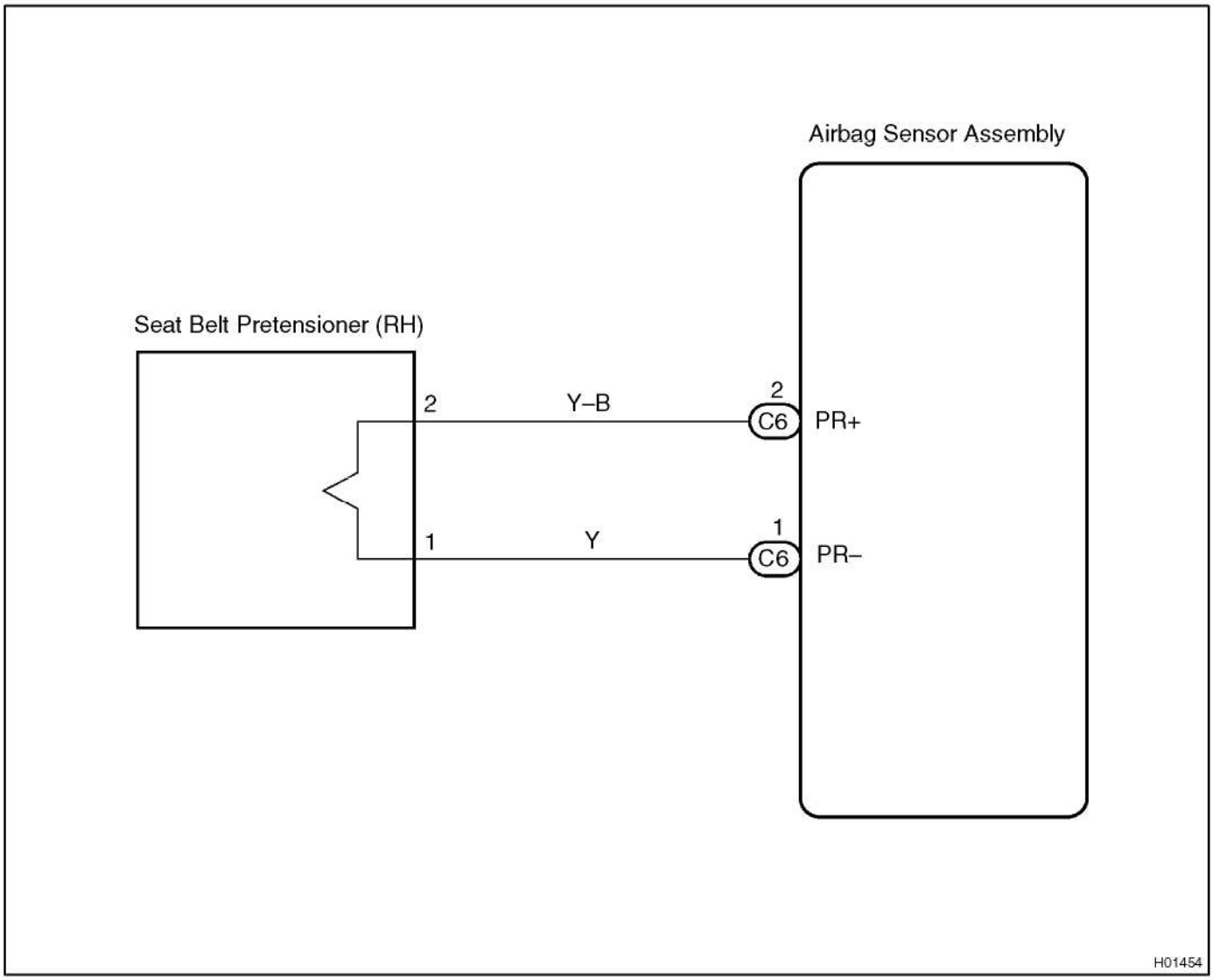
DTC	61	Short in P/T Squib (RH) Circuit (to Ground)

CIRCUIT DESCRIPTION

The P/T squib (RH) circuit consists of the airbag sensor assembly and seat belt pretensioner (RH).
It causes the seat belt pretensioner (RH) to activate when the seat belt pretensioner (RH) activation conditions are satisfied.
For details of the function of each component, see OPERATION on page RS–2.
DTC 61 is recorded when ground short is detected in the P/T squib (RH) circuit.

DTC No.	DTC Detecting Condition	Trouble Area
61	• Short circuit in P/T squib (RH) wire harness (to ground) • P/T squib (RH) malfunction • Airbag sensor assembly malfunction	• Seat belt pretensioner (RH) • Airbag sensor assembly • Wire harness

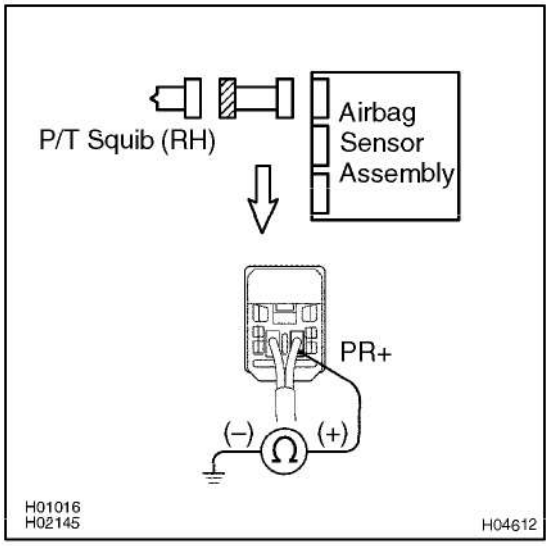
WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Prepare for inspection. (See step 1 on page DI–285)**

2	**Check P/T squib (RH) circuit.**

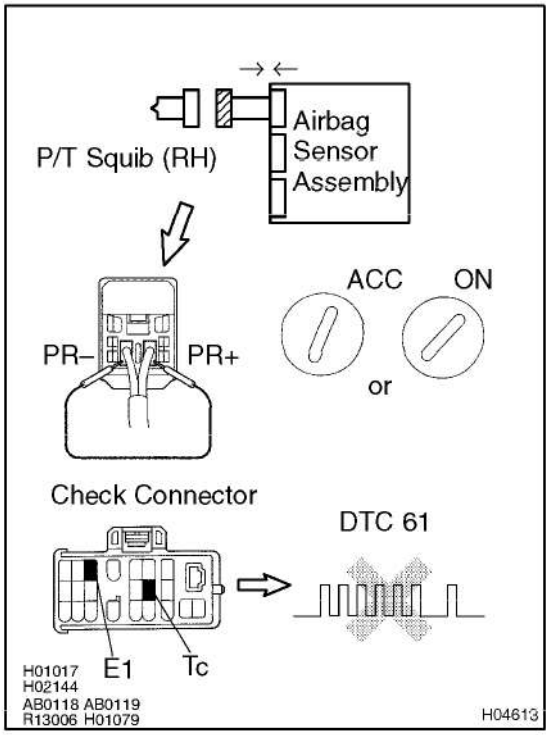


CHECK:
For the connector (on the seat belt pretensioner side) between the seat belt pretensioner (RH) and the airbag sensor assembly, measure the resistance between PR+ and body ground.
OK:
Resistance: 1 MΩ or Higher

NG → **Repair or replace harness or connector between seat belt pretensioner (RH) and airbag sensor assembly.**

OK

3	Check airbag sensor assembly.



PREPARATION:

(a) Connect the connector to the airbag sensor assembly.

(b) Using a service wire, connect PR+ and PR– of the connector (on the seat belt pretensioner side) between the seat belt pretensioner (RH) and the airbag sensor assembly.

(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON and wait at least for 20 seconds.

(b) Clear DTC stored in memory.
(See step 5 on page DI–152)

(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.

(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.

(e) Check DTC.
(See page DI–152)

OK:

DTC 61 is not output.

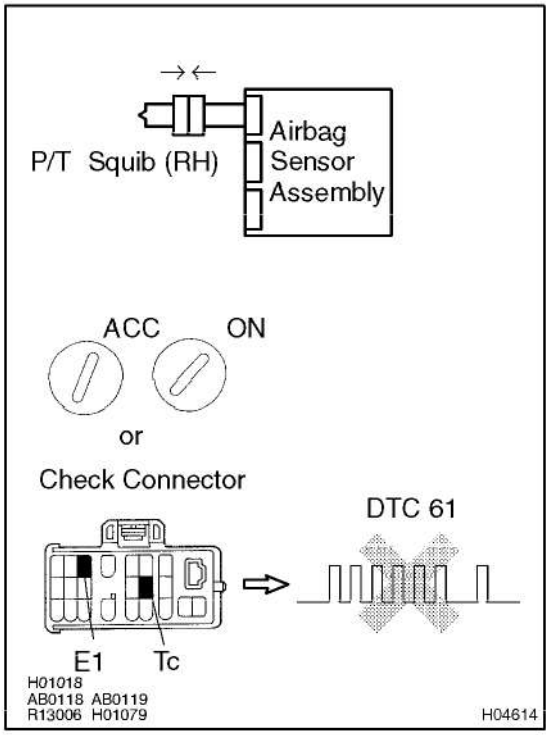
HINT:

Codes other than code 61 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

4	Check P/T squib (RH).



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the seat belt pretensioner (RH) connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See step 5 on page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 61 is not output.

HINT:

Codes other than code 61 may be output at this time, but they are not relevant to this check.

NG → **Replace seat belt pretensioner (RH).**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check. If the malfunctioning part can not be detected by the simulation method, replace all SRS components including the wire harness.

DI3W–01

DTC	62	Short in P/T Squib (RH) Circuit (to B+)

CIRCUIT DESCRIPTION

The P/T squib (RH) circuit consists of the airbag sensor assembly and seat belt pretensioner (RH).
It causes the seat belt pretensioner (RH) to activate when the seat belt pretensioner (RH) activation conditions are satisfied.
For details of the function of each component, see OPERATION on page RS–2.
DTC 62 is recorded when a B+ short is detected in the P/T squib (RH) circuit.

DTC No.	DTC Detecting Condition	Trouble Area
62	• Short circuit in seat belt pretensioner (RH) wire harness (to B+) • P/T squib (RH) malfunction • Airbag sensor assembly malfunction	• Seat belt pretensioner (RH) • Airbag sensor assembly • Wire harness

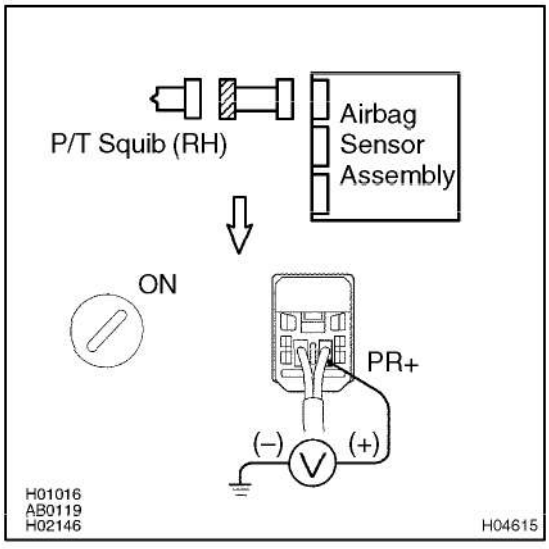
WIRING DIAGRAM

See page DI–259.

INSPECTION PROCEDURE

1	Prepare for inspection. (See step 1 on page DI–285)

2	Check P/T squib (RH) circuit.



CHECK:

(a) Turn ignition switch to ON.

(b) For the connector (on the seat belt pretensioner side) between the seat belt pretensioner (RH) and the airbag sensor assembly, measure the voltage between PR+ and body ground.

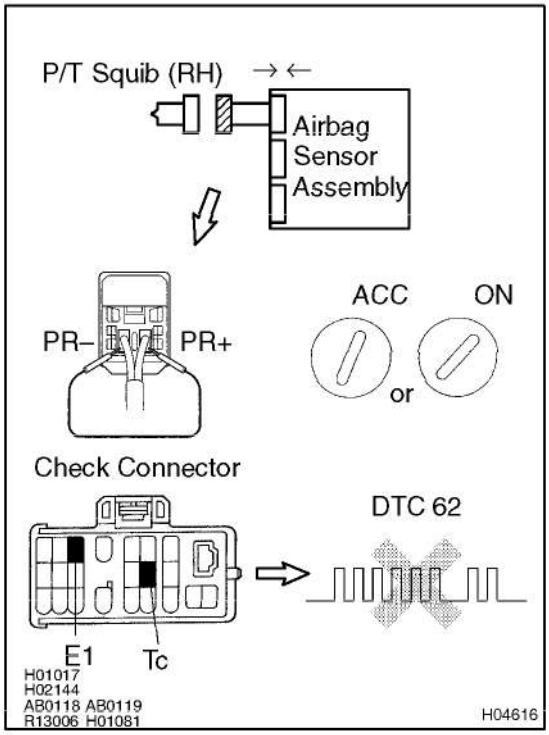
OK:

Voltage: 0 V

NG → **Repair or replace harness or connector between seat belt pretensioner (RH) and airbag sensor assembly.**

OK

3	Check airbag sensor assembly.



PREPARATION:

(a) Connect the connector to the airbag sensor assembly.

(b) Using a service wire, connect PR+ and PR– of the connector (on the seat belt pretensioner side) between the seat belt pretensioner (RH) and the airbag sensor assembly.

(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON and wait at least for 20 seconds.

(b) Clear DTC stored in memory.
(See step 5 on page DI–152)

(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.

(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.

(e) Check DTC.
(See page DI–152)

OK:

DTC 62 is not output.

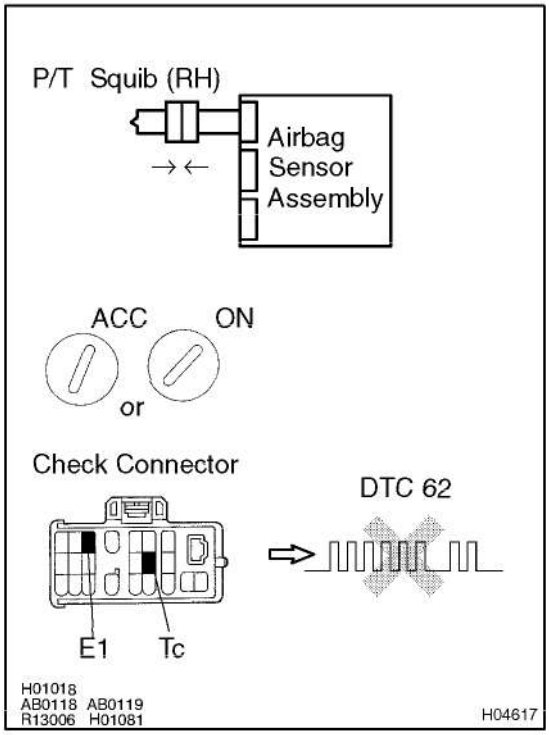
HINT:

Codes other than code 62 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

4	Check P/T squib (RH).



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the seat belt pretensioner (RH) connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See step 5 on page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 62 is not output.

HINT:

Codes other than code 62 may be output at this time, but they are not relevant to this check.

NG → **Replace seat belt pretensioner (RH).**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check. If the malfunctioning part can not be detected by the simulation method, replace all SRS components including the wire harness.

D03X–01

DTC	63	Short in P/T Squib (RH) Circuit

CIRCUIT DESCRIPTION

The P/T squib (RH) circuit consists of the airbag sensor assembly and seat belt pretensioner (RH).
It causes the seat belt pretensioner (RH) to activate when the seat belt pretensioner (RH) activation conditions are satisfied.
For details of the function of each component, see OPERATION on page RS–2.
DTC 63 is recorded when a short is detected in the P/T squib (RH) circuit.

DTC No.	DTC Detecting Condition	Trouble Area
63	• Short circuit between PR+ wire harness and PR– wire harness of squib • P/T squib (RH) malfunction • Airbag sensor assembly malfunction	• Seat belt pretensioner (RH) • Airbag sensor assembly • Wire harness

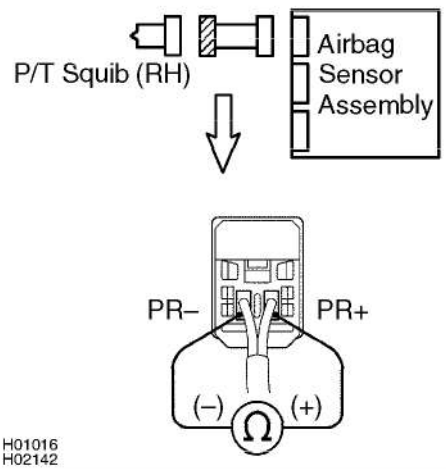
WIRING DIAGRAM

See page DI–259.

INSPECTION PROCEDURE

1	Prepare for inspection. (See step 1 on page DI–285)

2	Check P/T squib (RH) circuit.



PREPARATION:
Release airbag activation prevention mechanism of the connector (on the airbag sensor assembly side) between the airbag sensor assembly and the seat belt pretensioner (RH).
(See page DI–152)

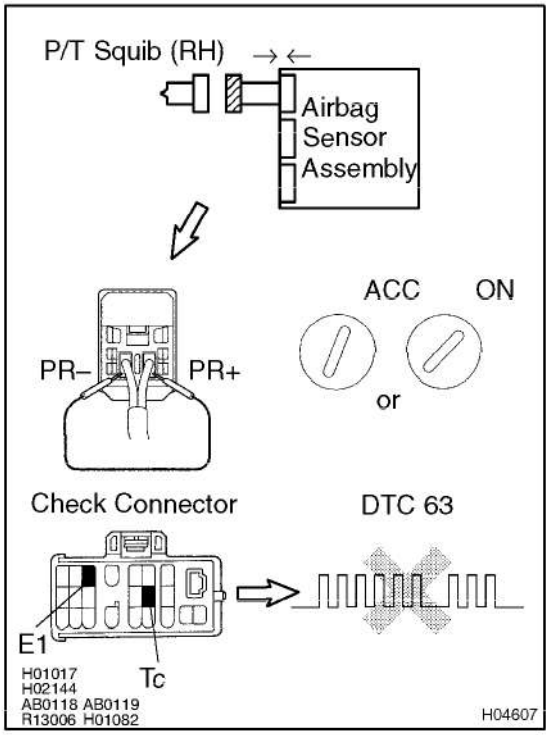
CHECK:
For the connector (on the seat belt pretensioner side) between the seat belt pretensioner (RH) and the airbag sensor assembly, measure the resistance between PR+ and PR–.

OK:
Resistance: 1 MΩ or Higher

NG → **Repair or replace harness or connector between seat belt pretensioner (RH) and airbag sensor assembly.**

OK

3	**Check airbag sensor assembly.**



PREPARATION:

(a) Connect the connector to the airbag sensor assembly.

(b) Using a service wire, connect PR+ and PR– of the connector (on the seat belt pretensioner side) between the airbag sensor assembly and the seat belt pretensioner (RH).

(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON and wait at least for 20 seconds.

(b) Clear DTC stored in memory.
(See page DI–152)

(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.

(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.

(e) Check DTC.
(See page DI–152)

OK:

DTC 63 is not output.

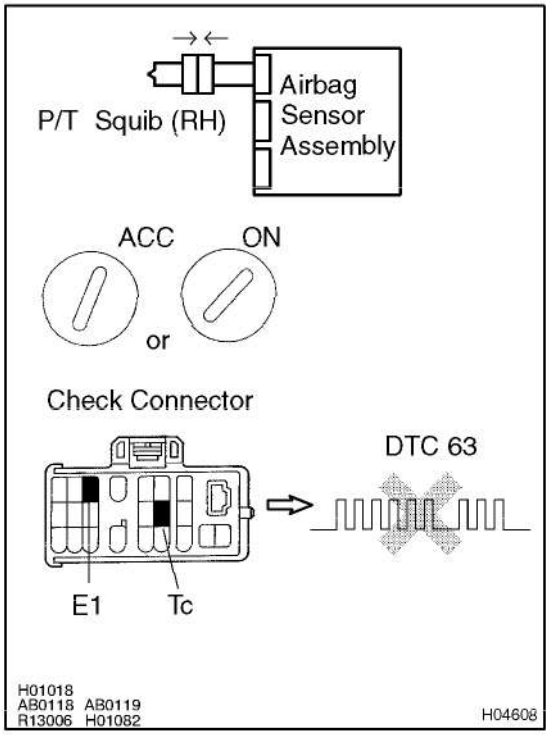
HINT:

Codes other than code 63 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

4	Check P/T squib (RH).



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the side airbag assembly (RH) connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to LOOK, and wait at least for 20 second.
(b) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(c) Clear DTC stored in memory.
(See page DI–152)
(d) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(e) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(f) Check DTC.
(See page DI–152)

OK:

DTC 63 is not output.

HINT:
Codes other than code 63 may be output at this time, but they are not relevant to this check.

NG → **Replace seat belt pretensioner (RH).**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

D03Y–01

DTC	64	Open in P/T Squib (RH) Circuit

CIRCUIT DESCRIPTION

The P/T squib circuit (RH) consists of the airbag sensor assembly and seat belt pretensioner (RH).
It causes the seat belt pretensioner (RH) to activate when the seat belt pretensioner (RH) activation conditions are satisfied.
For details of the function of each component, see OPERATION on page RS–2.
DTC 64 is recorded when an open is detected in the P/T squib (RH) circuit.

DTC No.	DTC Detecting Condition	Trouble Area
64	• Open circuit in PR+ wire harness or PR– wire harness of squib • P/T squib (RH) malfunction • Airbag sensor assembly malfunction	• Seat belt pretensioner (RH) • Airbag sensor assembly • Wire harness

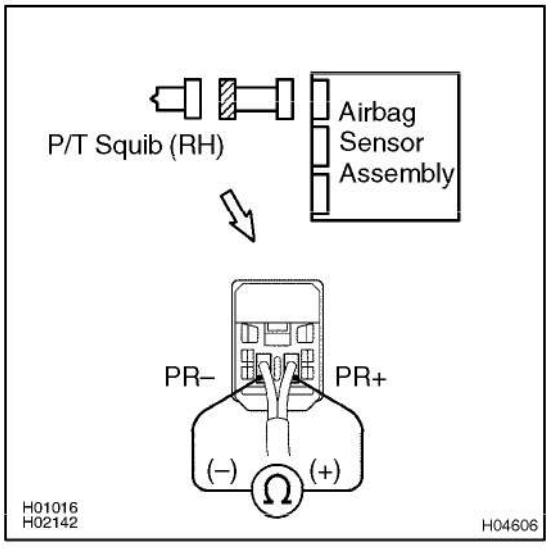
WIRING DIAGRAM

See page DI–259.

INSPECTION PROCEDURE

1	Prepare for inspection. (See step 1 on page DI–285)

2	Check P/T squib (RH) circuit.

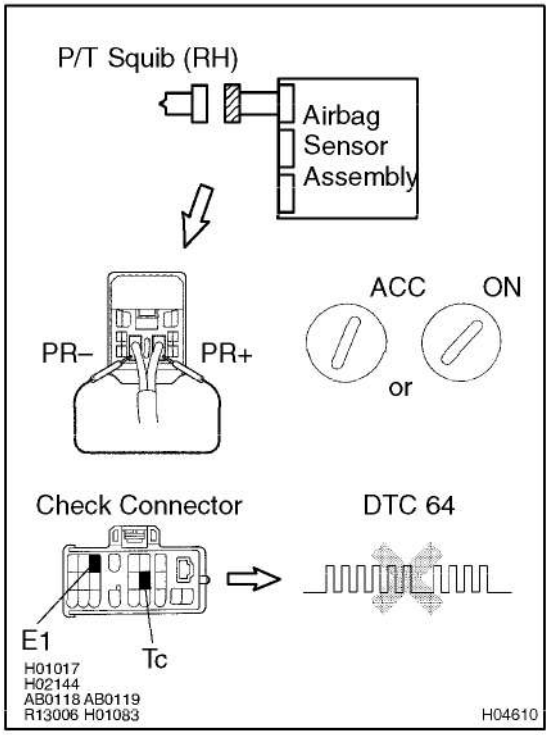


CHECK:
For the connector (on the seat belt pretensioner side) between the seat belt pretensioner (RH) and the airbag sensor assembly, measure the resistance between PR+ and PR–.
OK:
Resistance: Below 1 Ω

NG → **Repair or replace harness or connector between seat belt pretensioner (RH) and airbag sensor assembly.**

OK

3	Check airbag sensor assembly.



PREPARATION:

(a) Connect the connector to the airbag sensor assembly.

(b) Using a service wire, connect PR+ and PR– of the connector (on the seat belt pretensioner side) between the seat belt pretensioner (RH) and the airbag sensor assembly.

(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON and wait at least for 20 seconds.

(b) Clear DTC stored in memory.
(See page DI–152)

(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.

(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.

(e) Check DTC.
(See page DI–152)

OK:

DTC 64 is not output.

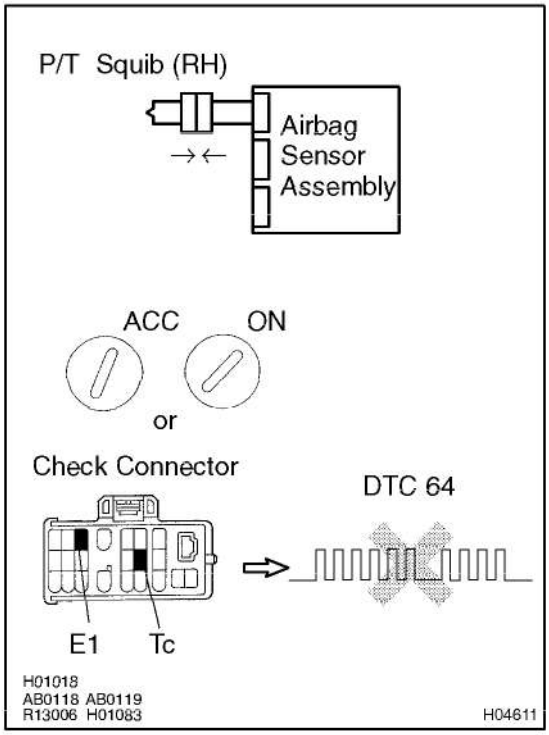
HINT:

Codes other than code 64 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

4	Check P/T squib (RH).



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the seat belt pretensioner (RH) connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 64 is not output.

HINT:

Codes other than code 64 may be output at this time, but they are not relevant to this check.

NG → **Replace seat belt pretensioner (RH).**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

D03Z–01

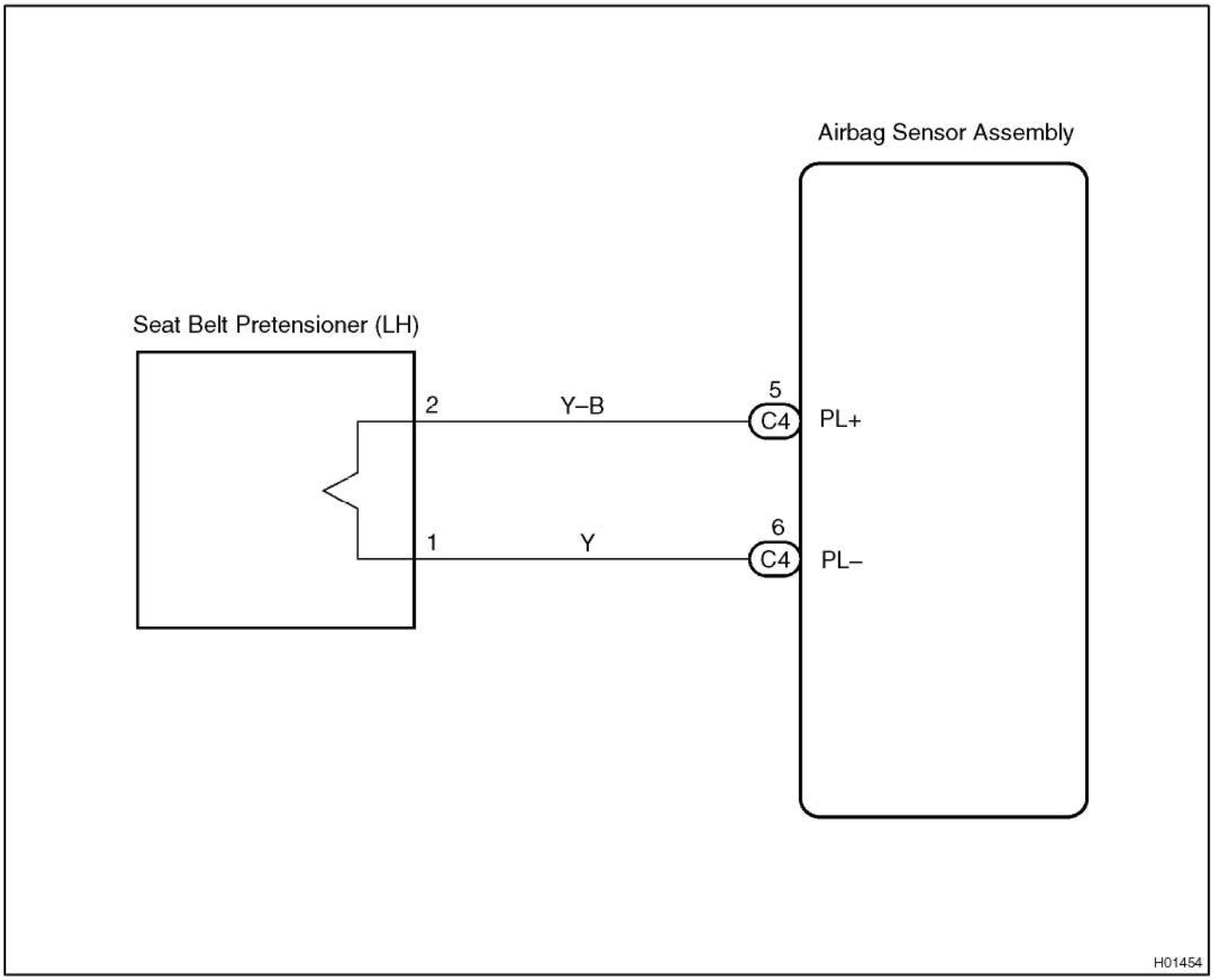
DTC	71	Short in P/T Squib (LH) Circuit (to Ground)

CIRCUIT DESCRIPTION

The P/T squib (LH) circuit consists of the airbag sensor assembly and seat belt pretensioner (LH).
It causes the seat belt pretensioner (LH) to activate when the seat belt pretensioner (LH) activation conditions are satisfied.
For details of the function of each component, see OPERATION on page RS–2.
DTC 71 is recorded when ground short is detected in the P/T squib (LH) circuit.

DTC No.	DTC Detecting Condition	Trouble Area
71	• Short circuit in P/T squib (LH) wire harness (to ground) • P/T squib (LH) malfunction • Airbag sensor assembly malfunction	• Seat belt pretensioner (LH) • Airbag sensor assembly • Wire harness

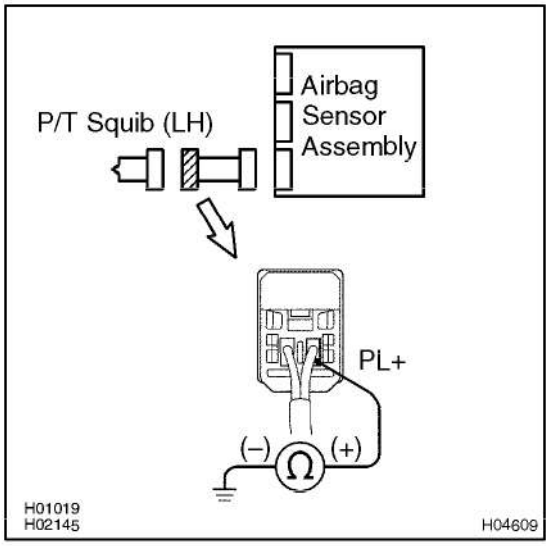
WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Prepare for inspection. (See step 1 on page DI–285)**

2	**Check P/T squib (LH) circuit.**



CHECK:

For the connector (on the seat belt pretensioner side) between the seat belt pretensioner (LH) and the airbag sensor assembly, measure the resistance between PL+ and body ground.

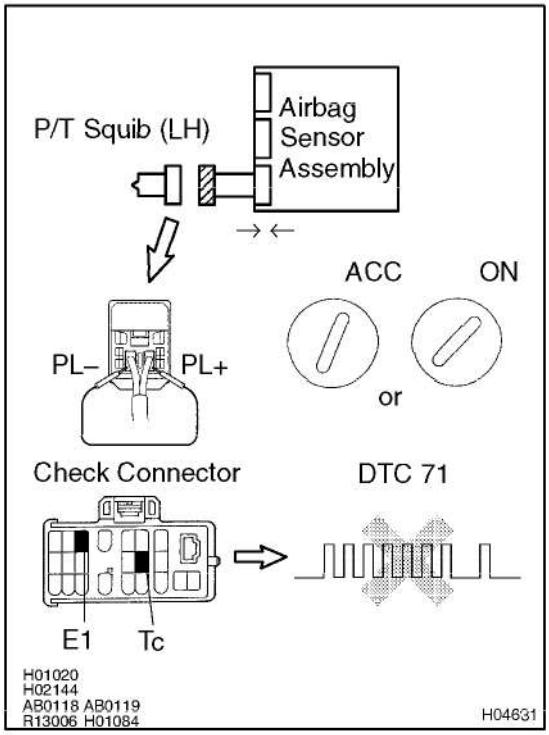
OK:

Resistance: 1 MΩ or Higher

NG → **Repair or replace harness or connector between seat belt pretensioner (LH) and airbag sensor assembly.**

OK

3	Check airbag sensor assembly.



PREPARATION:

(a) Connect the connector to the airbag sensor assembly.
(b) Using a service wire, connect PL+ and PL– of the connector (on the seat belt pretensioner side) between the seat belt pretensioner (LH) and the airbag sensor assembly.
(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See step 5 on page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 71 is not output.

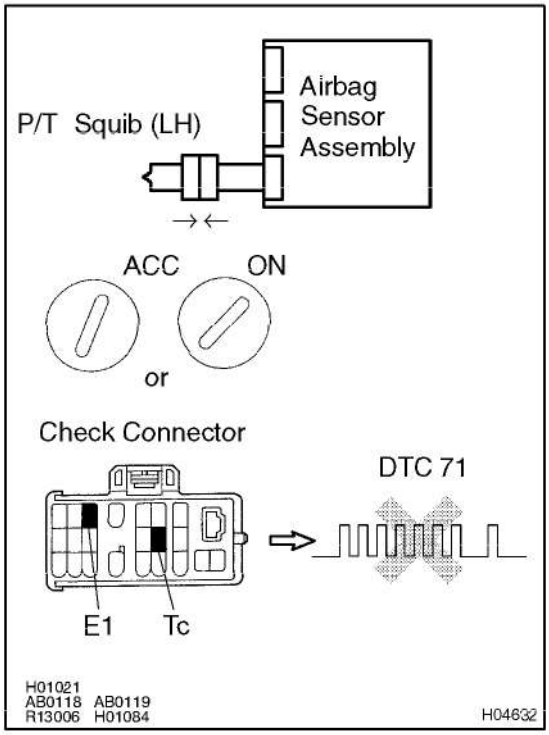
HINT:

Codes other than code 71 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

4	Check P/T squib (LH).



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the seat belt pretensioner (LH) connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See step 5 on page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 71 is not output.

HINT:

Codes other than code 71 may be output at this time, but they are not relevant to this check.

NG → **Replace seat belt pretensioner (LH).**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check. If the malfunctioning part can not be detected by the simulation method, replace all SRS components including the wire harness.

DI340-01

DTC	72	Short in P/T Squib (LH) Circuit (to B+)

CIRCUIT DESCRIPTION

The P/T squib (LH) circuit consists of the airbag sensor assembly and seat belt pretensioner (LH).
It causes the seat belt pretensioner (LH) to activate when the seat belt pretensioner (LH) activation conditions are satisfied.
For details of the function of each component, see OPERATION on page RS–2.
DTC 72 is recorded when the B+ short is detected in the P/T squib (LH) circuit.

DTC No.	DTC Detecting Condition	Trouble Area
72	• Short circuit in seat belt pretensioner (LH) wire harness (to B+) • P/T squib (LH) malfunction • Airbag sensor assembly malfunction	• Seat belt pretensioner (LH) • Airbag sensor assembly • Wire harness

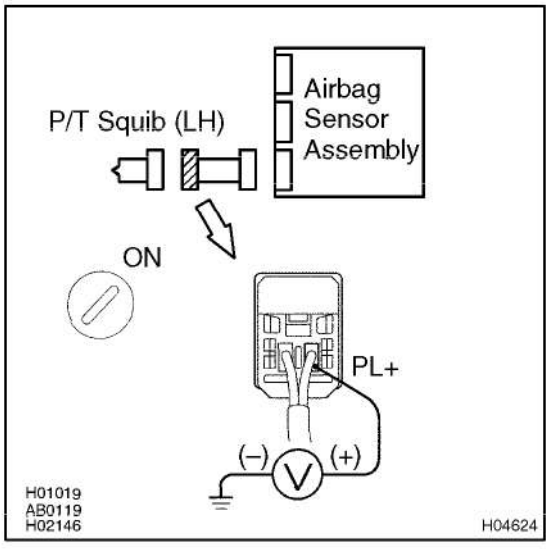
WIRING DIAGRAM

See page DI–272.

INSPECTION PROCEDURE

1	Prepare for inspection. (See step 1 on page DI–285)

2	Check P/T squib (LH) circuit.



CHECK:

(a) Turn ignition switch to ON.

(b) For the connector (on the seat belt pretensioner side) between the seat belt pretensioner (LH) and the airbag sensor assembly, measure the voltage between PL+ and body ground.

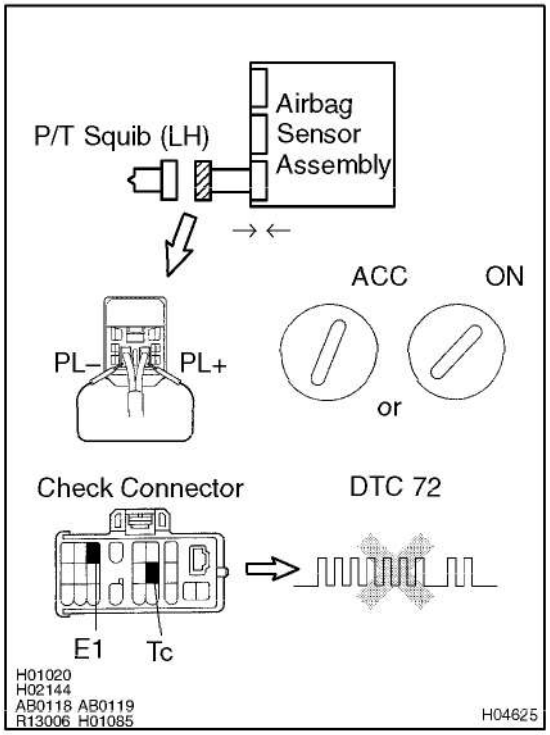
OK:

Voltage: 0 V

NG → **Repair or replace harness or connector between seat belt pretensioner (LH) and airbag sensor assembly.**

OK

3	**Check airbag sensor assembly.**



PREPARATION:

(a) Connect the connector to the airbag sensor assembly.
(b) Using a service wire, connect PL+ and PL– of the connector (on the seat belt pretensioner side) between the seat belt pretensioner (LH) and the airbag sensor assembly.
(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See step 5 on page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 72 is not output.

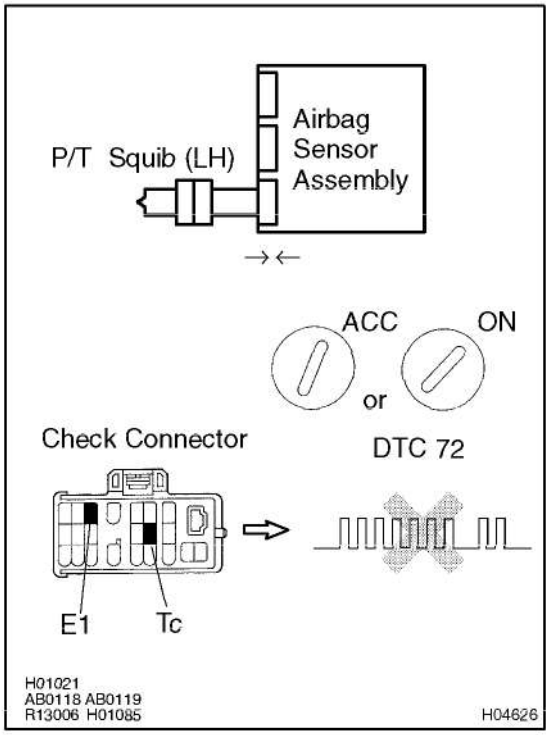
HINT:

Codes other than code 72 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

4	Check P/T squib (LH).



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the seat belt pretensioner (LH) connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See step 5 on page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 72 is not output.

HINT:

Codes other than code 72 may be output at this time, but they are not relevant to this check.

NG → **Replace seat belt pretensioner (LH).**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check. If the malfunctioning part can not be detected by the simulation method, replace all SRS components including the wire harness.

DI041–01

DTC	73	Short in P/T Squib (LH) Circuit

CIRCUIT DESCRIPTION

The P/T squib (LH) circuit consists of the airbag sensor assembly and seat belt pretensioner (LH).
It causes the seat belt pretensioner (LH) to activate when the seat belt pretensioner (LH) activation conditions are satisfied.
For details of the function of each component, see OPERATION on page RS–2.
DTC 73 is recorded when a short is detected in the P/T squib (LH) circuit.

DTC No.	DTC Detecting Condition	Trouble Area
73	• Short circuit between PL+ wire harness and PL– wire harness of squib • P/T squib (LH) malfunction • Airbag sensor assembly malfunction	• Seat belt pretensioner (LH) • Airbag sensor assembly • Wire harness

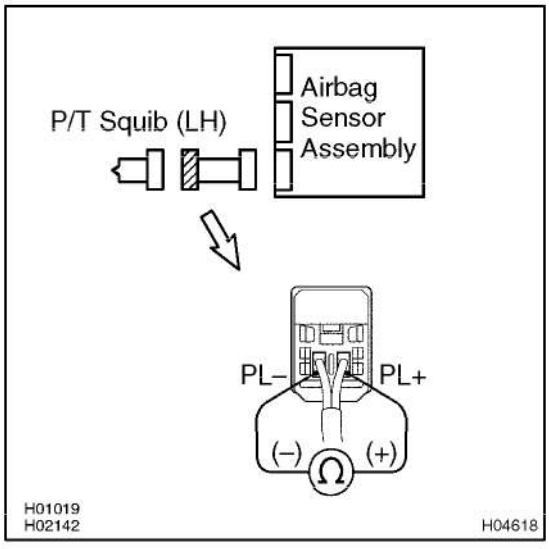
WIRING DIAGRAM

See page DI–272.

INSPECTION PROCEDURE

1	Prepare for inspection. (See step 1 on page DI–285)

2	Check P/T squib (LH) circuit.



PREPARATION:
Release airbag activation prevention mechanism of the connector (on the airbag sensor assembly side) between the airbag sensor assembly and the seat belt pretensioner (LH).
(See page DI–152)

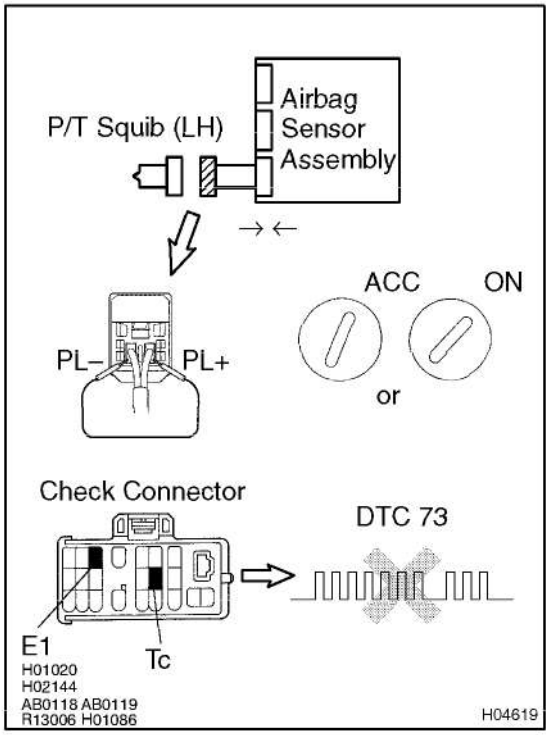
CHECK:
For the connector (on the seat belt pretensioner side) between the seat belt pretensioner (LH) and the airbag sensor assembly, measure the resistance between PL+ and PL–.

OK:
Resistance: 1 MΩ or Higher

NG → **Repair or replace harness or connector between seat belt pretensioner (LH) and airbag sensor assembly.**

OK

3	Check airbag sensor assembly.



PREPARATION:

(a) Connect the connector to the airbag sensor assembly.
(b) Using a service wire, connect PL+ and PL– of the connector (on the seat belt pretensioner side) between the airbag sensor assembly and the seat belt pretensioner (LH).
(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 73 is not output.

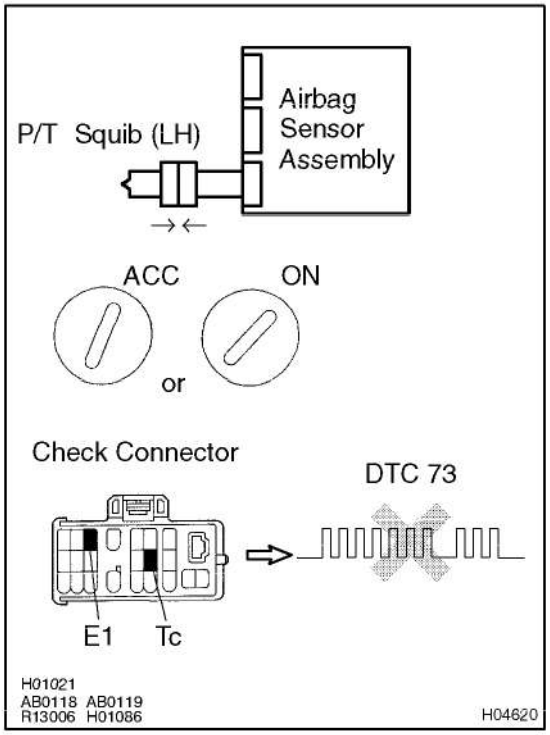
HINT:

Codes other than code 73 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

4	Check P/T squib (LH).



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the side airbag assembly (LH) connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to LOOK, and wait at least for 20 second.
(b) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(c) Clear DTC stored in memory.
(See page DI–152)
(d) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(e) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(f) Check DTC.
(See page DI–152)

OK:

DTC 73 is not output.

HINT:
Codes other than code 73 may be output at this time, but they are not relevant to this check.

NG → **Replace seat belt pretensioner (LH).**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

D042–01

DTC	74	Open in P/T Squib (LH) Circuit

CIRCUIT DESCRIPTION

The P/T squib circuit (LH) consists of the airbag sensor assembly and seat belt pretensioner (LH).
It causes the seat belt pretensioner (LH) to activate when the seat belt pretensioner (LH) activation conditions are satisfied.
For details of the function of each component, see OPERATION on page RS–2.
DTC 74 is recorded when an open is detected in the P/T squib (LH) circuit.

DTC No.	DTC Detecting Condition	Trouble Area
74	• Open circuit in PL+ wire harness or PL– wire harness of squib • P/T squib (LH) malfunction • Airbag sensor assembly malfunction	• Seat belt pretensioner (LH) • Airbag sensor assembly • Wire harness

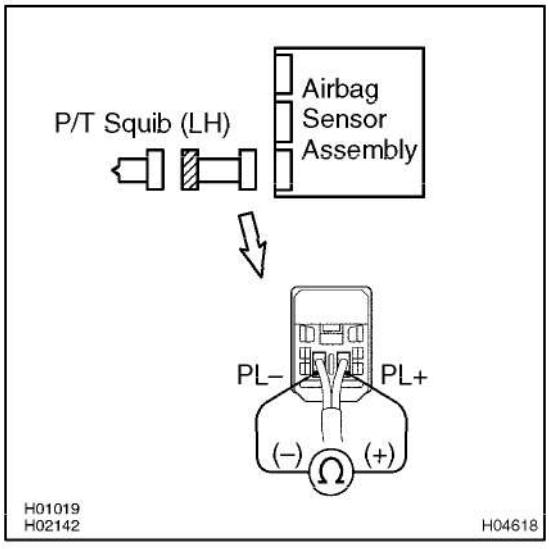
WIRING DIAGRAM

See page DI–272.

INSPECTION PROCEDURE

1	**Prepare for inspection. (See step 1 on page DI–285)**

2	**Check P/T squib (LH) circuit.**

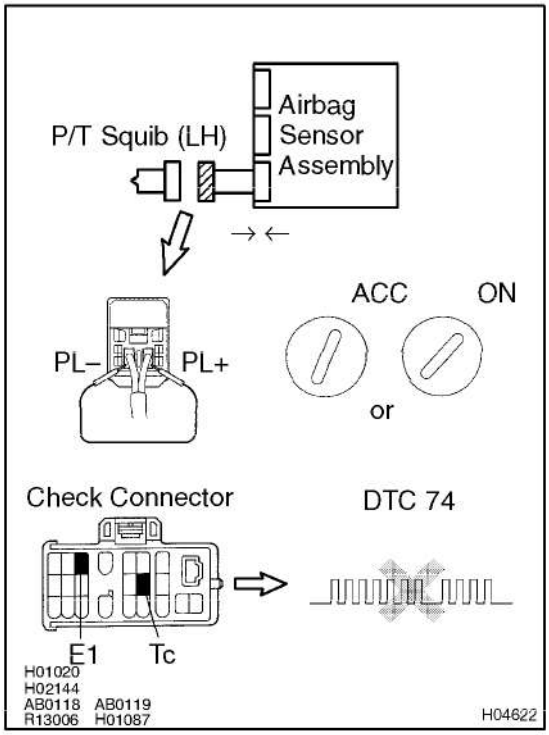


CHECK:
For the connector (on the seat belt pretensioner side) between the seat belt pretensioner (LH) and the airbag sensor assembly, measure the resistance between PL+ and PL–.
OK:
Resistance: Below 1 Ω

NG → **Repair or replace harness or connector between seat belt pretensioner (LH) and airbag sensor assembly.**

OK

3	Check airbag sensor assembly.



PREPARATION:

(a) Connect the connector to the airbag sensor assembly.
(b) Using a service wire, connect PL+ and PL– of the connector (on the seat belt pretensioner side) between the seat belt pretensioner (LH) and the airbag sensor assembly.
(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 74 is not output.

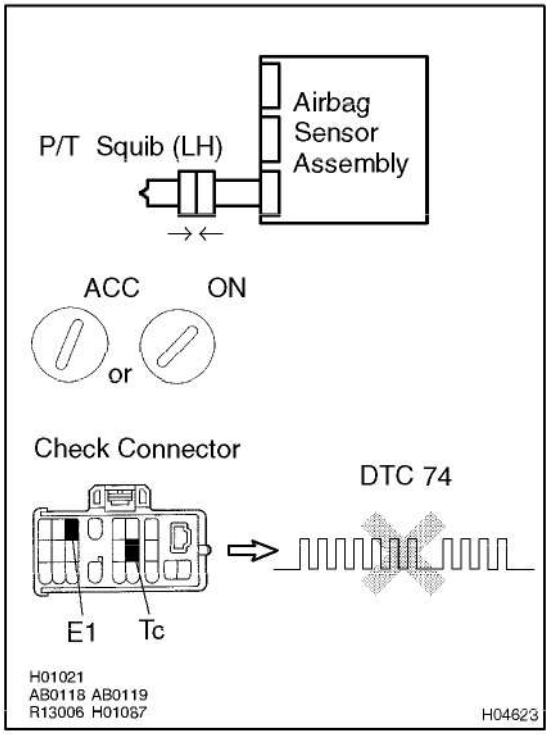
HINT:

Codes other than code 74 may be output at this time, but they are not relevant to this check.

NG → **Replace airbag sensor assembly.**

OK

4	Check P/T squib (LH).



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Connect the seat belt pretensioner (LH) connector.
(d) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

(a) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(b) Clear DTC stored in memory.
(See page DI–152)
(c) Turn ignition switch to LOCK, and wait at least for 20 seconds.
(d) Turn ignition switch to ACC or ON, and wait at least for 20 seconds.
(e) Check DTC.
(See page DI–152)

OK:

DTC 74 is not output.

HINT:

Codes other than code 74 may be output at this time, but they are not relevant to this check.

NG → **Replace seat belt pretensioner (LH).**

OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

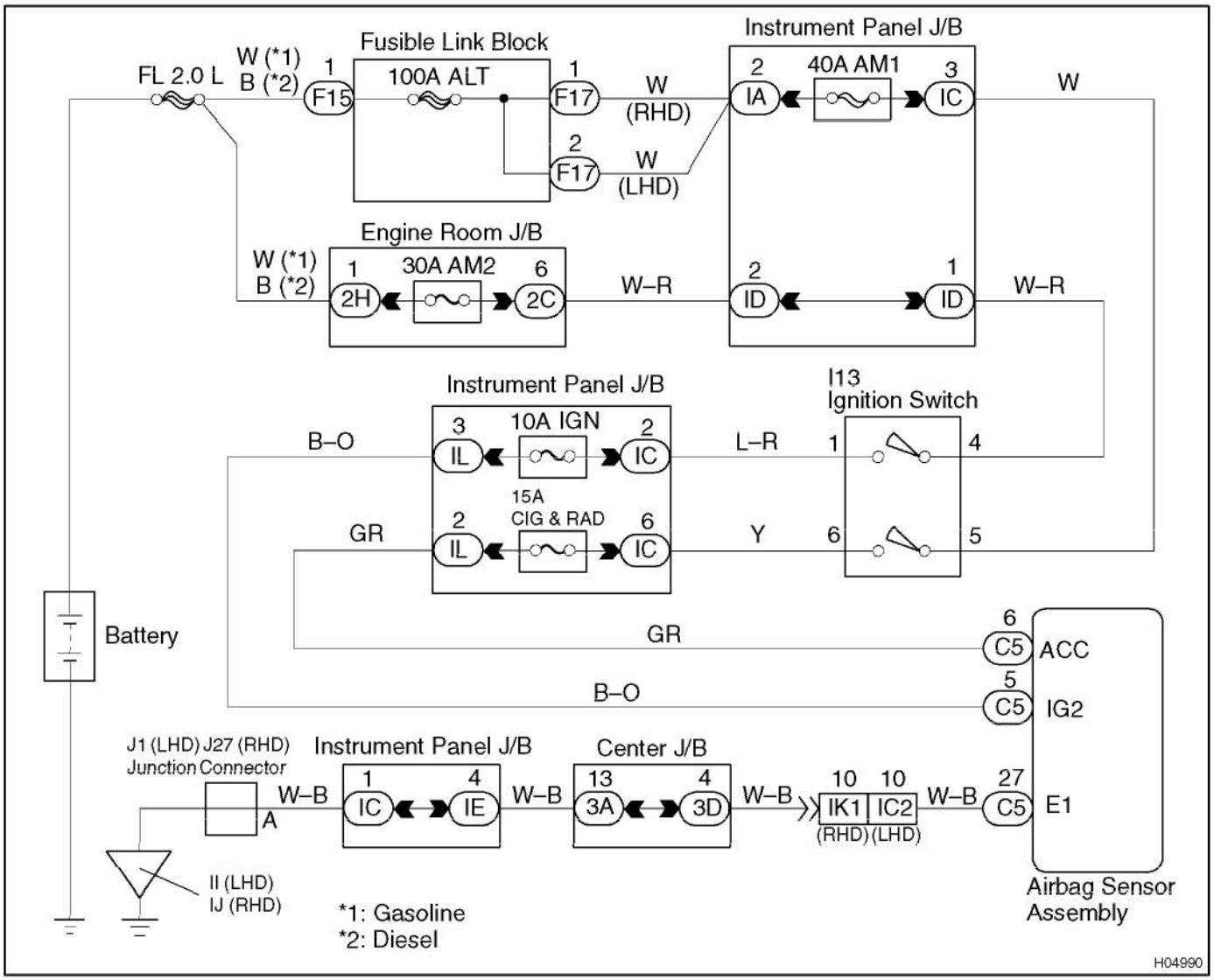
DTC	Normal	Source Voltage Drop

CIRCUIT DESCRIPTION

The SRS is equipped with a voltage–increase circuit (DC–DC converter) in the airbag sensor assembly in case the source voltage drops.
When the battery voltage drops, the voltage–increase circuit (DC–DC converter) functions to increase the voltage of the SRS to normal voltage.
The diagnosis system malfunction display for this circuit is different from other circuits that is when the SRS warning light remains lit up and the DTC is a normal code, source voltage drop is indicated.
Malfunction in this circuit is not recorded in the airbag sensor assembly, and the source voltage returns to normal, the SRS warning light automatically goes off.

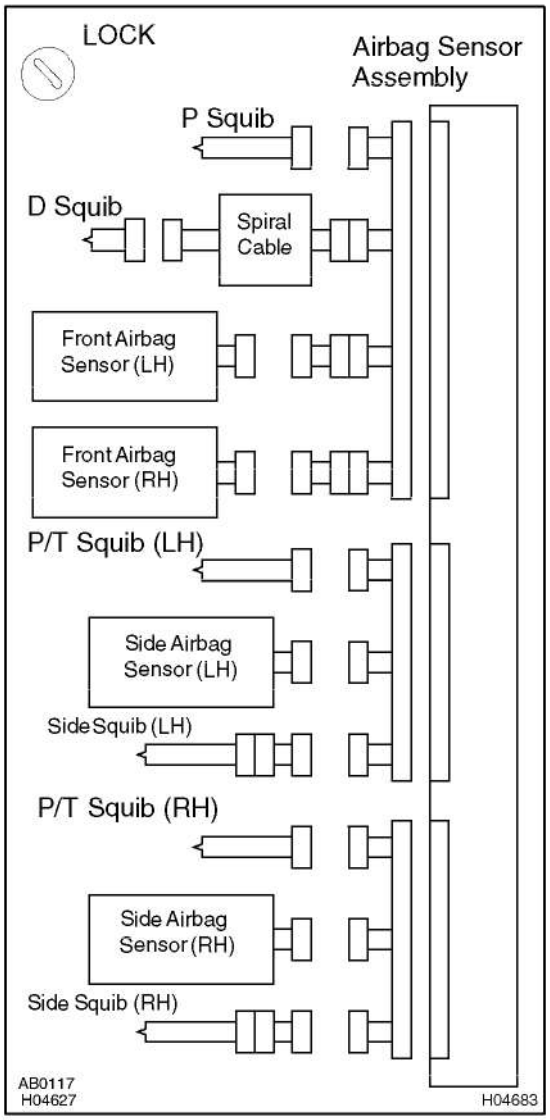
DTC No.	Diagnosis
(Normal)	Source voltage drop

WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Prepare for inspection.**



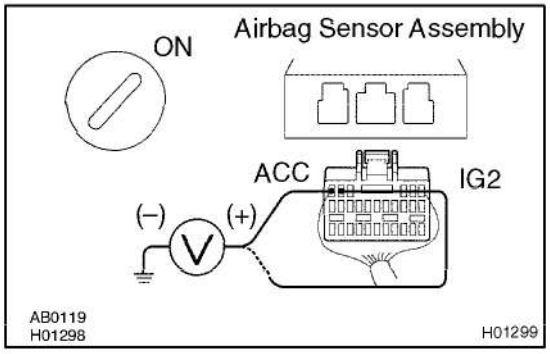
PREPARATION:

(a) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(b) Remove the steering wheel pad. (See page SR–13)
(c) Disconnect the connector of the front passenger airbag assembly. (See page RS–27)
(d) Disconnect the connector of the airbag sensor assembly. (See page RS–51)
(e) Disconnect the connector of the front airbag sensor RH and LH. (See page RS–56)
(f) Disconnect the connector of the seat belt pretensioner RH and LH. (See page BO–151)
(g) Disconnect the connector of the side airbag assembly RH and LH. (See page RS–38)
(h) Disconnect the connector of the side airbag sensor assembly RH and LH. (See page RS–61)

CAUTION:

Store the steering wheel pad with the front surface facing upward.

2	Check source voltage.



PREPARATION:

(a) Connect negative (–) terminal cable to the battery.

(b) Turn ignition switch ON.

CHECK:

Operating the electric system (defogger, wiper, headlight, heater blower, etc.), measure the voltage between each of IG2 and ACC of the sensor and body ground.

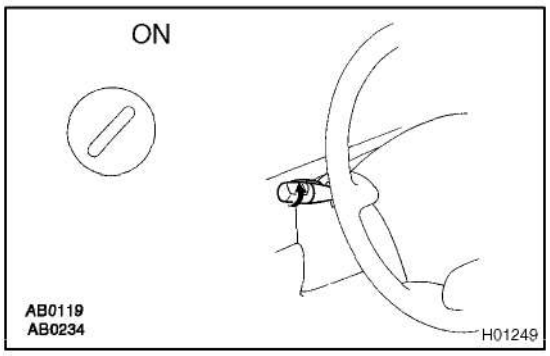
OK:

Voltage: 10 – 14 V

NG → **Check harness between battery and airbag sensor assembly, and check battery and charging system.**

OK

3	Does SRS warning light turn OFF?



PREPARATION:

(a) Turn ignition switch to LOCK.

(b) Connect the steering wheel pad connector.

(c) Connect the front passenger airbag assembly connector.

(d) Connect the airbag sensor assembly connectors.

(e) Connect the front airbag sensor connectors.

(f) Connect the side airbag assembly connectors.

(g) Connect the seat belt pretensioner connectors.

(h) Connect the side airbag sensor assembly connectors.

(i) Turn ignition switch ON.

CHECK:

Operate electric system (defogger, wiper, headlight, heater blower, etc.) and check that SRS warning light goes off.

NO → **Check for DTCs. If a DTC is output, perform troubleshooting for the DTC. If a normal code is output, replace airbag sensor assembly.**

YES

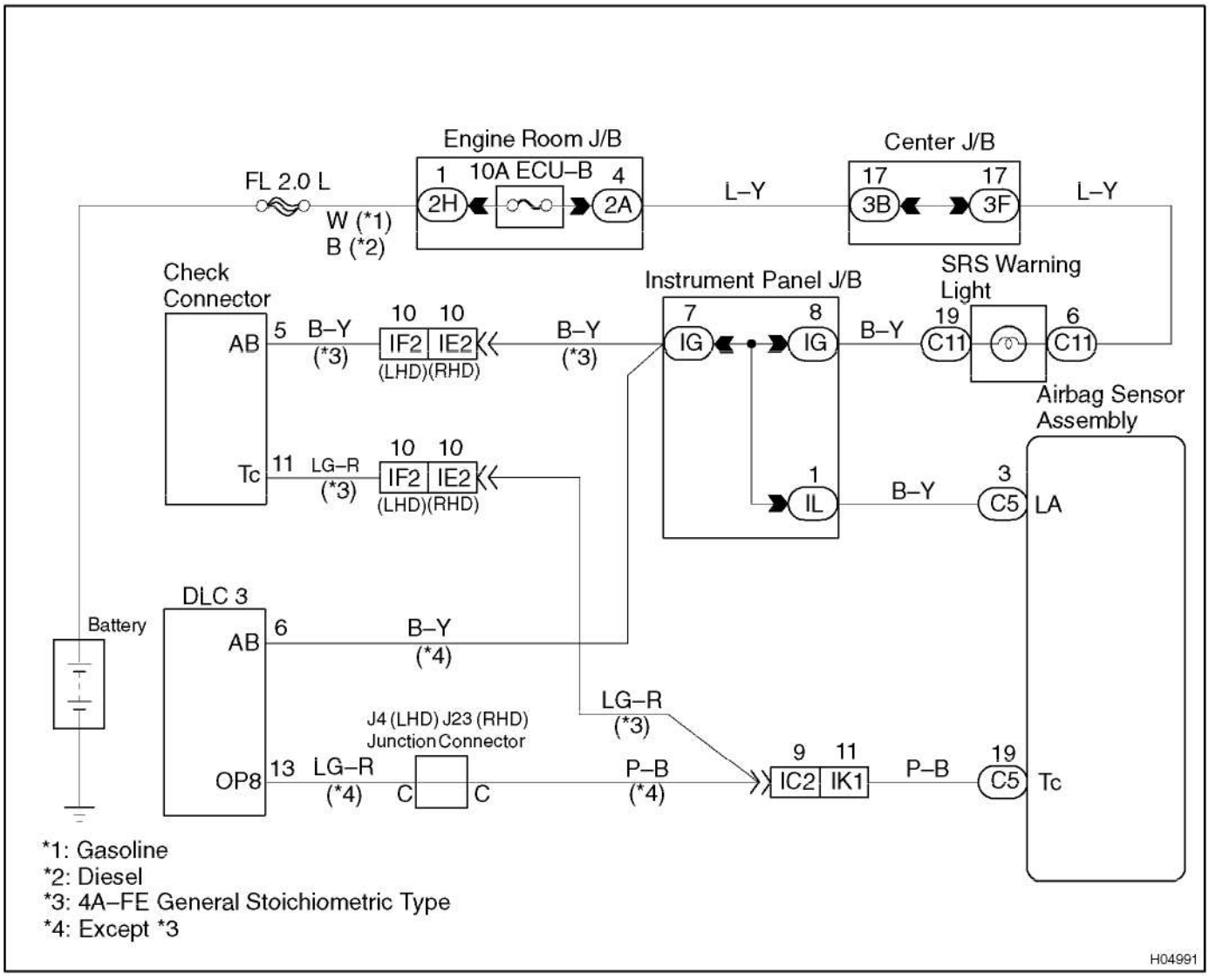
From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

SRS Warning Light Circuit Malfunction (Always lights up, when ignition switch is in LOCK position.)

CIRCUIT DESCRIPTION

The SRS warning light is located on the combination meter.
When the SRS is normal, the SRS warning light lights up for approx. 6 seconds after the ignition switch is turned from the LOCK position to ACC or ON position, and then turns OFF automatically.
If there is a malfunction in the SRS, the SRS warning light lights up to inform the driver of the abnormality.
When terminals Tc and E1 of the check connector are connected, the DTC is displayed by blinking the SRS warning light.

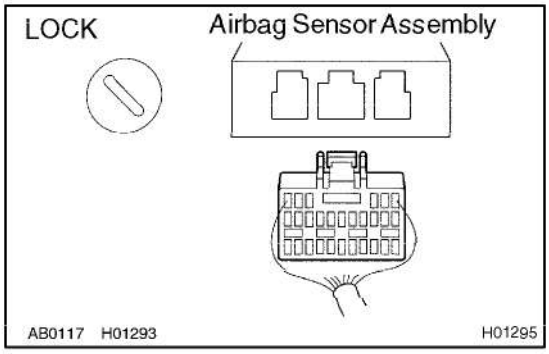
WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Prepare for inspection. (See step 1 on page DI–285)**

2	**Does SRS warning light turn OFF?**



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Disconnect the airbag sensor assembly connector.
(d) Connect negative (–) terminal cable to the battery.

CHECK:

Check operation of SRS warning light.

NO → **Check SRS warning light circuit or terminal AB circuit of check connector or DLC3.**

YES

Replace airbag sensor assembly.

SRS Warning Light Circuit Malfunction (Does not light up, when ignition switch is turned to ACC or ON.)

CIRCUIT DESCRIPTION

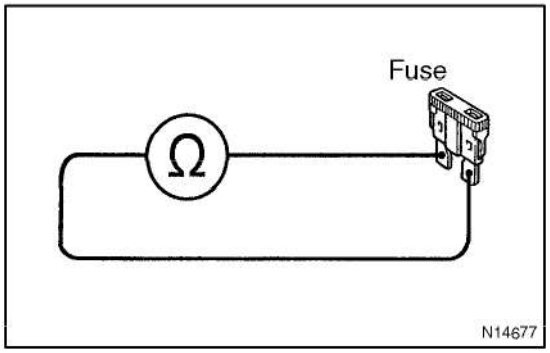
The SRS warning light is located on the combination meter.
When the SRS is normal, the SRS warning light lights up for approx. 6 seconds after the ignition switch is turned from LOCK position to ACC or ON position, and then turns OFF automatically.
If there is a malfunction in the SRS, the SRS warning light lights up to inform the driver of the abnormality When terminals Tc and E1 of the check connector are connected, the DTC is displayed by blinking the SRS warning light.

WIRING DIAGRAM

See page DI–288.

INSPECTION PROCEDURE

1	**Check ECU–B fuse.**



PREPARATION:
Remove ECU–B fuse.
CHECK:
Check continuity of ECU–B fuse.
OK:
Continuity
HINT:

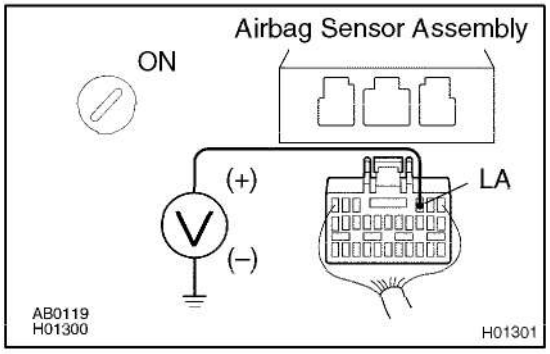
- Fuse may be burnt out even if it appears to be OK during visual inspection.
- If fuse is OK, install it.

NG	**Go to step 5 .**

OK

2	**Prepare for inspection. (See step 1 on page DI–285)**

3	Check SRS warning light circuit.



PREPARATION:

(a) Connect negative (–) terminal cable to the battery.

(b) Turn ignition switch to ACC or ON.

CHECK:

Measure the voltage LA terminal of the harness side connector of the airbag sensor assembly.

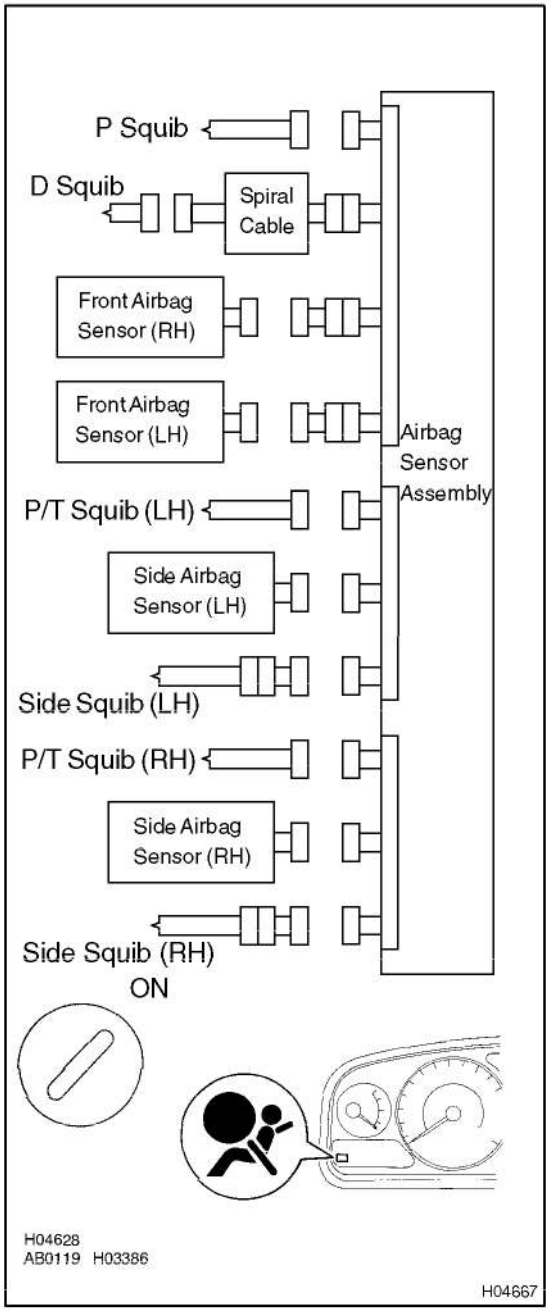
OK:

Voltage: 10 – 14 V

NG → **Check SRS warning light bulb or repair SRS warning light circuit.**

OK

4	Does SRS warning light come on?



PREPARATION:

(a) Disconnect negative (–) terminal cable from the battery.
(b) Connect the airbag sensor assembly connector.
(c) Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.
(d) Turn ignition switch to ACC or ON.

CHECK:

Check operation of SRS warning light.

NO → **Check terminal LA of airbag sensor assembly. If normal, replace airbag sensor assembly.**

YES

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use simulation method to check.

5	Is new ECU–B fuse burnt out again?

NO → Using simulation method, reproduce malfunction symptoms. (See page IN–18)

YES

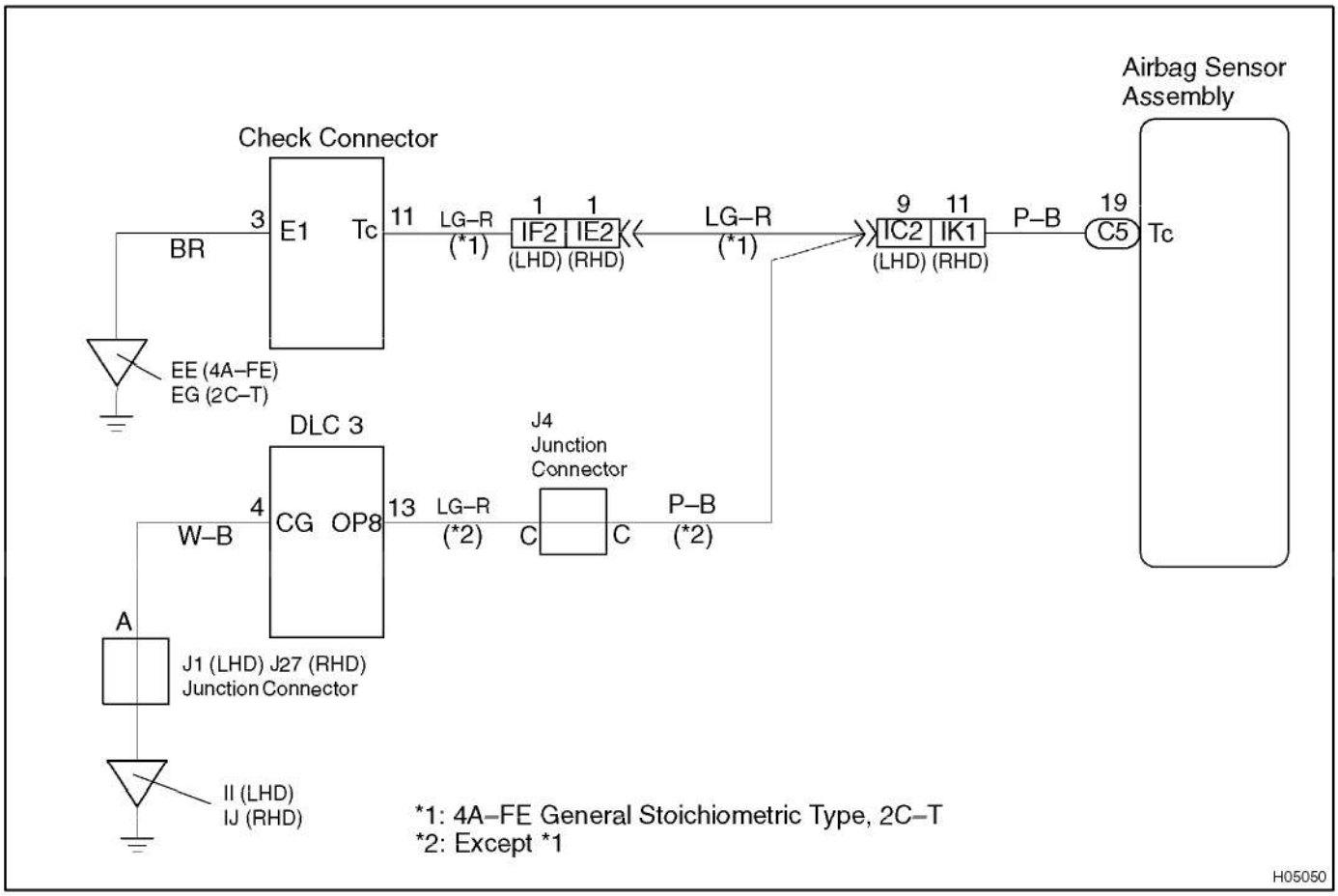
Check harness between ECU–B fuse and SRS warning light.

Tc Terminal Circuit

CIRCUIT DESCRIPTION

By connecting terminals Tc or OP8 and E1 or CG of the check connector or DLC3 the airbag sensor assembly is set in the DTC output mode. The DTCs are displayed by blinking the SRS warning light.

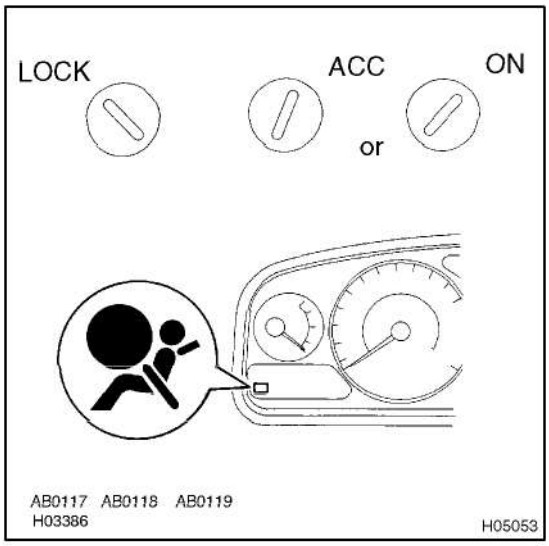
WIRING DIAGRAM



INSPECTION PROCEDURE

If the DTC is not displayed, do the following troubleshooting.

1	**Does SRS warning light light up for approx. 6 seconds?**



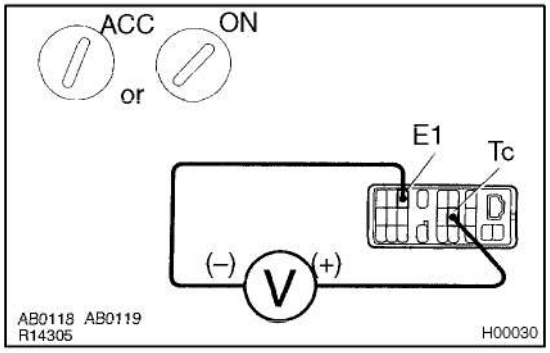
PREPARATION:

Check operation of the SRS warning light after ignition switch is turned from LOCK position to ACC or ON position.

NO → **Check SRS warning light system. (See page DI–152)**

YES

2	**Check voltage between terminals Tc or OP8 and E1 or CG of check connector or DLC3.**

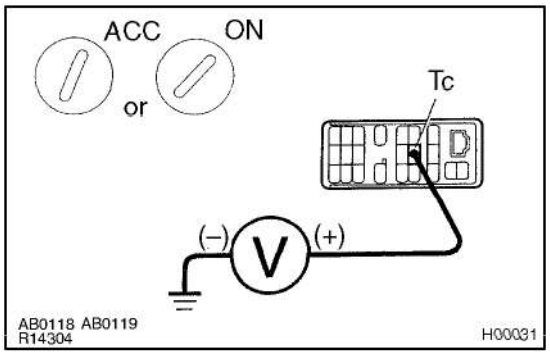


PREPARATION:
Turn ignition switch to ACC or ON.
CHECK:
Measure the voltage between terminals Tc or OP8 and E1 or CG of check connector or DLC3.
OK:
Voltage: 10 – 14 V

OK	Go to step 4.

NG

3	**Check voltage between terminals Tc or OP8 of check connector or DLC3 and body ground**

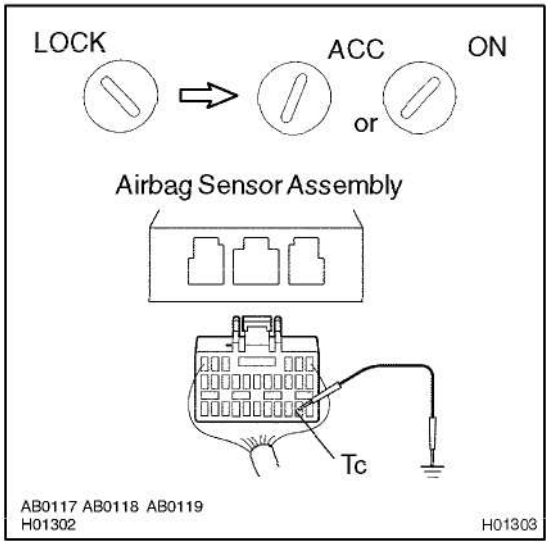


CHECK:
Measure the voltage between terminal Tc or OP8 of check connector or DLC3 and body ground.
OK:
Voltage: 10 – 14 V

OK	Check harness between terminal E1 or CG of check connector or DLC3 and body ground.

NG

4	Check airbag sensor assembly.



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Disconnect the airbag sensor assembly connector.
(d) Insert service wire into terminal Tc from back side as shown in the illustration.
(e) Connect the airbag sensor assembly connector with service wire.
(f) Connect negative (–) terminal cable to the battery.
(g) Turn ignition switch to ACC or ON and wait at least for 20 seconds.
(h) Connect service wire of terminal Tc to body ground.

CHECK:

Check operation of SRS warning light.

OK:

SRS waning light comes on.

NOTICE:

Pay due attention to the terminal connecting position to avoid a malfunction.

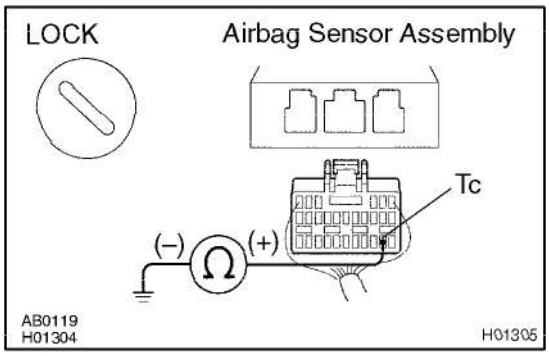
OK → **Check harness between the airbag sensor assembly and check connector or DLC3.**

NG

Replace airbag sensor assembly.

If the DTC is displayed without a DTC check procedure, perform the following troubleshooting.

1	**Check resistance between terminal Tc of airbag sensor assembly and body ground.**



PREPARATION:

(a) Turn ignition switch to LOCK.
(b) Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
(c) Disconnect the airbag sensor assembly connector.

CHECK:

Check resistance between terminal Tc of the airbag sensor assembly connector and body ground.

OK:

Resistance: 1 MΩ or Higher

NG → **Repair or replace harness or connector.**

OK

Replace airbag sensor assembly.

WIRELESS DOOR LOCK CONTROL SYSTEM

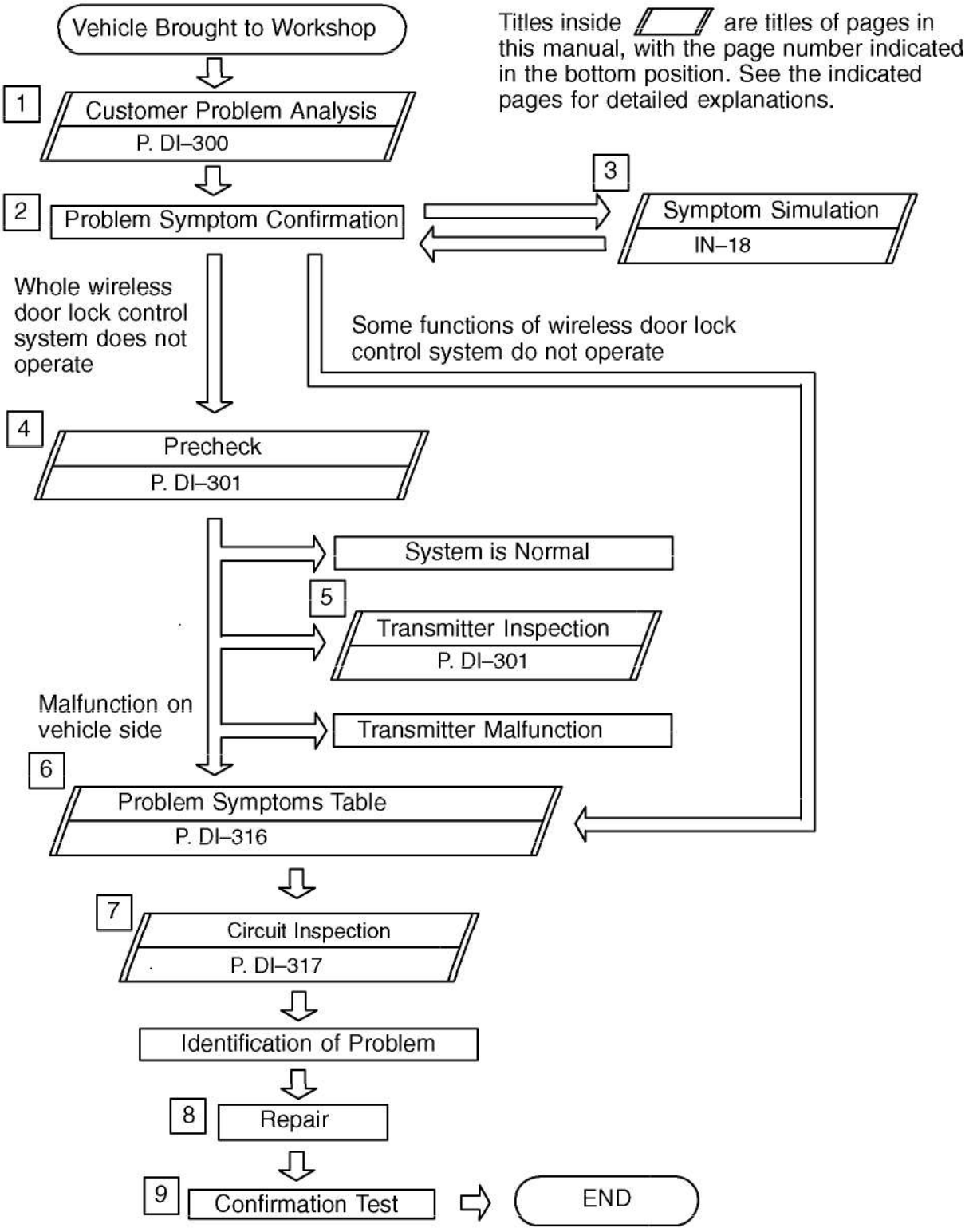
DI14X-01

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

Troubleshooting of the wireless door lock control system is based on the premise that the door lock control system is operating normally. Accordingly, before troubleshooting the wireless door lock control system, first make certain that the door lock control system is operating normally.

Perform troubleshooting in accordance with procedure on the following page.



DI14Y–01

CUSTOMER PROBLEM ANALYSIS CHECK

WIRELESS DOOR LOCK CONTROL System Check Sheet

Inspector's Name _____

Customer's Name		Registration No.	
		Registration Year	/ /
		Frame No.	
Date Vehicle Brought In	/ /	Odometer Reading	km Miles

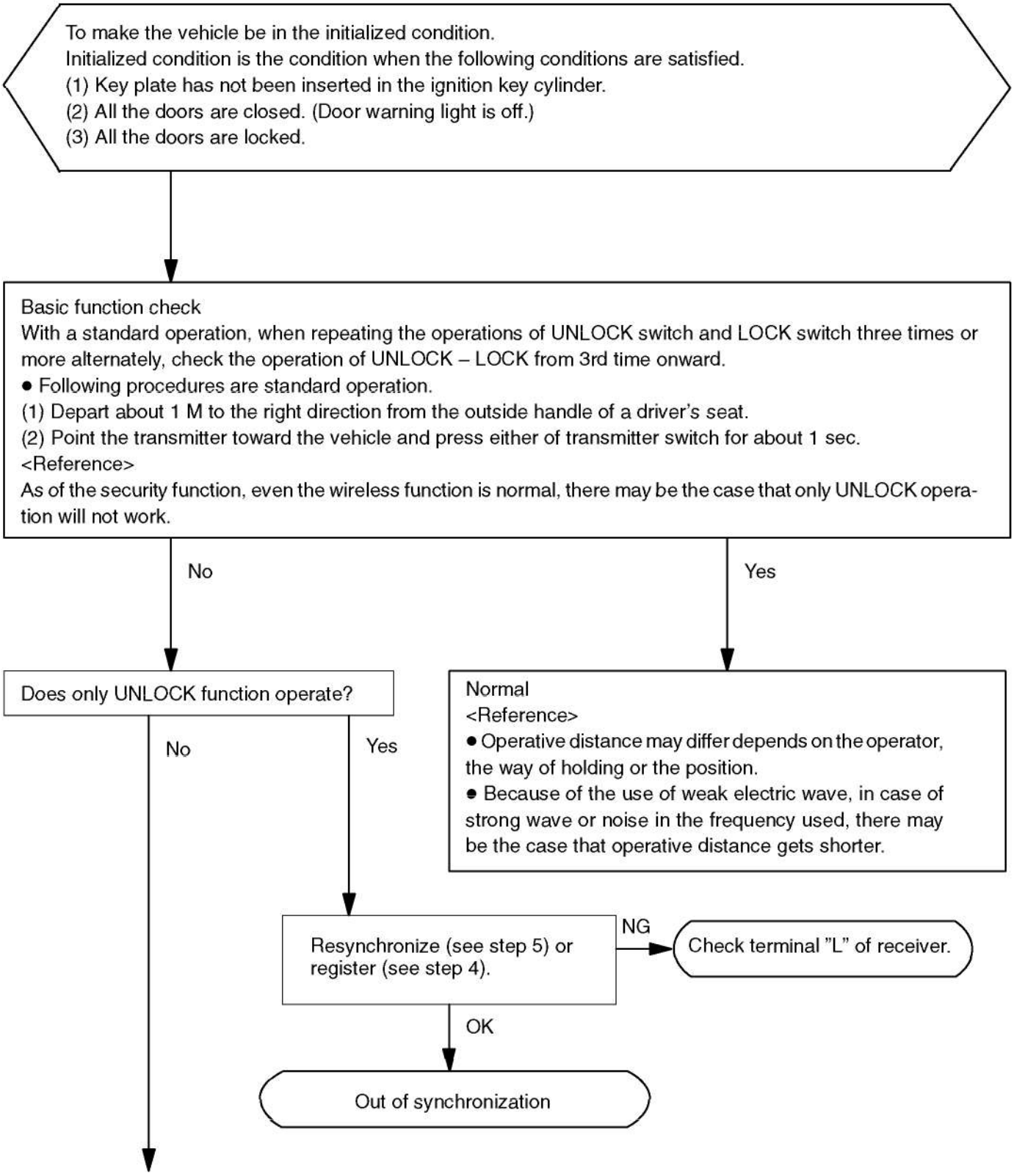
Date Problem First Occurred		/ /
Frequency Problem Occurs		☐ Constant ☐ Sometimes (times per day, month) ☐ Once only
Weather Conditions When Problem Occurred	Weather	☐ Fine ☐ Cloudy ☐ Rainy ☐ Snowy ☐ Various/Others
	Outdoor Temperature	☐ Hot ☐ Warm ☐ Cool ☐ Cold (Approx. °F (°C))
	Place	☐ Everywhere ☐ Specific Locality( )
Date Transmitter Battery Last Replaced		/ /

Problem Symptom	☐ Whole wireless door lock control system does not operate.	
	☐ Only door unlock operation is not possible.	
	☐ Only door lock operation is not possible.	
	☐ Only key confinement prevention function is not possible.	
	☐ Wireless door lock function operates even each door is opened.	
	☐ Only PANIC operation is not possible.	
	☐ Wireless door lock function incorrectly. (Although one door is unlocked, when the transmitter switch is pressed, all doors unlock.)	☐ When Front RH door is unlocked ☐ When Front LH door is unlocked ☐ When Rear RH door is unlocked ☐ When Rear LH door is unlocked
	☐ Others	

DI14Z-03

PRE–CHECK

Wireless function (Remote control) will not operate.



No

Transmitter battery check:
Charge the transmitter battery to a new or normal one, check UNLOCK operation of the transmitter with the standard operation.
<Reference>
- New or normal battery is necessary.
- Battery quality can be judged by checking the remnant volume of the battery.

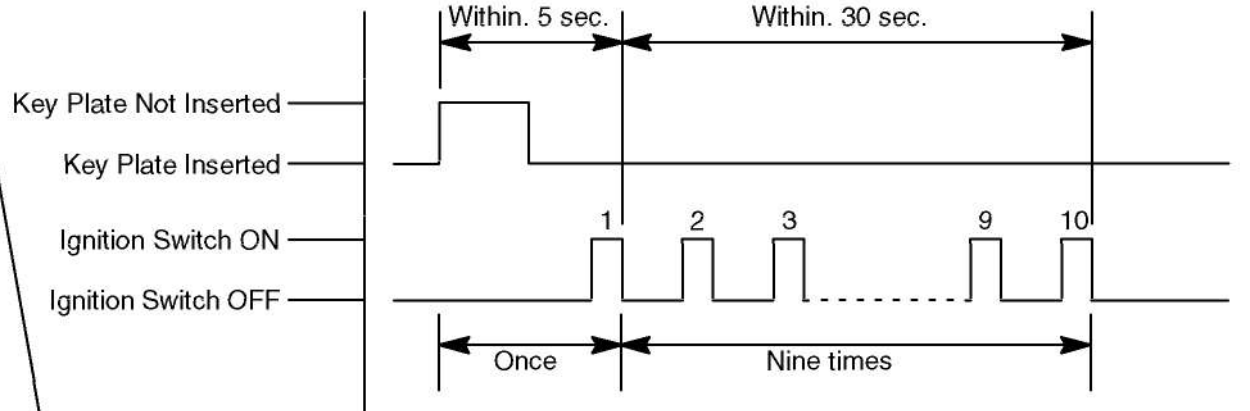
Yes → Battery faulty.

No

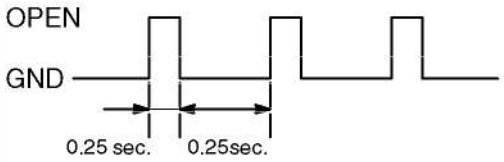
Operation before self diagnostic mode check.
Connect the electrical tester to between terminal 1 of the connector and body ground in the condition that the connector is connected to the wireless door lock ECU.
HINT: Diagnostic terminal output refers to the voltage output between terminal 1 and body ground hereafter.

To make the vehicle be in the initialized condition.

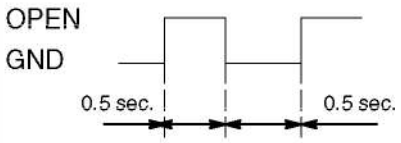
Enter diagnostic mode:
If operation the wireless door lock ECU in the order of 1 through 2, the mode turns to diagnostic mode.
(1) Insert the key plate into the ignition key cylinder and pull out, then insert it again and turn the ignition switch OFF → ON → OFF 1 time.
(2) After completing the procedure (1) and within 30 seconds, turn the ignition switch OFF to ON to OFF nine times.
HINT: In the case that either one of (1) and (2) conditions is not satisfied, transfer to normal mode.
<Reference>
When completing self diagnosis mode, turn the ignition switch ON.
LOCK and UNLOCK operations are not performed under the self diagnosis mode.



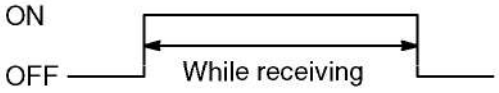
Confirmation of diagnostic mode:
Check diagnostic terminal output when pressing each transmitter switch.
(1) Received normal wave of LOCK switch.



(2) Received normal wave of UNLOCK switch.



(3) Compatibility of the recognition code or out from synchronization of rolling code.*.



<Reference>
When turning the ignition switch ON in the self diagnosis mode, the mode returns to normal mode.
Check the voltage output on the bar graph.

No diagnostic terminal output

Key unlock warning switch check.
Check the voltage between terminal 10 of the wireless door lock ECU on the wire harness side of vehicle and body ground by inserting the key plate into the ignition key cylinder or pulling out.Check that the voltage is 0 to 10 V.

Yes

No

Yes

Key unlock warning switch faulty

In case of outputs (1) or (2)

In case of outputs of (3)
(Output while the transmitter switch is pressed.)

Check of the recognition code registration function:
Check if it can set to rewrite mode or add mode of the recognition code registration.

Yes

After registering the code, check the operation and it is good of the operation is normal.
(The rolling code has not been synchronized.)

No

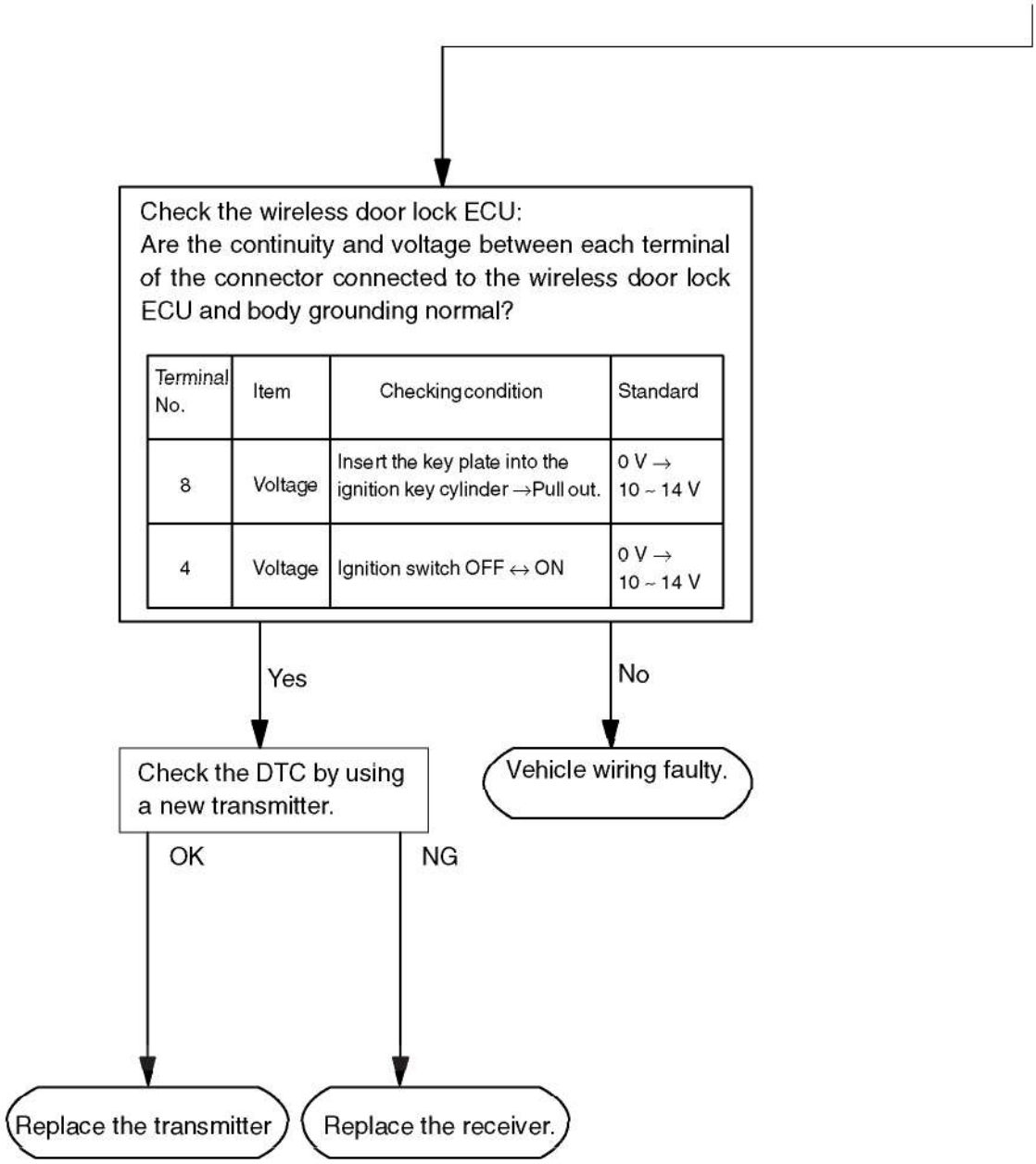
Check the terminal voltage of wireless door lock ECU:
Check each following terminal.
- L
- UL
- IG
- CTY

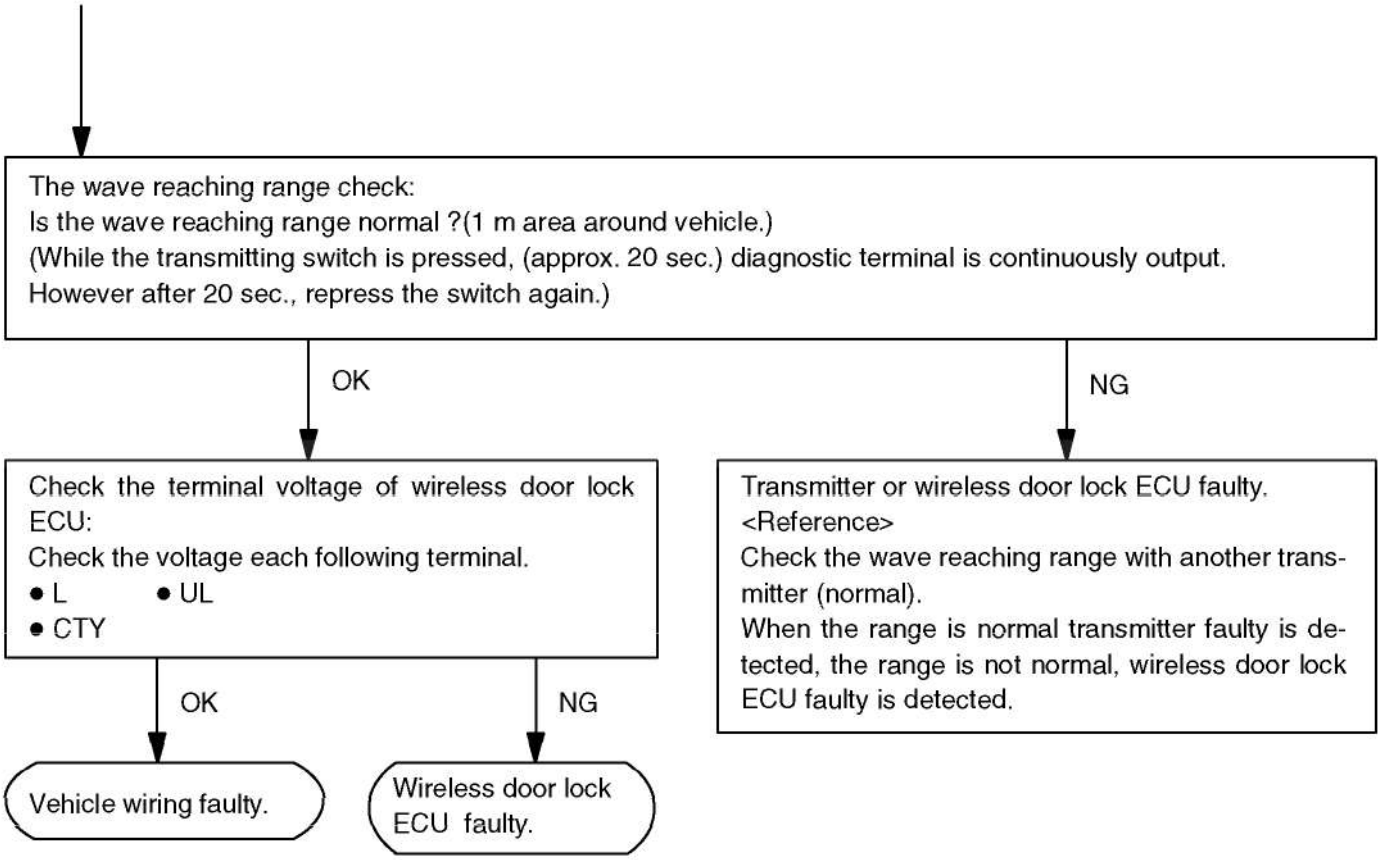
OK

Vehicle wiring faulty.

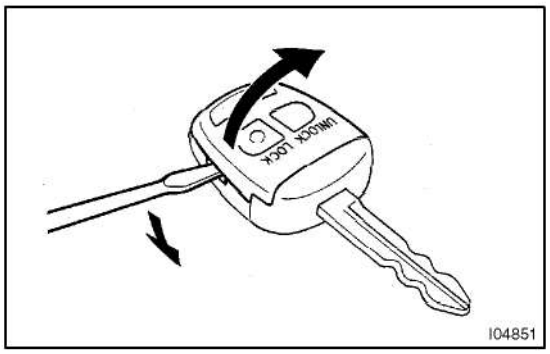
NG

Wireless door lock ECU faulty.


Check the wireless door lock ECU:
Are the continuity and voltage between each terminal of the connector connected to the wireless door lock ECU and body grounding normal?
Terminal No.
Item
Checking condition
Standard
8
Voltage
Insert the key plate into the ignition key cylinder →Pull out.
0 V → 10 ~ 14 V
4
Voltage
Ignition switch OFF ↔ ON
0 V → 10 ~ 14 V
Yes
No
Check the DTC by using a new transmitter.
Vehicle wiring faulty.
OK
NG
Replace the transmitter
Replace the receiver.

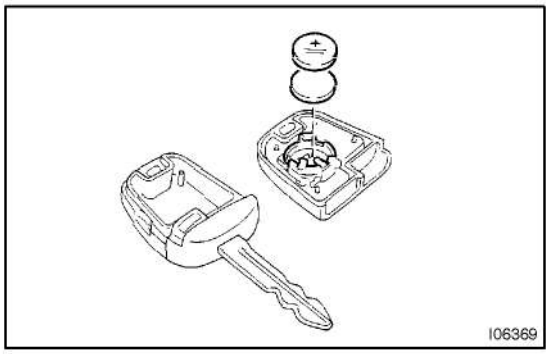


HINT:
The rolling code is the code changing at each time when the wave is transmitted from the transmitter and is changing synchronized between transmitter side and ECU side.
When the rolling code is not synchronized between the transmitter and ECU, a symptom of "Only LOCK operation is available."appears.
In this case, it goes back to normal by synchronizing the rolling code.
(The method to synchronize it is the same as of the registration of the recognition code.)



1. REPLACE BATTERY OF TRANSMITTER

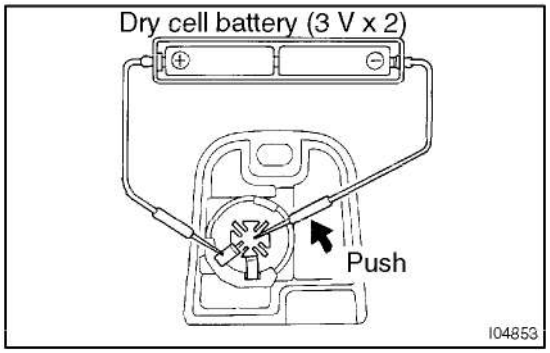
(a) Using a screwdriver, pry outward the cover.



(b) Remove the battery.
(c) Set a new battery into the transmitter.
(d) Install the cover to the transmitter.

HINT:

After replacing the battery, if only LOCK function operates, perform resynchronization.



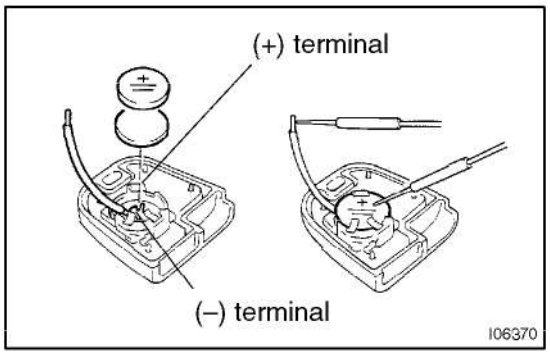
2. INSPECT TRANSMITTER OPERATION

HINT:

This inspection is not directly for the purpose of checking the capacity of the transmitter battery, but is performed when remote control operation becomes difficult or impossible, in order to ascertain if this is caused by low battery capacity.

(a) Using a screwdriver, pry outward the cover.
(b) Remove the battery.
(c) Connect 2 new 3 V dry–cell batteries in series. Connect the battery ⊕ terminal to the battery receptacle side terminal and the battery ⊖ terminal to the bottom terminal to provide 6 V to the transmitter.
(d) Push the wireless door lock remote control switch on the side of the transmitter body and operate the door lock by remote control.
(e) Check remote control operation possible.

If operation is not as specified, replace the transmitter.



3. CHECK BATTERY CAPACITY

HINT:

On the lithium dry cell battery used for the transmitter, the voltage more than 2.5 V with the dry cell battery unloaded is shown on the tester until the energy is completely consumed.

Accordingly when inspecting the energy amount left in the dry cell battery, it is necessary to measure the voltage when the dry cell battery is loaded (1.2 kΩ).

The procedures for inspection of the energy amount left in the dry cell battery by using the loaded inside the transmitter with lead are shown below.

(a) Remove the cover using a ⊖ driver .

(b) Remove the dry cell battery (lithium dry cell battery) from the transmitter.

(c) Connect the lead to the (–) terminal of the transmitter and install the battery.

(d) Connect the (+) tester to the (+) dry cell battery (lithium dry cell battery), and (–) tester to the lead respectively.

(e) Press either of the transmitting switches on the transmitter for about 1 second.

HINT:

Repeat pressing it more than twice.

(f) Press the transmitting switch on the transmitter again to check the voltage.

Voltage: 2.1 V or more (per battery)

HINT:

- When the temperature of the battery is low, the judge can not be made correctly. When the outcome of the test is less than 2.1 V, conduct the test again after leaving the battery in the place at 18 °C for more than 30 minutes.
- By auto power off function, the voltage becomes no load voltage (more than 2.5V) condition after 10 seconds from the switch was pressed. Be sure to read the voltage before of it.
- High voltage might be shown 1 – 2 times after leaving the dry cell battery, judge should be made with the voltage shown at the 3rd time or later.

(g) Disconnect the lead.

(h) Set the dry cell battery (lithium dry cell battery) in the transmitter.

(i) Install the cover.

4. REGISTRATION OF RECOGNITION CODE

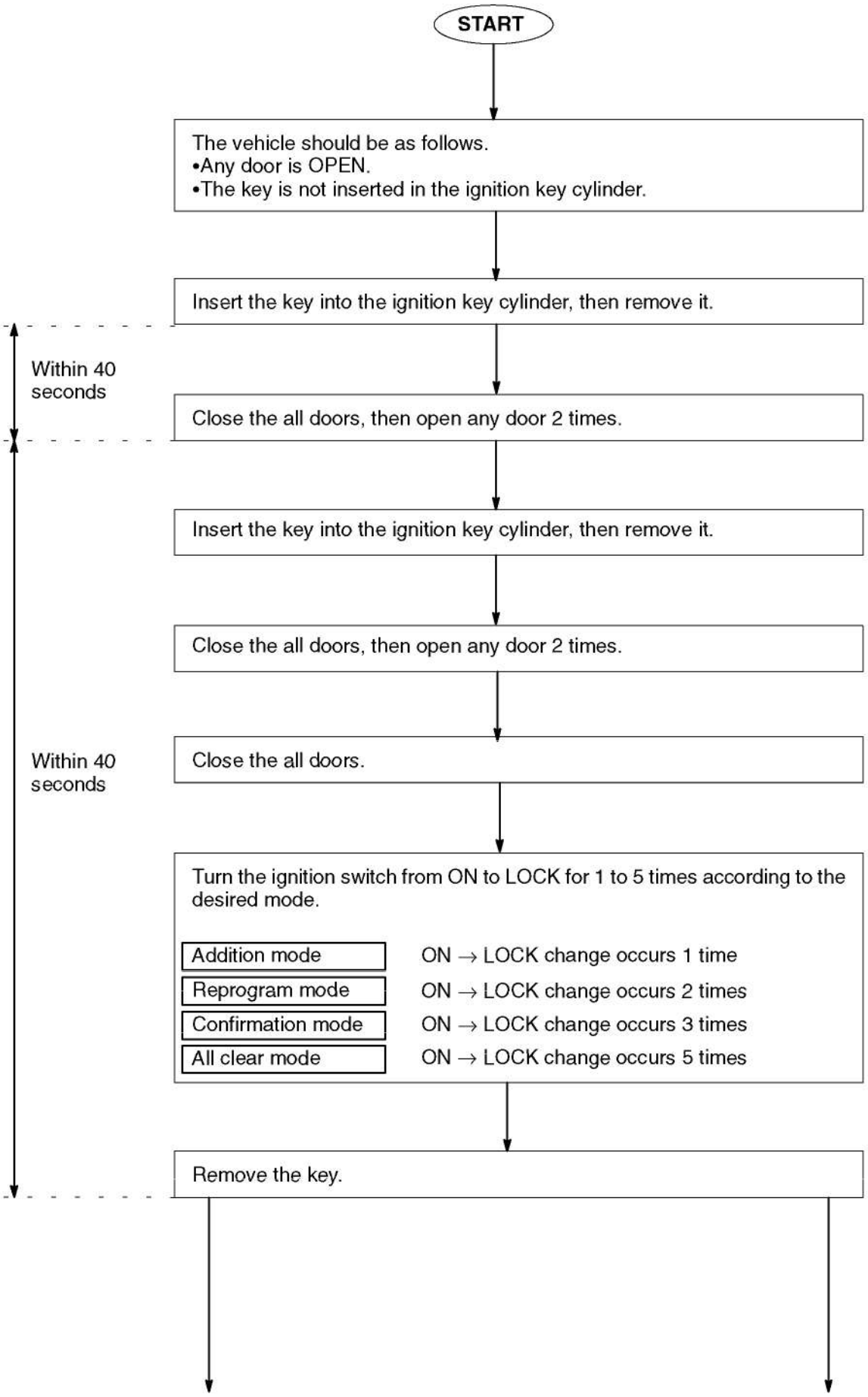
Follow the flow chart on the following page to register the transmitter recognition code with the wireless door lock ECU.

HINT:

- If the prescribed conditions are not entered while registering the transmitter code, the wireless door lock ECU returns to normal operation.
- There are 4 modes: additional mode, reprogram mode, confirmation mode and all clear mode; the mode to use is decided after the recognition code is registered.
- If maximum of 4 recognition codes can be registered.

REFERENCE:

- The additional mode is used to retain codes already registered while you register new recognition codes.
  However, if the number of registered codes exceeds 4 codes, previous registered codes are correspondingly erased in order, starting from the first registered code.
- The reprogram mode is used to erased all previous registered codes before registering new recognition codes. This mode before registering new transmitter or wireless door lock ECU.
- The confirmation mode is for confirming how many recognition codes are already registered before you register additioned recognition codes.
- The all clear mode is used to erase all registered modes and cancels the wireless door lock operates. Use this mode when the transmitter is lost.


START
The vehicle should be as follows.
•Any door is OPEN.
•The key is not inserted in the ignition key cylinder.
Insert the key into the ignition key cylinder, then remove it.
Within 40 seconds
Close the all doors, then open any door 2 times.
Insert the key into the ignition key cylinder, then remove it.
Close the all doors, then open any door 2 times.
Within 40 seconds
Close the all doors.
Turn the ignition switch from ON to LOCK for 1 to 5 times according to the desired mode.
Addition mode
ON → LOCK change occurs 1 time
Reprogram mode
ON → LOCK change occurs 2 times
Confirmation mode
ON → LOCK change occurs 3 times
All clear mode
ON → LOCK change occurs 5 times
Remove the key.

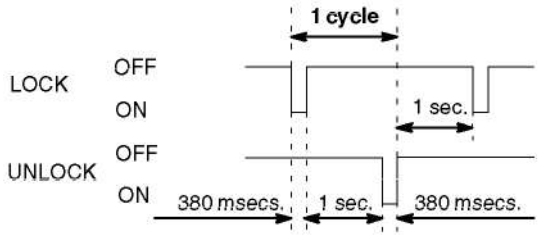
When addition mode, reprogram mode or all clear mode is selected.

When confirmation mode is selected.

Wireless door lock ECU automatically performs the LOCK – UNLOCK operation 1, 2 or 5 cycles.

LOCK – UNLOCK occurs 1 cycle

Indicates that addition mode has been selected.



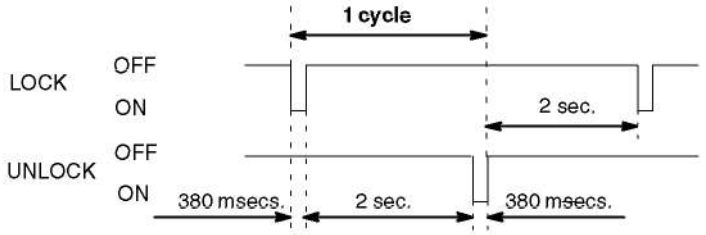
LOCK – UNLOCK occurs 2 cycles

Indicates that reprogram mode has been selected.

LOCK – UNLOCK occurs 5 cycles

Indicates that all clear mode has been selected.

Wireless door lock ECU automatically performs the LOCK – UNLOCK operation 0 to 4 cycles.
The number of cycle is the number of stored keys.



END

All clear mode

*1 Receiver waits for new key code transmission.

*2 Has code been sent using the transmitter?

No

Has receiver waited for 25 seconds?

No

Yes

New key code has stored.

END

The wireless door lock ECU automatically performs the LOCK–UNLOCK operation once.

The vehicle is in END conditions?

END condition : One of the following conditions
•Any door is OPEN.
•Ignition key is inserted in the ignition key cylinder.
•4 different codes are received.

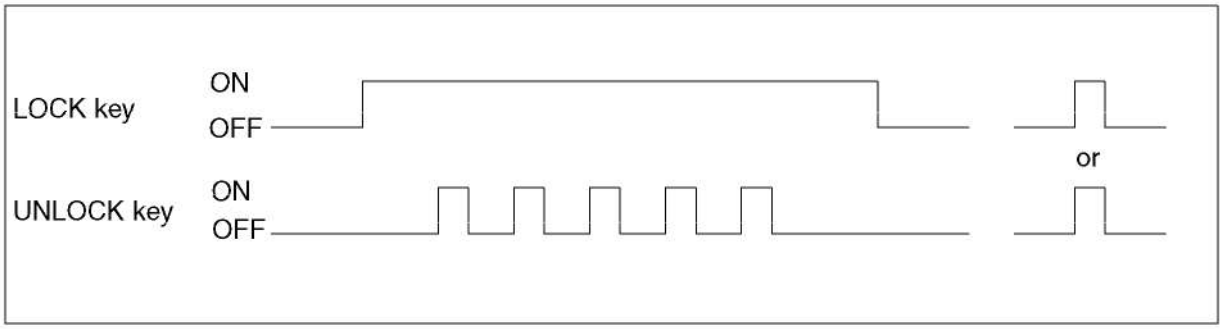
No

Yes

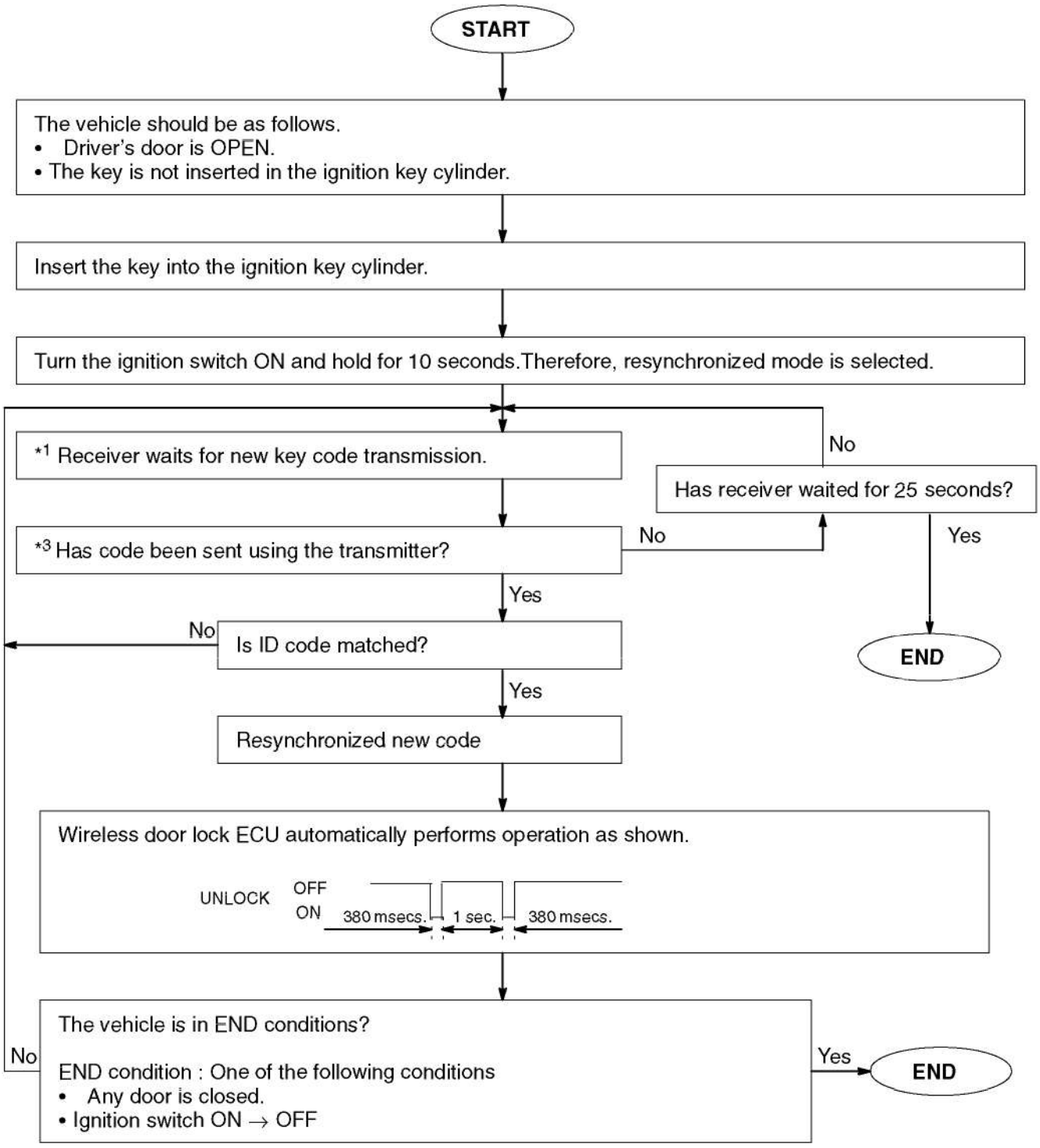
END

*1 While the receiver waits for new key code transmission, the receiver must end the programing mode if end condition is met.

*2 Method to send a code

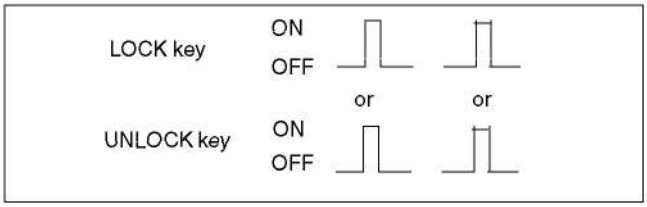


5. THE METHOD OF RESYNCHRONIZATION



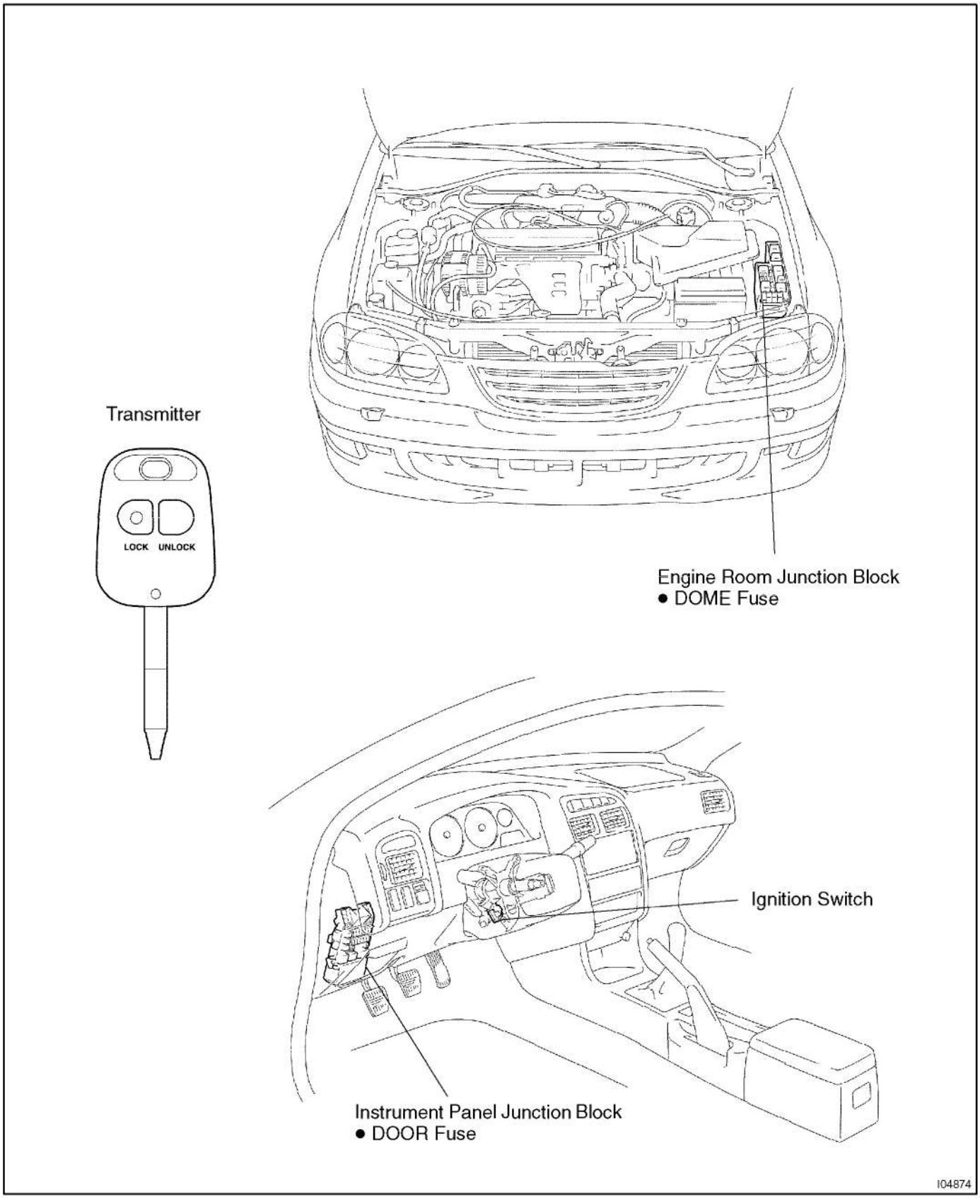
*1 While the receiver waits for new key code transmission, the receiver must end the programing mode if end condi tion is met.

*3 Method to send a code

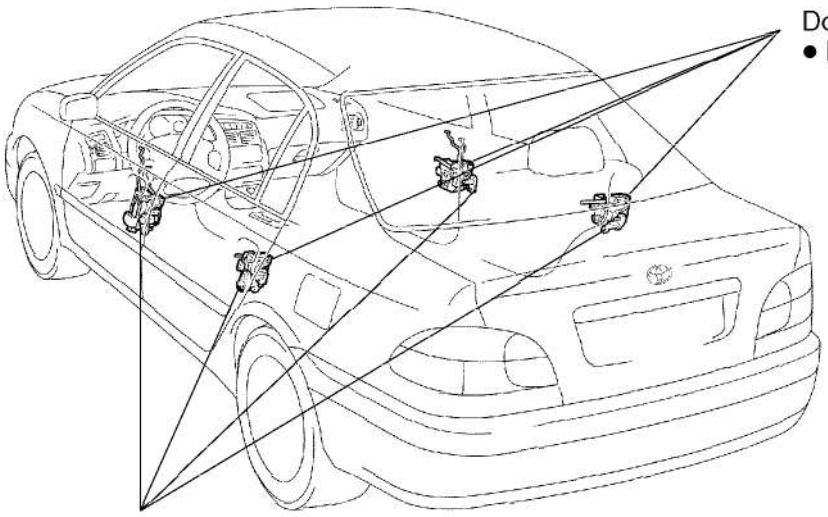


DI343-01

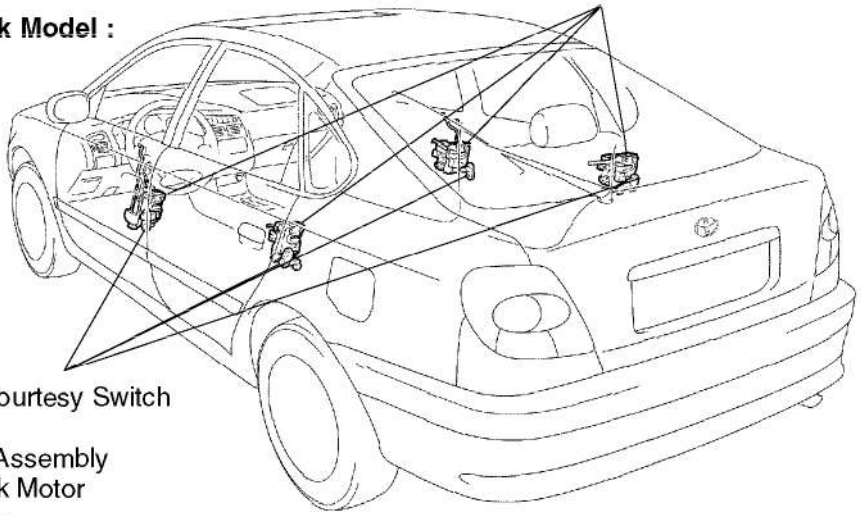
PARTS LOCATION



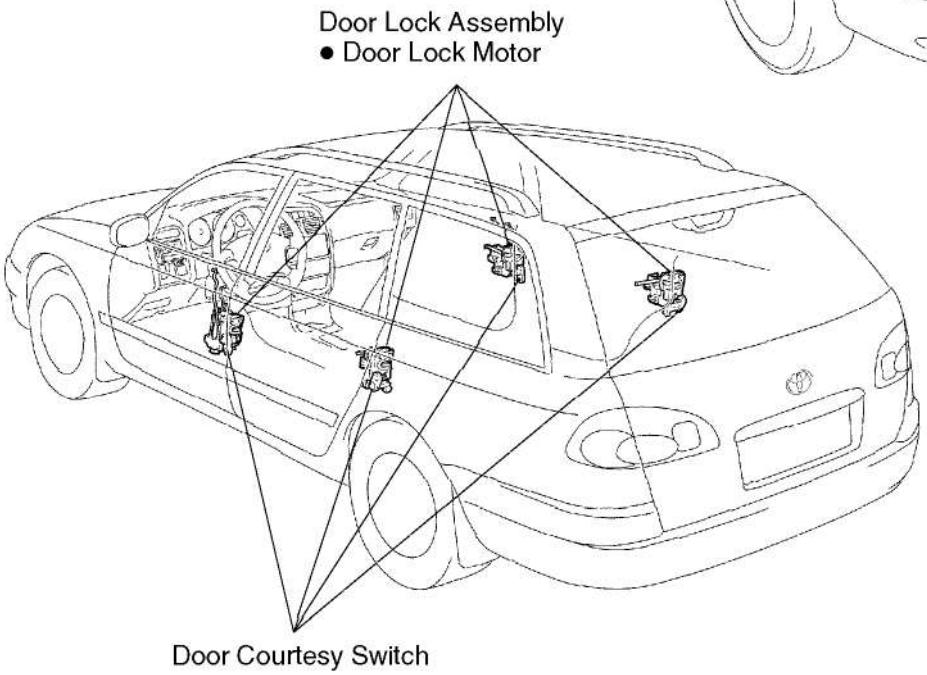
Sedan Model :



Liftback Model :



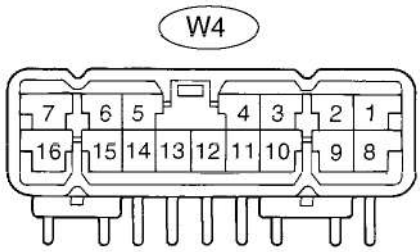
Wagon Model :



I04875

DI344-01

TERMINALS OF ECU



I05453

Symbols (Terminals No.)	Wiring Color	Condition	STD Voltage (V)
E – Ground (W4 – 7 ↔ Ground)	W – B	Always.	Below 1 V
UL – Ground (W4 – 11 ↔ Ground)	L – O	Door key lock and unlock switch "UNLOCK". (Driver's Door)	Below 1.5 V
		Door key lock and unlock switch "OFF" or "LOCK". (Driver's Door)	8 – 10 V
+B – E (W – 6 ↔ W – 7)	W – B	Always.	10 – 14 V
KSW – Ground (W4 – 8 ↔ Ground)	Y	Key unlock warning switch "ON". (Key is inserted into key cylinder)	Below 1 V
		Key unlock warning switch "OFF".	10 – 14 V
IG – Ground (W4 – 4 ↔ Ground)	R – L	Ignition switch "OFF"	Below 1 V
		Ignition switch "ON"	10 – 14 V
CTY – Ground (W4 – 3 ↔ Ground)	R – W	Door courtesy switch "ON"	Below 1 V
		Door courtesy switch "OFF"	10 – 14 V
L – Ground (W4 – 16 ↔ Ground)	L	Door key lock and unlock switch "LOCK"	Below 1 V
		Door key lock and unlock switch "OFF" or "UNLOCK"	8 – 10 V
TVSS – Ground (W4 – 5 ↔ Ground)	G	Theft deterrent system is operating.	10 – 14 V

DI152-04

PROBLEM SYMPTOMS TABLE

Perform troubleshooting of the circuit for the applicable problem symptom in the order given in the chart below. Proceed to the page located for each circuit.

HINT:

- Troubleshooting of the wireless door lock control system is based on the premise that the door lock control system and theft deterrent system are operating normally. Accordingly, before troubleshooting the wireless door lock control system, first make certain that the door lock control system are operating normally.
- If the instruction "Proceed to next circuit inspection shown on matrix chart" is given in the flow chart for each circuit, proceed to the circuit with the next highest number in the table to continue the check.
- If the trouble still reappears even through there are no abnormalities in any of the other circuits, check and replace the Wireless Door Lock ECU as the last step.

Symptom	Suspect Area	See page
All function of wireless door lock control system do no operate.	1. ECU Power Source Circuit. 2. Ignition Switch Circuit. 3. Door Courtesy Switch Circuit. 4. Door Key Lock and Unlock Switch Circuit. (Unlock Side) 5. Door Key Lock and Unlock Switch Circuit. (Lock Side) 6. Key Unlock Warning Switch Circuit. 7. Wireless Door Lock ECU	DI–317 DI–320 DI–329 DI–323 DI–325 DI–327 IN–28
Only door unlock operation is not possible (Lock operation is possible).	1. Door Key Lock and Unlock Switch Circuit (Unlock Side) 2. Wireless Door Lock ECU	DI–323 IN–28
Only door lock operation is not possible (Unlock operation is possible).	1. Door Key Lock and Unlock Switch Circuit (Lock Side) 2. Wireless Door Lock ECU	DI–325 IN–28
Only key confinement prevention function is not possible.	1. Key Unlock Warning Switch Circuit 2. Wireless Door Lock ECU	DI–327 IN–28
• Wireless door lock function operates even when each door is opened. • Automatic lock function operates even if any door is opened within 30 seconds after all doors are unlocked by wireless door lock control system.	1. Door Courtesy Switch Circuit 2. Wireless Door Lock ECU	DI–329 IN–28

DI153-04

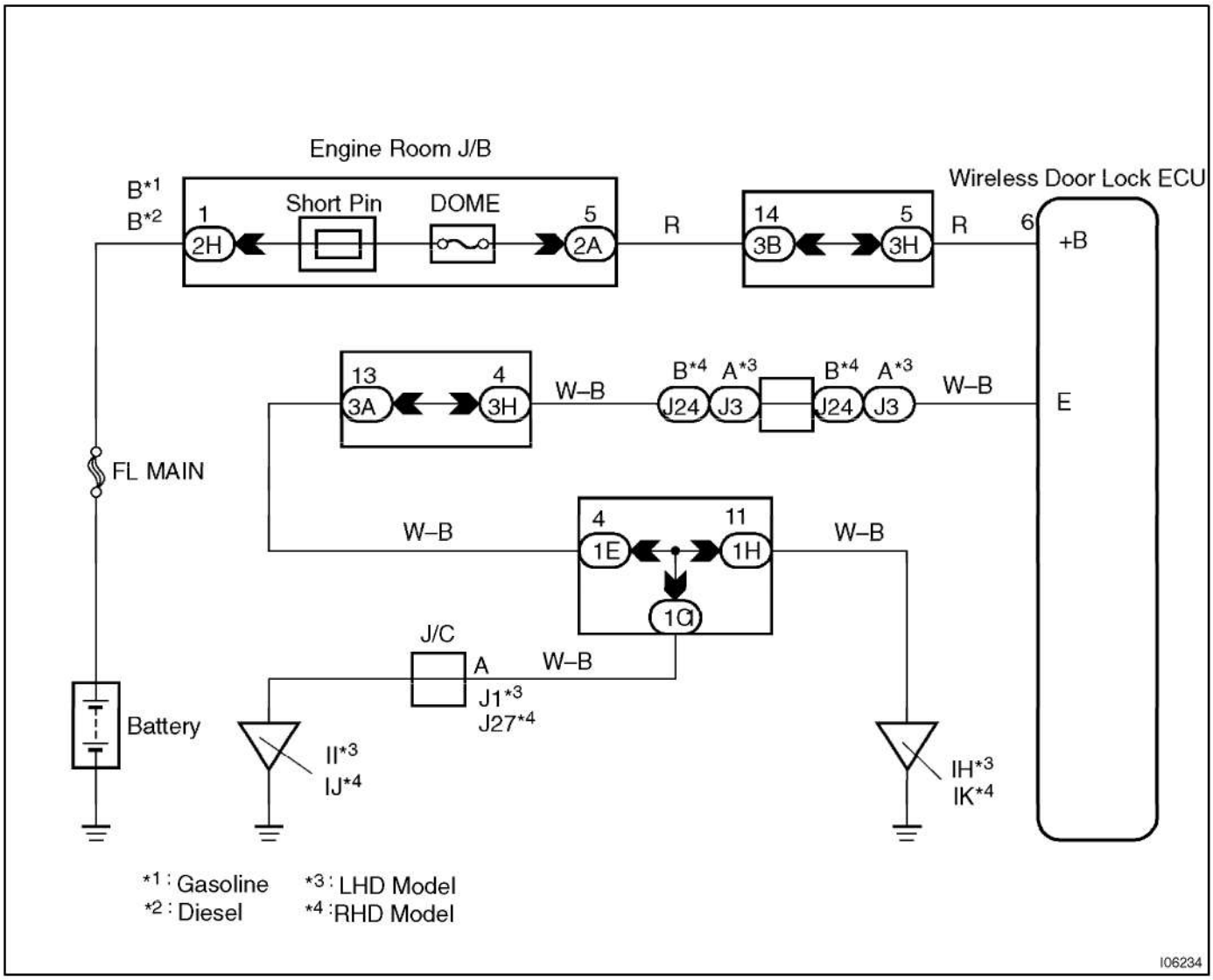
CIRCUIT INSPECTION

ECU Power Source Circuit

CIRCUIT DESCRIPTION

Battery voltage is always applied the terminal +B of the wireless door lock ECU.

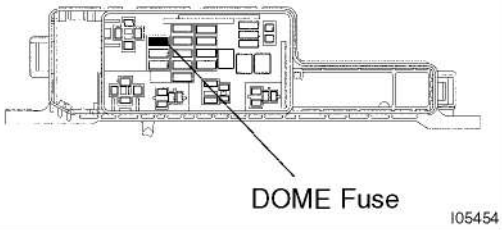
WIRING DIAGRAM



INSPECTION PROCEDURE

1	Check DOME fuse.

Engine Room Junction Block

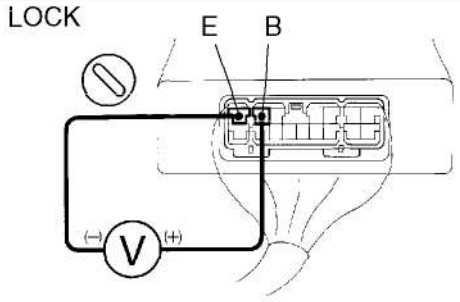


PREPARATION:
Remove DOME fuse from engine room junction block.
CHECK:
Check continuity of DOME fuse.
OK:
Below 1.0 Ω or continuity

NG → **Check for short in all the harness and components connected to DOME fuse. (See attached wiring diagram.)**

OK

2	Check voltage between terminals +B and E of wireless door lock ECU connector.



PREPARATION:
Remove the wireless door lock ECU from No.1 instrument panel brace.
CHECK:
Measure voltage between terminals +B and E of wireless door lock ECU.
OK:
Voltage: 10 – 14 V

OK → **Proceed to next circuit inspection shown on matrix chart (See page DI–316).**

NG

3	**Check for open in harness and connector between terminal GND of wireless door lock ECU and body ground (See page IN–28).**

NG → **Repair or replace harness or connector.**

OK →

Check and repair harness and connector between wireless door lock control ECU and battery.

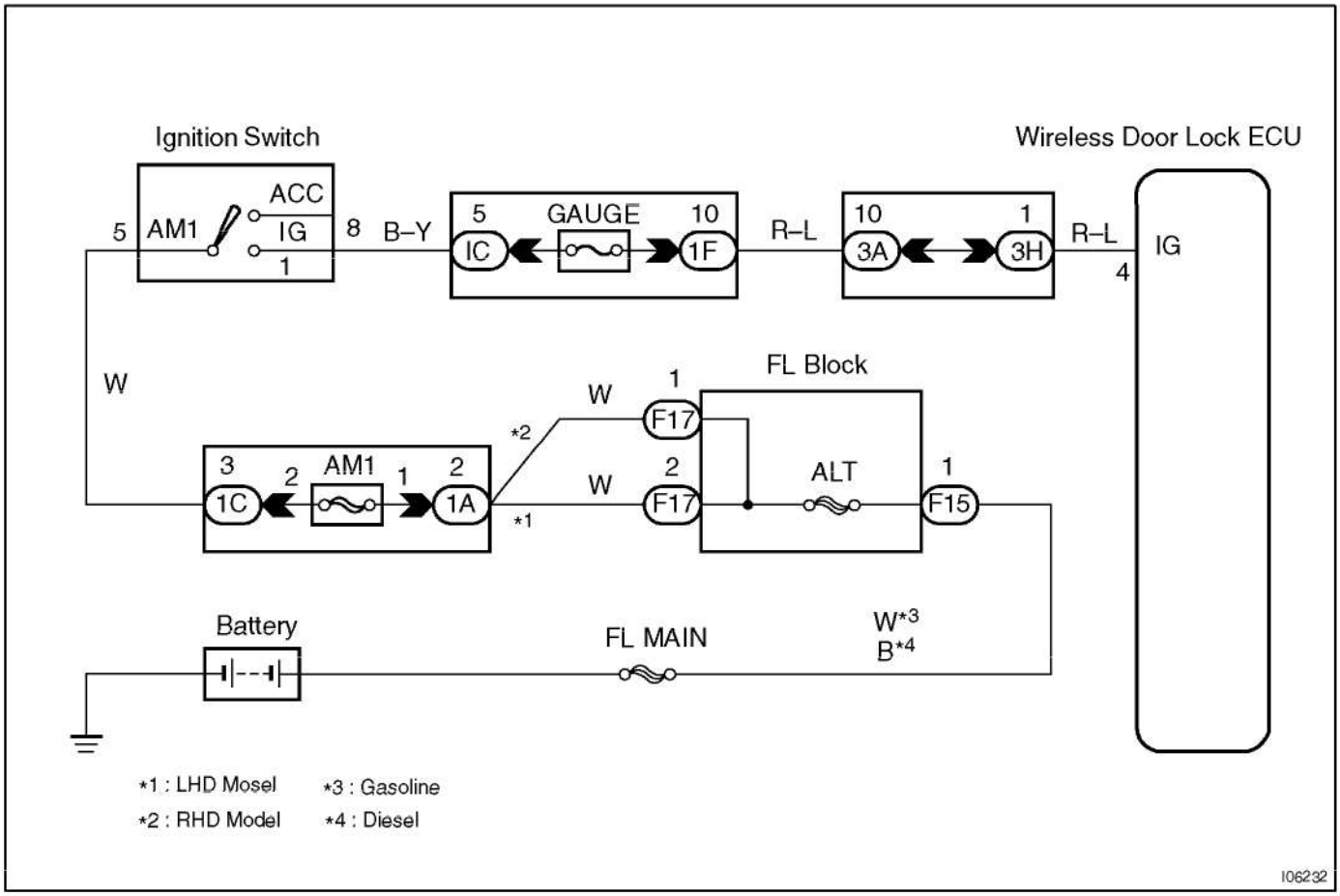
DI154–03

Ignition Switch Circuit

CIRCUIT DESCRIPTION

When the ignition switch is turned to the ON position, battery positive voltage is applied to the terminal IG of the ECU.

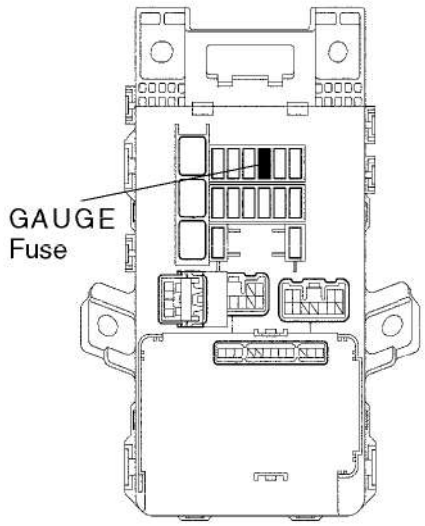
WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Check GAUGE fuse.**

Instrument Panel Junction Block



PREPARATION:

(a) Remove the fuse box opening cover.

(b) Remove GAUGE fuse from instrument panel junction block.

CHECK:

Check continuity of GAUGE fuse.

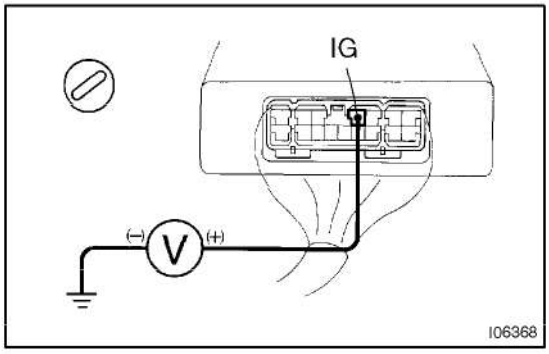
OK:

Continuity

NG → **Check for short in all the harness and components connected to the GAUGE fuse (See attached wiring diagram).**

OK

2	Check voltage between terminals IG of ECU and body ground.



PREPARATION:

(a) Disconnect the wireless door lock ECU connectors.

(b) Turn ignition switch ON.

CHECK:

Measure voltage between terminals IG of wireless door lock ECU connector and body ground.

OK:

Voltage: 10~14V

NG → **Check and repair harness and connector between wireless door lock ECU and battery (See page IN–28).**

OK

Check and replace wireless door lock ECU.

DI156–04

Door Key Lock and Unlock Switch Circuit (Unlock Side)

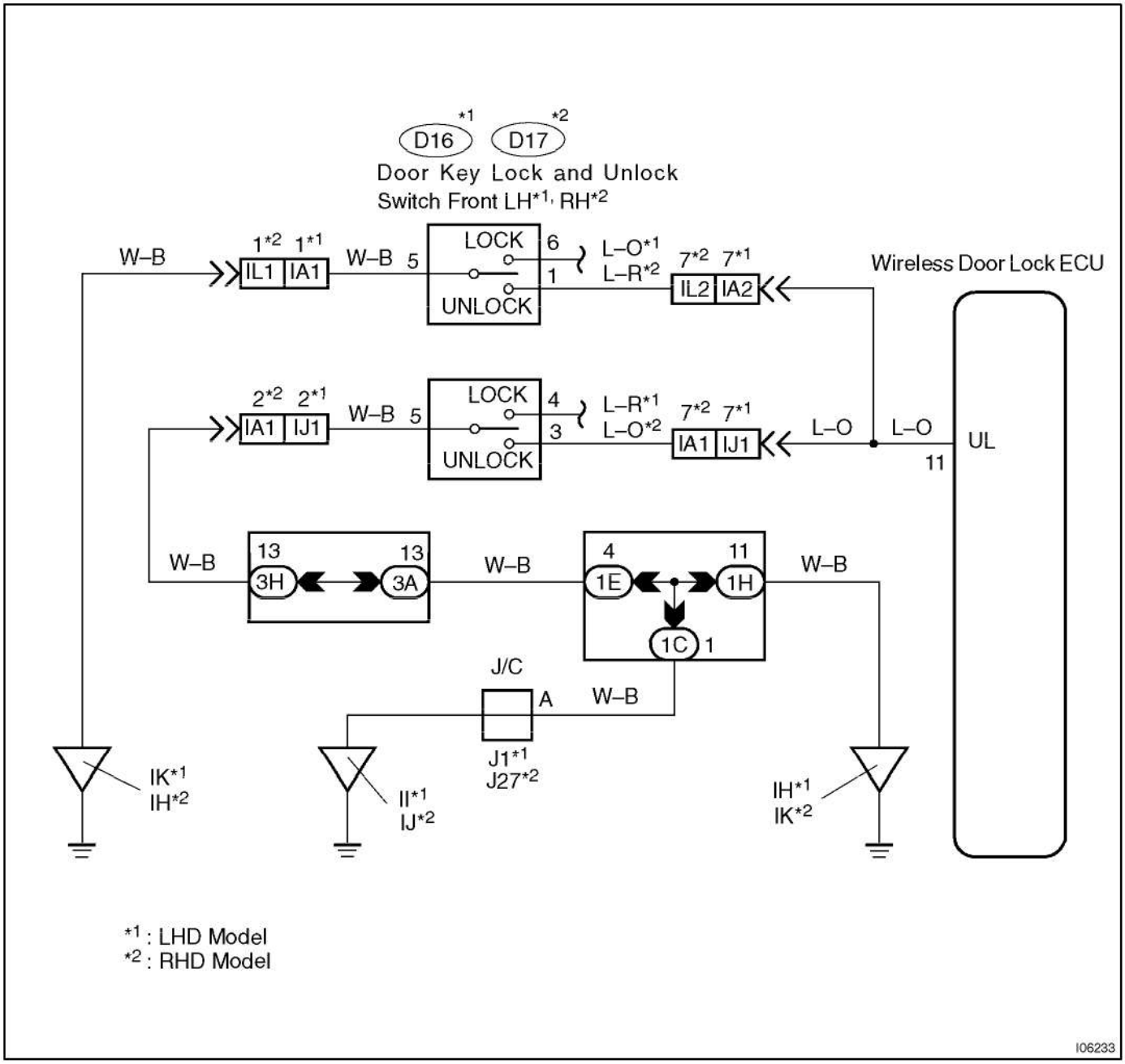
CIRCUIT DESCRIPTION

The key operated switch is built into the door key cylinder. When the key is turned to the lock side, the lock terminal of the switch is grounded, and when the key is turned to the unlock side the unlock terminal is grounded.

Furthermore, the door key lock and unlock switch circuit has terminal +B connected inside the integration relay, when neither the lock or unlock terminal of the key lock and unlock switch are grounded, battery positive voltage is applied to the door key lock and unlock switch circuit of the wireless door lock ECU.

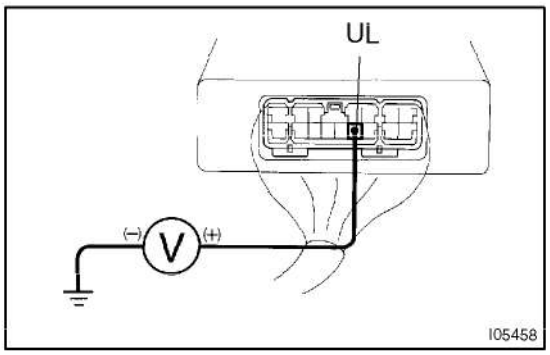
(Tr inside the ECU coming ON causes the wireless door lock ECU to output a signal to unlock all the doors.)

WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Check voltage between terminals UL of wireless door lock ECU connector and body ground.**



PREPARATION:
Remove the wireless door lock ECU from No.1 instrument panel brace.

CHECK:
Measure voltage between terminal UL of wireless door lock ECU connector and body ground.

OK:

Voltage: 10 – 14V

OK → **Proceed to next circuit inspection shown on matrix chart (See page DI–316).**

NG

Check and repair harness and connector between wireless door lock ECU and door key lock and unlock switch.

DI57–04

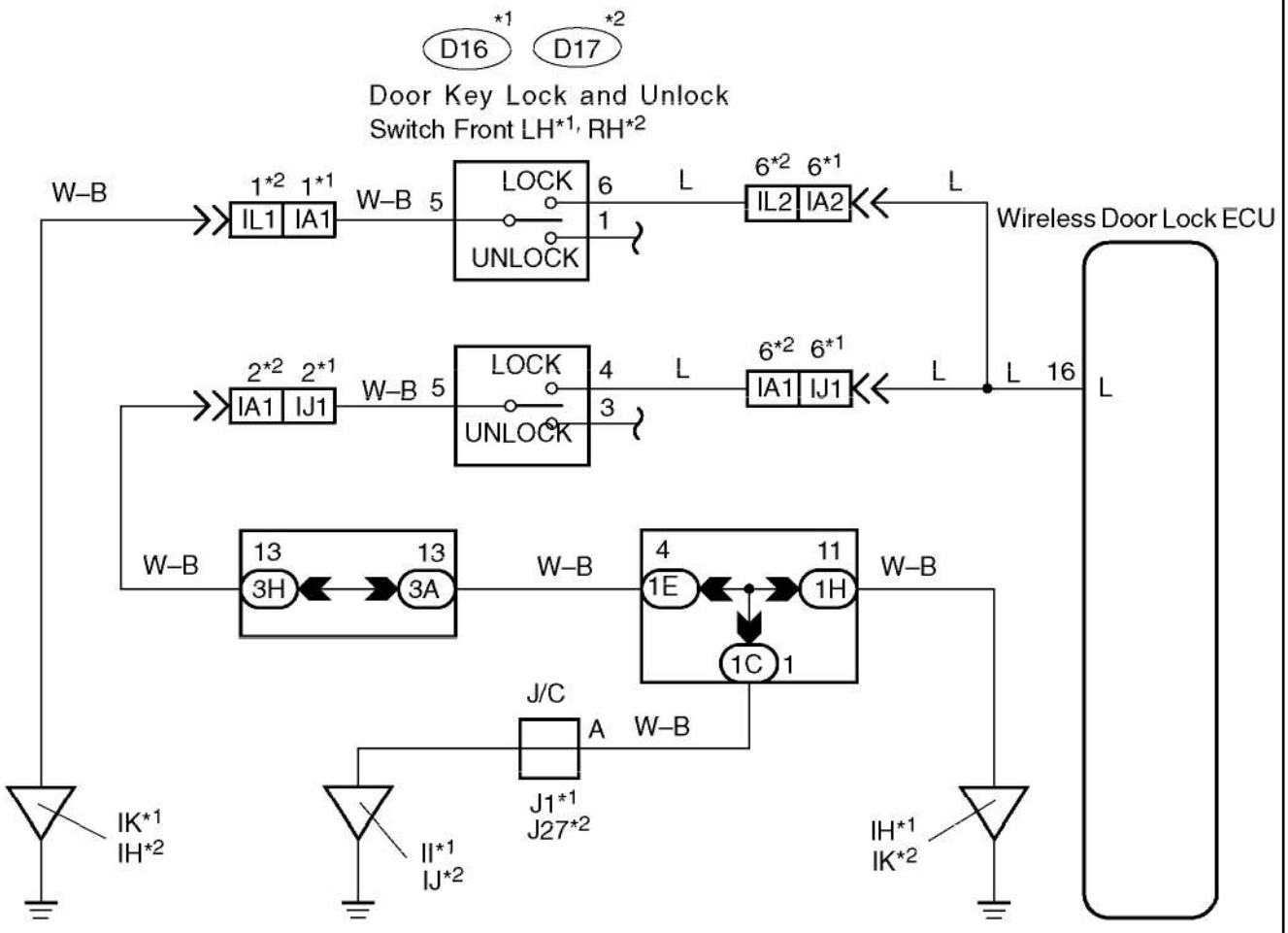
Door Key Lock and Unlock Switch Circuit (Lock Side)

CIRCUIT DESCRIPTION

Refer to page DI–323.

Tr inside the wireless door lock ECU coming ON causes the integration relay to output a signal to lock all the doors.

WIRING DIAGRAM



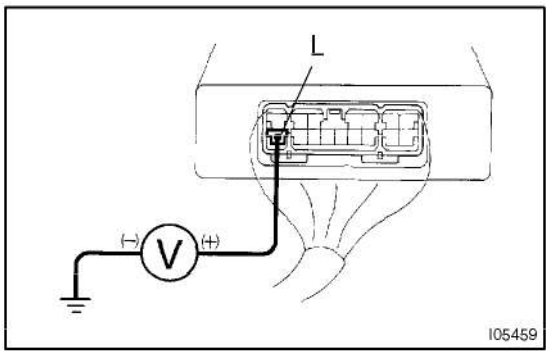
*1 : LHD Model
*2 : RHD Model

I06233

I06231

INSPECTION PROCEDURE

1	**Check voltage between terminal L of wireless door lock ECU connector and body ground.**



PREPARATION:
Remove the wireless door lock ECU from No.1 instrument panel brace.

CHECK:
Measure voltage between terminal L of wireless door lock ECU connector and body ground.

OK:

Voltage 10 – 14 V

OK → **Proceed to next circuit inspection shown on matrix chart (See page DI–316).**

NG

Check and repair harness and connector between wireless door lock ECU and door key lock and unlock switch.

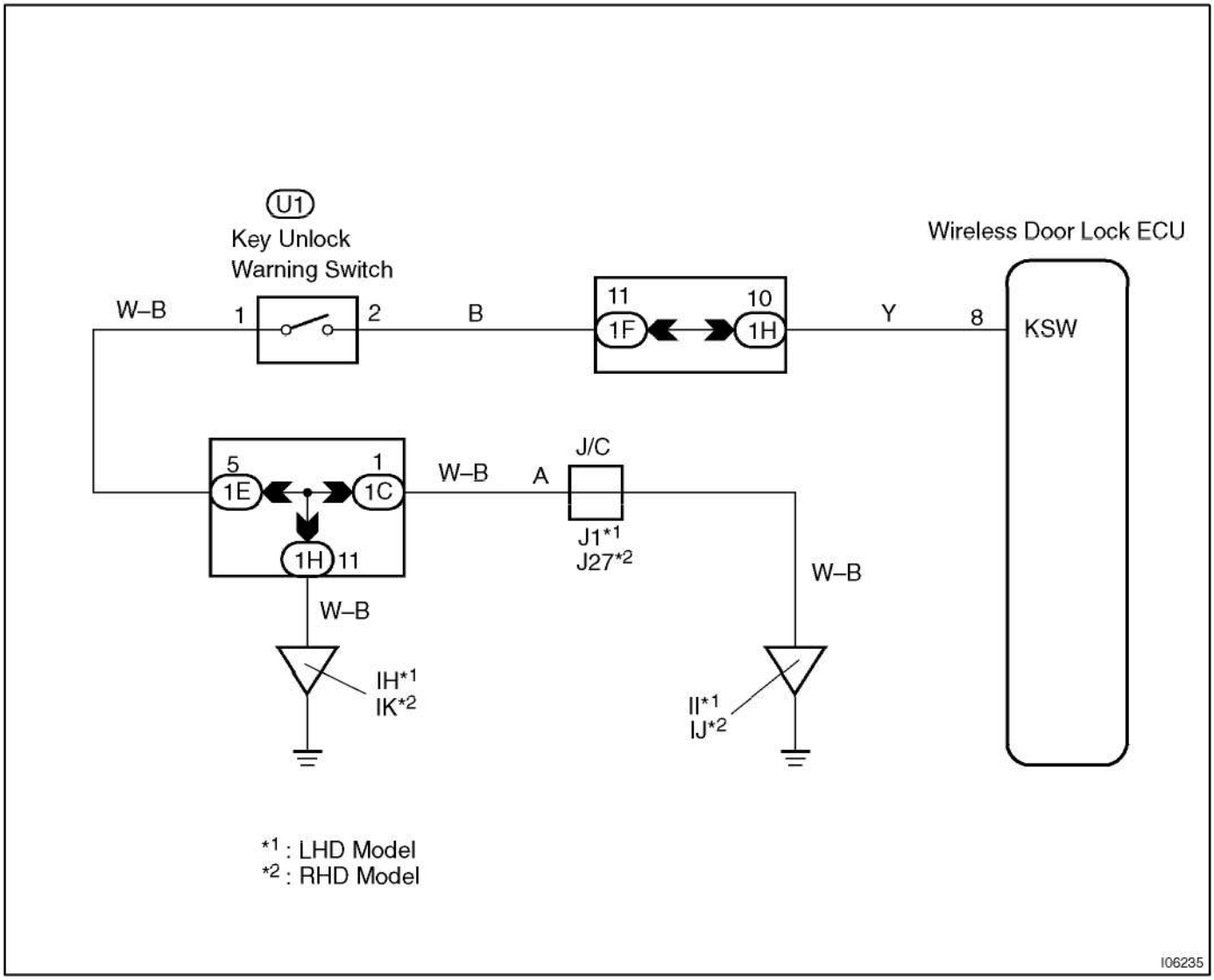
DI158–04

Key Unlock Warning Switch Circuit

CIRCUIT DESCRIPTION

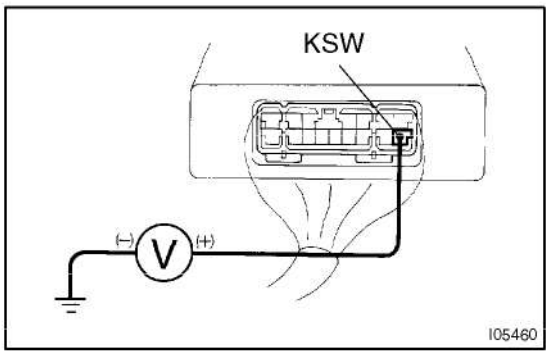
When the key is inserted in the ignition key cylinder, the key unlock warning switch comes ON, and when the key is not inserted the switch is OFF.
When the key unlock warning switch is ON, the ECU operates the transmitter misoperation prevention function.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Check voltage between terminal KSW of wireless door lock ECU connector and body ground.**



PREPARATION:
Remove the wireless door lock ECU from No.1 instrument panel brace.

CHECK:
Measure voltage between terminal KSW of wireless door lock ECU connector and body ground, when key plate is not inserted in the key cylinder.

OK:

Voltage: 10 – 14 V

OK → **Proceed to next circuit inspection shown on matrix chart (See page DI–316).**

NG

Check and repair harness and connector between wireless door lock ECU and key unlock warning switch.

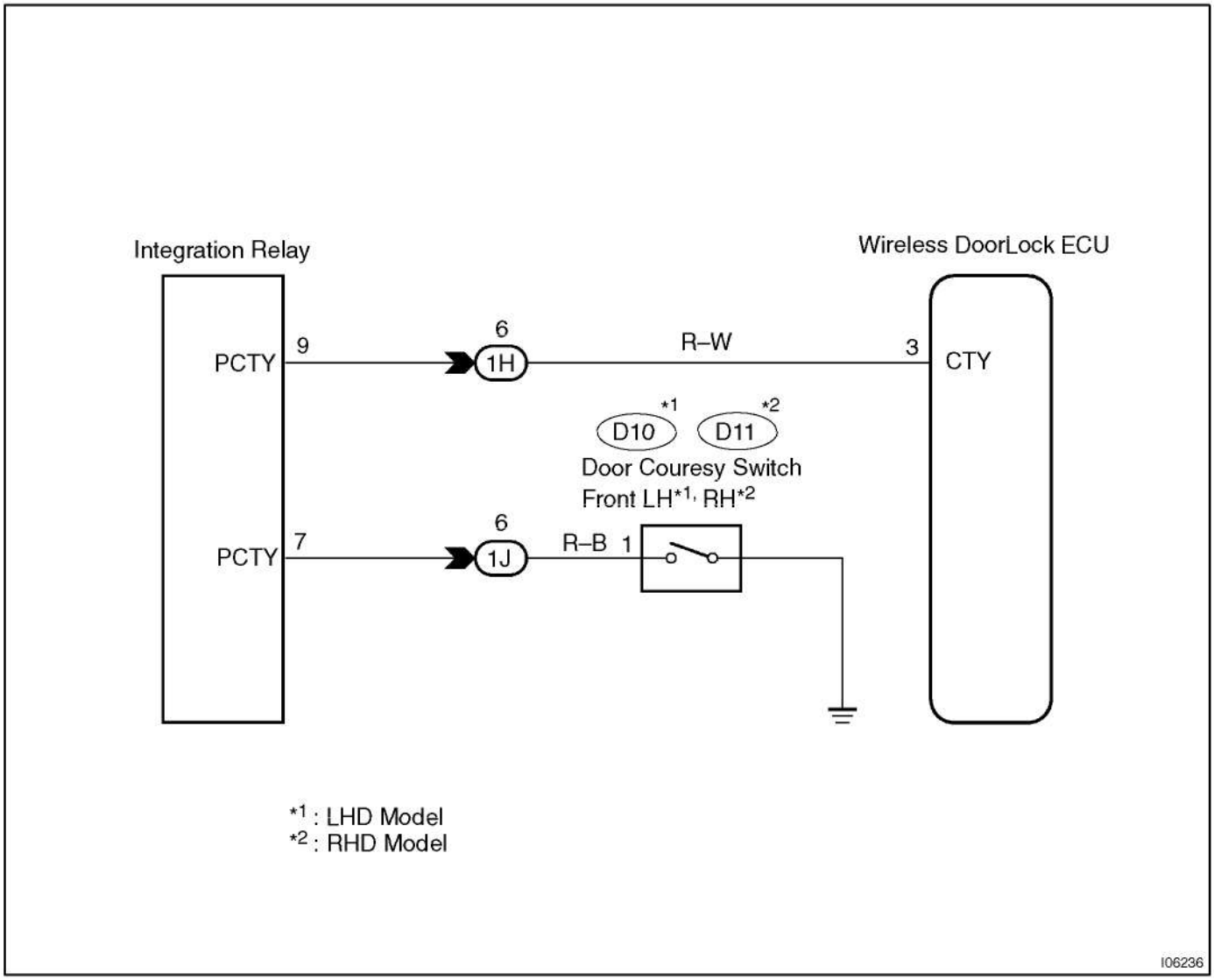
DI345–01

Door Courtesy Switch Circuit

CIRCUIT DESCRIPTION

The door courtesy switch comes ON when the door is opened and goes OFF when door is closed. Furthermore. the door courtesy switch circuit has terminal +B connected inside the integration relay. Battery positive voltage is applied to terminal DSWD of the theft deterrent ECU when all doors are closed, i.e., when the door courtesy switch of all doors are OFF.

WIRING DIAGRAM



INSPECTION PROCEDURE

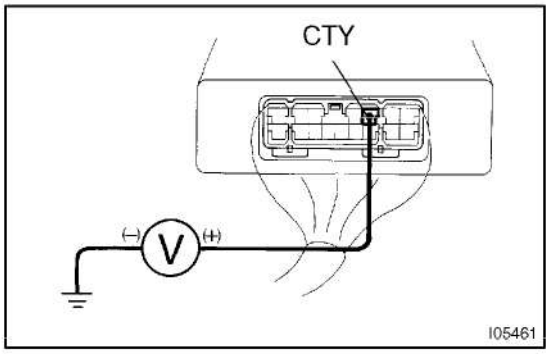
1	**Check operation of open door warning light.**

CHECK:
Check that open door warning light comes on when each door is opened, and goes off when all doors are closed.

NG → **Check open door warning light circuit**

OK

2	**Check voltage between terminal CTY of wireless door lock ECU connector and body ground.**



PREPARATION:
Remove the wireless door lock ECU from No.1 instrument panel brace.
CHECK:
Measure voltage between terminal CTY of wireless door lock ECU connector and body ground, when all doors are closed.
OK:
Voltage: 10 – 14 V

OK → **Proceed to next circuit inspection shown on matrix chart (See page DI–316).**

NG

Check and repair harness and connector between wireless door lock ECU and door courtesy switch.

DI346–01

TVSS ECU Communication Circuit

CIRCUIT DESCRIPTION

Sygnals are sent from TVSS ECU to wireless door lock control ECU.

WIRING DIAGRAM

