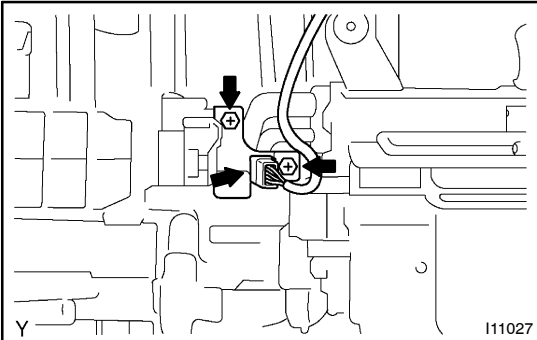


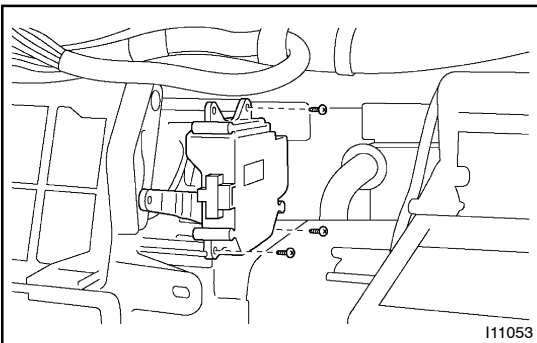
AIR INLET SERVOMOTOR INSPECTION

AC37R-01

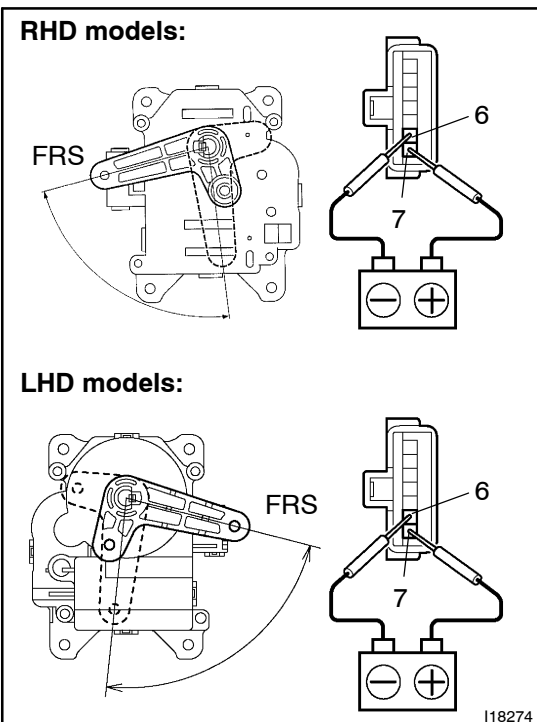
1. REMOVE GLOVE COMPARTMENT DOOR
(See Pub. No. RM684E on page BO-96)



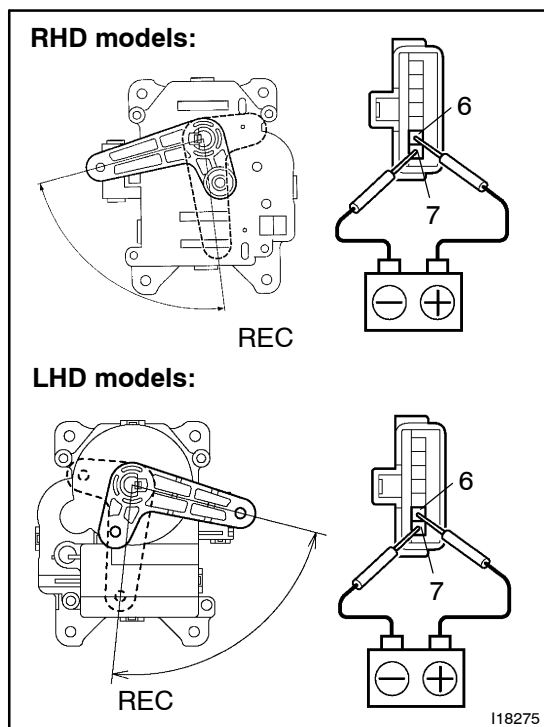
2. REMOVE BRACKET
 - (a) Disconnect the wire harness clamp.
 - (b) Remove the 2 bolts and bracket.



3. REMOVE AIR INLET SERVOMOTOR
 - (a) Disconnect the connector.
 - (b) Remove the 3 screws and servomotor.

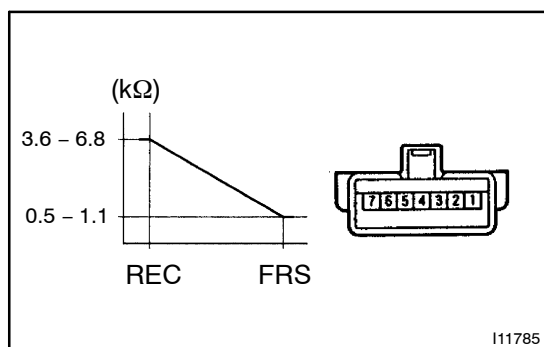


4. INSPECT AIR INLET SERVOMOTOR OPERATION
 - (a) Connect the positive (+) lead from the battery to terminal 7 and negative (-) lead to terminal 6, then check that the arm turns to "FRESH" side smoothly.



- (b) Connect the positive (+) lead from the battery to terminal 6 and negative (-) lead to terminal 7, then check that the arm turns to "RECIRC" side smoothly.

If operations are not as specified, replace the servomotor.

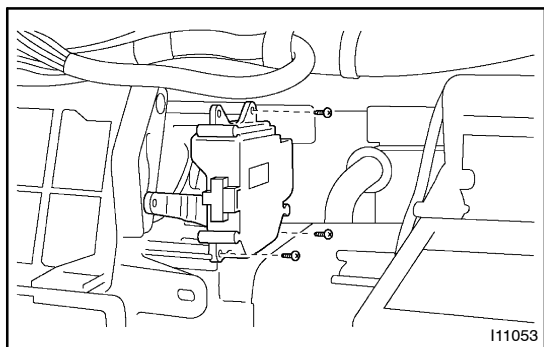


5. INSPECT POSITION SENSOR RESISTANCE

Measure resistance between terminals at servomotor arm each position as shown in the chart.

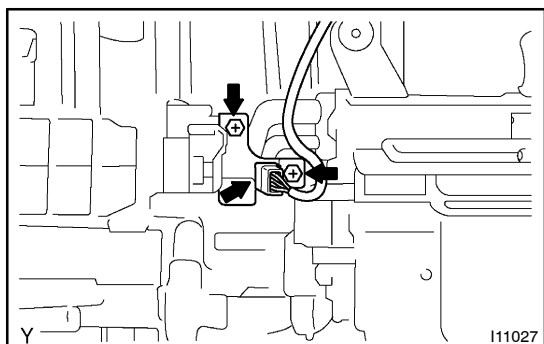
Tester connection	Condition	Specified condition
1 - 3	Constant	4.2 - 7.8 kΩ
3 - 5	REC	3.1 - 5.8 kΩ
3 - 5	FRS	0.8 - 1.6 kΩ

If resistance is not as specified, replace the servomotor.



6. INSTALL AIR INLET SERVOMOTOR

- (a) Install the servomotor with the 3 screws.
(b) Connect the connector.



7. INSTALL BRACKET

- (a) Install the bracket with 2 bolts.
(b) Connect the wire harness clamp.

8. INSTALL GLOVE COMPARTMENT DOOR (See Pub. No. RM684E on page BO-96)

AIR CONDITIONER CONTROL ASSEMBLY

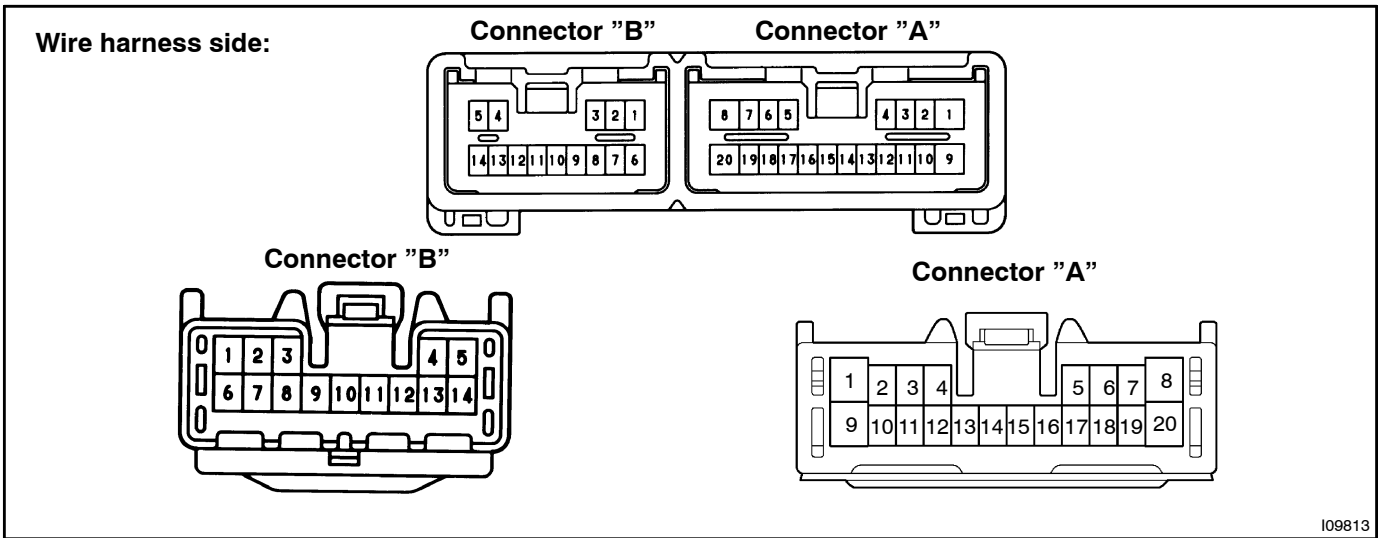
ON-VEHICLE INSPECTION

AC261-02

1. REMOVE A/C CONTROL ASSEMBLY
2. INSPECT A/C CONTROL ASSEMBLY CIRCUIT
 - (a) Disconnect the connector from the A/C control assembly and inspect the connector on the wire harness side, as shown in the chart below.

Test condition:

Turn ignition switch ON



I09813

Tester connection	Condition	Specified condition
A13 – A6	Cover solar sensor with a cloth	No continuity
	Solar sensor subject to electric light	Continuity
B14 – Ground	Constant	Continuity
A17 – A18	Cabin temperature at 25 °C (77 °F)	Approx. 1.7 kΩ
A5 – A18	Evaporator temperature at 25 °C (77 °F)	Approx. 1.5 kΩ
B4 – Ground	Turn ignition switch to ACC	Battery voltage
B13 – Ground	Turn ignition switch to ON	Battery voltage
	Turn ignition switch to LOCK or ACC	No voltage
B12 – Ground	Turn light control switch to "TAIL"	Battery voltage
B5 – Ground	Constant	Battery voltage

If the circuit is not as specified, inspect the circuit connected to other parts.

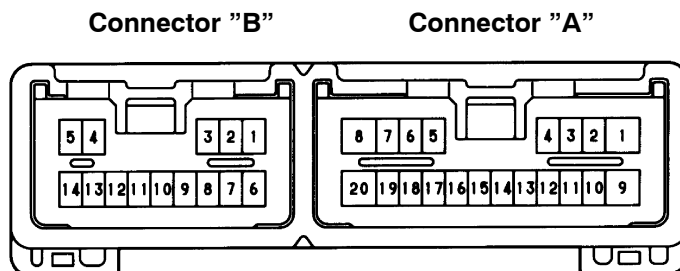
If the circuit is as specified, proceed to "INSPECTION" on [page AC-6](#).

- (b) Connect the connector to amplifier and inspect the wire harness side connector from the back side, as shown in the chart.

Test conditions:

- Running engine at idle speed
- Blower speed control dial at "HI" position
- Temperature control dial at "MAX. COOL" position
- A/C switch ON

From back side:



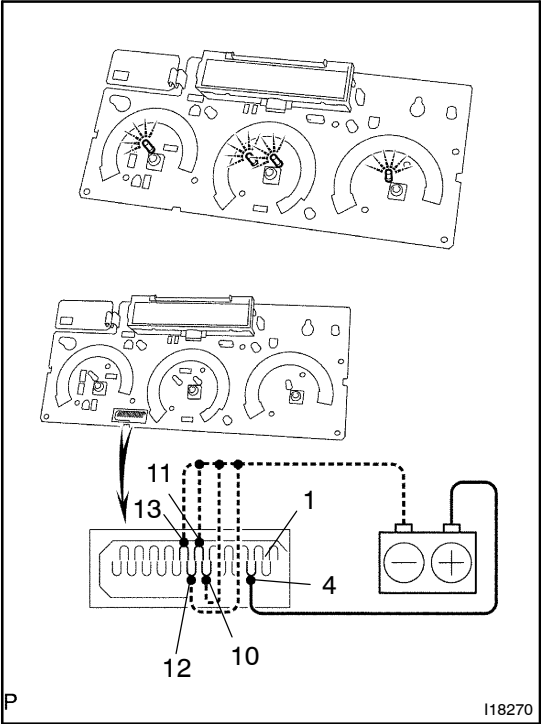
107266

Tester connection	Condition	Specified condition
A18 – Ground	Constant	Continuity
A1 – Ground	Hazard switch: OFF	No continuity
	Hazard switch: ON	Continuity
A2 – Ground	R/F switch: FRESH	Battery voltage
	R/F switch: RECIRC	Below 1.0 V
A3 – Ground	Mode control dial: FACE	Below 1.0 V
	Mode control dial: DEF	Battery voltage
A4 – Ground	Temperature control dial: MAX COOL	Below 1.0 V
	Temperature control dial: MAX HOT	Battery voltage
A6 – A18	Constant	5.0 ± 0.5 V
A9 – Ground	R/F switch: FRESH	Below 1.0 V
	R/F switch: RECIRC	Battery voltage
A10 – Ground	Mode control dial: DEF	Below 1.0 V
	Mode control dial: FACE	Battery voltage
A11 – Ground	Temperature control dial: MAX HOT	Below 1.0 V
	Temperature control dial: MAX COOL	Battery voltage
A14 – A18	Temperature control dial: MAX HOT	Approx. 1.0 V
	Temperature control dial: MAX COOL	Approx. 4.0 V
A15 – A18	Mode control dial: DEF	Approx. 1.0 V
	Mode control dial: FACE	Approx. 4.0 V
A16 – A18	R/F switch: FRESH	Approx. 1.0 V
	R/F switch: RECIRC	Approx. 4.0 V
B2 – Ground	Parking brake lever: Release	Battery voltage
	Parking brake lever: Operate	Below 1.0 V
B3 – Ground	Pattern select switch: Except PWR	Battery voltage
	Pattern select switch: PWR	Below 1.0 V

B6 – Ground	Ignition switch: ON	Below 1.0 V
	Ignition switch: OFF	Battery voltage
B7 – Ground	Blower motor: ON	Pulse generation
	Blower motor: OFF	Approx. 5.0 V
B8 – Ground	Pattern select switch: Except SNOW	Battery voltage
	Pattern select switch: SNOW	Below 1.0 V
B10 – Ground	Passenger seat belt: unfastened	Below 1.0 V
	Passenger seat belt: fasted	Battery voltage

If the circuit is not as specified, proceed to "INSPECTION" on [page AC-6](#).

3. INSTALL A/C CONTROL ASSEMBLY
(See Pub. No. RM684E on page AC-94)



INSPECTION

1. INSPECT INDICTOR OPERATION

Connect the positive (+) lead from the battery to terminal 4 and negative (-) lead to each terminal, then check that the indicator lights up as shown in the chart.

Switch	Tester connection
DEF	13
FRESH	12
RECIRC	11
A/C	10

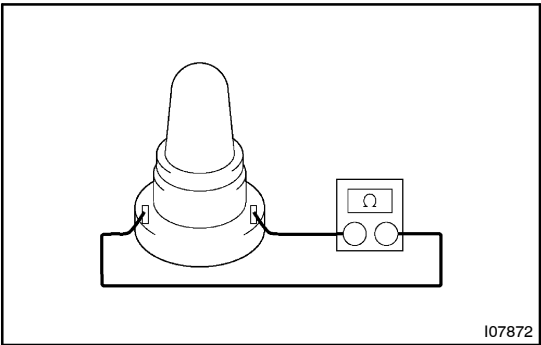
If operation is not as specified, replace the P/C board.

2. INSPECT INDICATOR DIMMING OPERATION

- (a) Perform each indicator light up (See step 1).
- (b) Connect the positive (+) lead from the battery to terminal 1 and check that the each indicator dims.

If the operation is not as specified, replace the P/C board.

If the operation is as specified, replace the A/C amplifier.

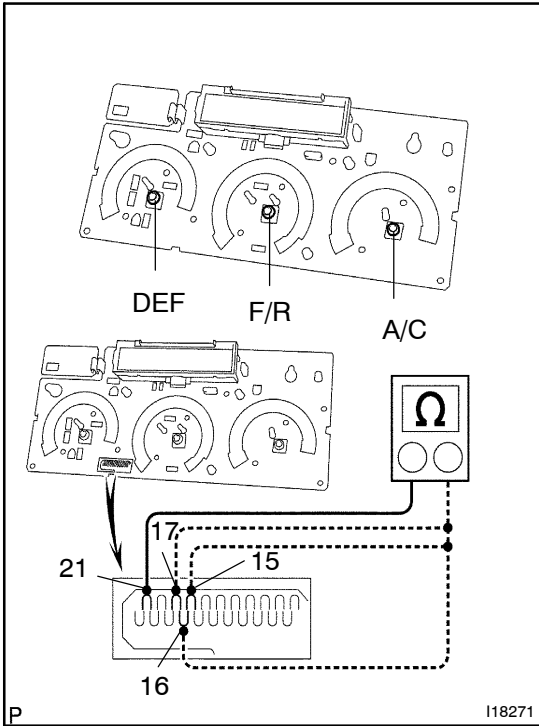


3. INSPECT BULB OPERATION

Apply the tester as shown in the illustration to the test for continuity.

If continuity exists, replace the P/C board.

If on continuity exists, replace the bulb.



4. INSPECT SWITCH OPERATION

Check the continuity exists between terminals while the switch is pressed.

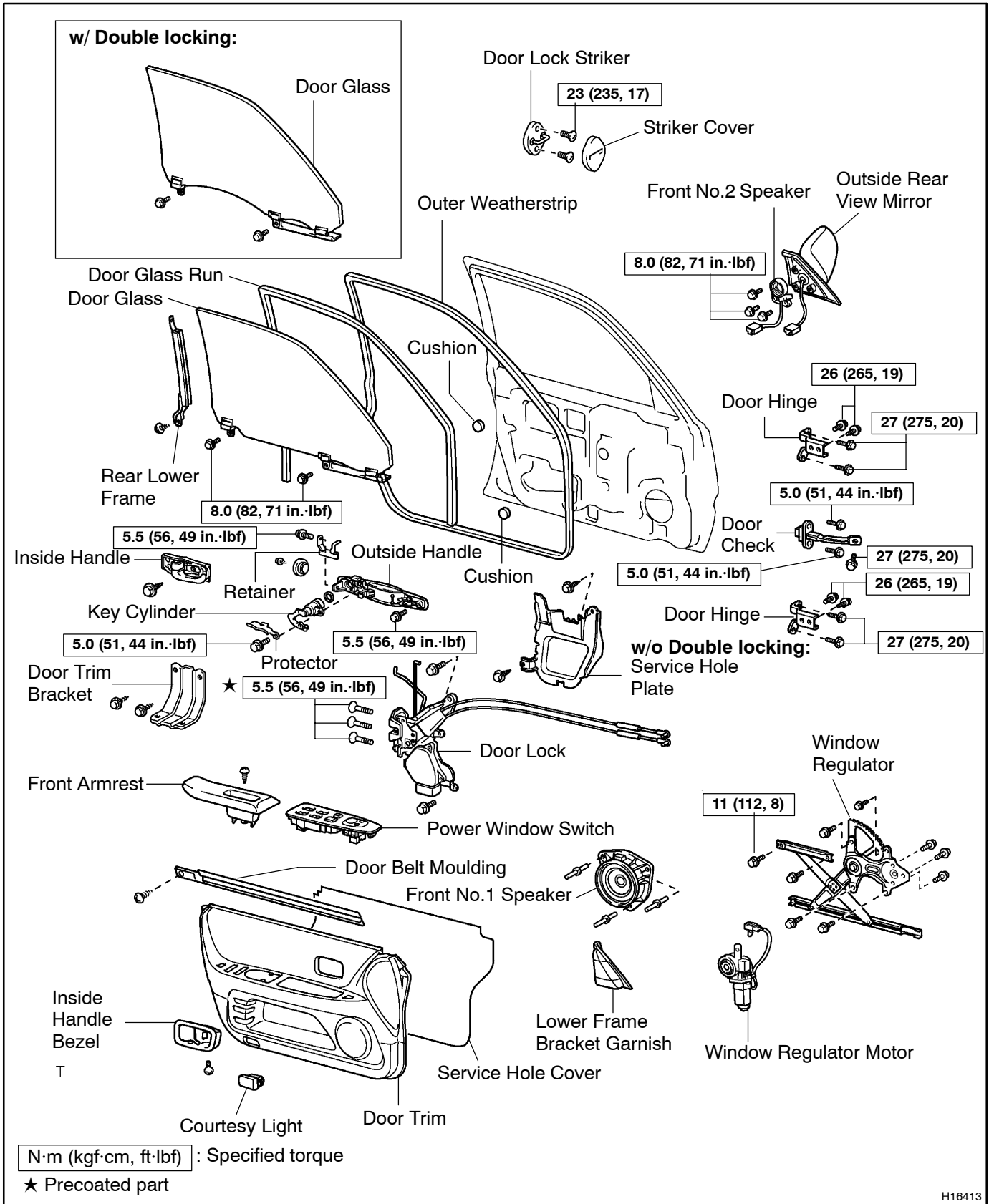
Switch	Tester connection	Specified condition
A/C	15 - 21	Continuity
DEF	16 - 21	Continuity
F/R	17 - 21	Continuity

If operations is not as specified, replace the P/C board.

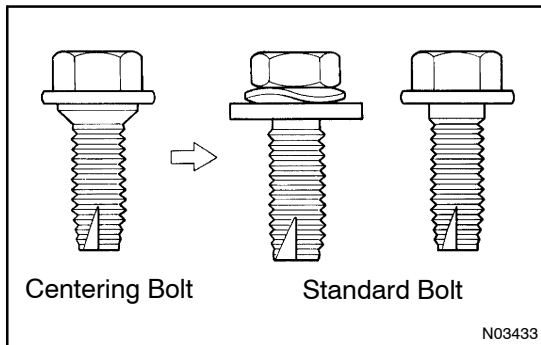
If operations is as specified, check the wire harness or replace the A/C amplifier.

FRONT DOOR COMPONENTS

B03TH-01



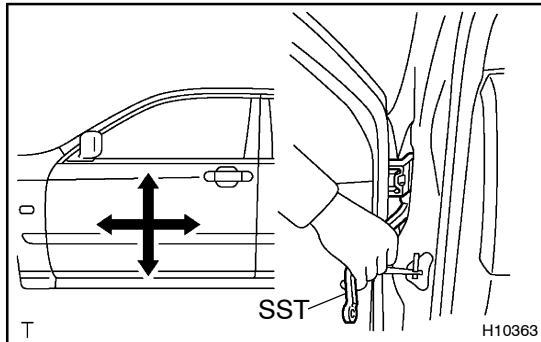
H16413



ADJUSTMENT

HINT:

Since the centering bolt is used as a door side hinge bolt, the door hinge cannot be adjusted with it on. Substitute the bolt with a washer for the centering bolt.

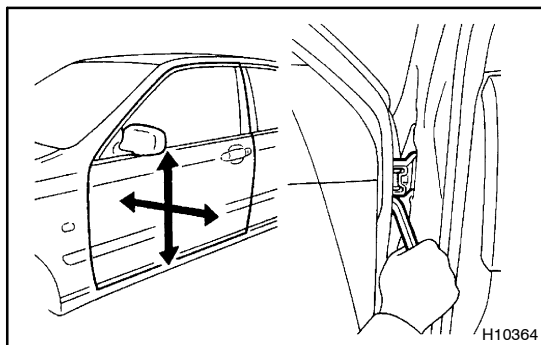


1. ADJUST FRONT DOOR IN FORWARD/REARWARD AND VERTICAL DIRECTIONS

Using SST, adjust the door by loosening the body side hinge bolts.

SST 09812-00010

Torque: 26 N·m (265 kgf·cm, 19 ft·lbf)



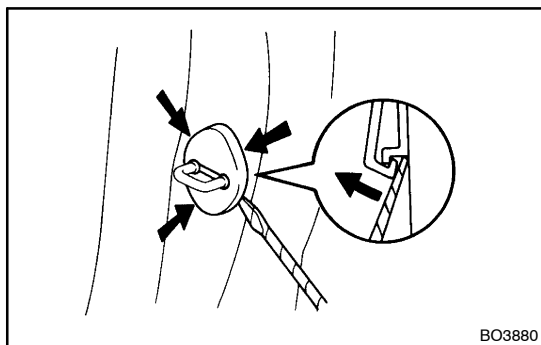
2. ADJUST FRONT DOOR IN LEFT/RIGHT AND VERTICAL DIRECTIONS

Adjust the door by loosening the door side hinge bolts.

Torque: 27 N·m (275 kgf·cm, 20 ft·lbf)

3. ADJUST FRONT DOOR LOCK STRIKER

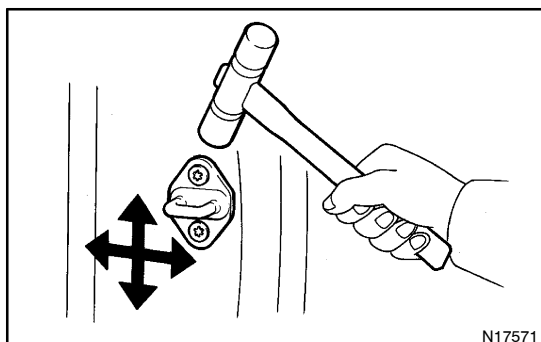
(a) Check that the door fit and door lock linkages are adjusted correctly.



(b) Using a screwdriver, remove the striker cover.

HINT:

Tape the screwdriver tip before use.



(c) Adjust the striker position by slightly loosening the striker mounting screws, and hitting the striker with a hammer.

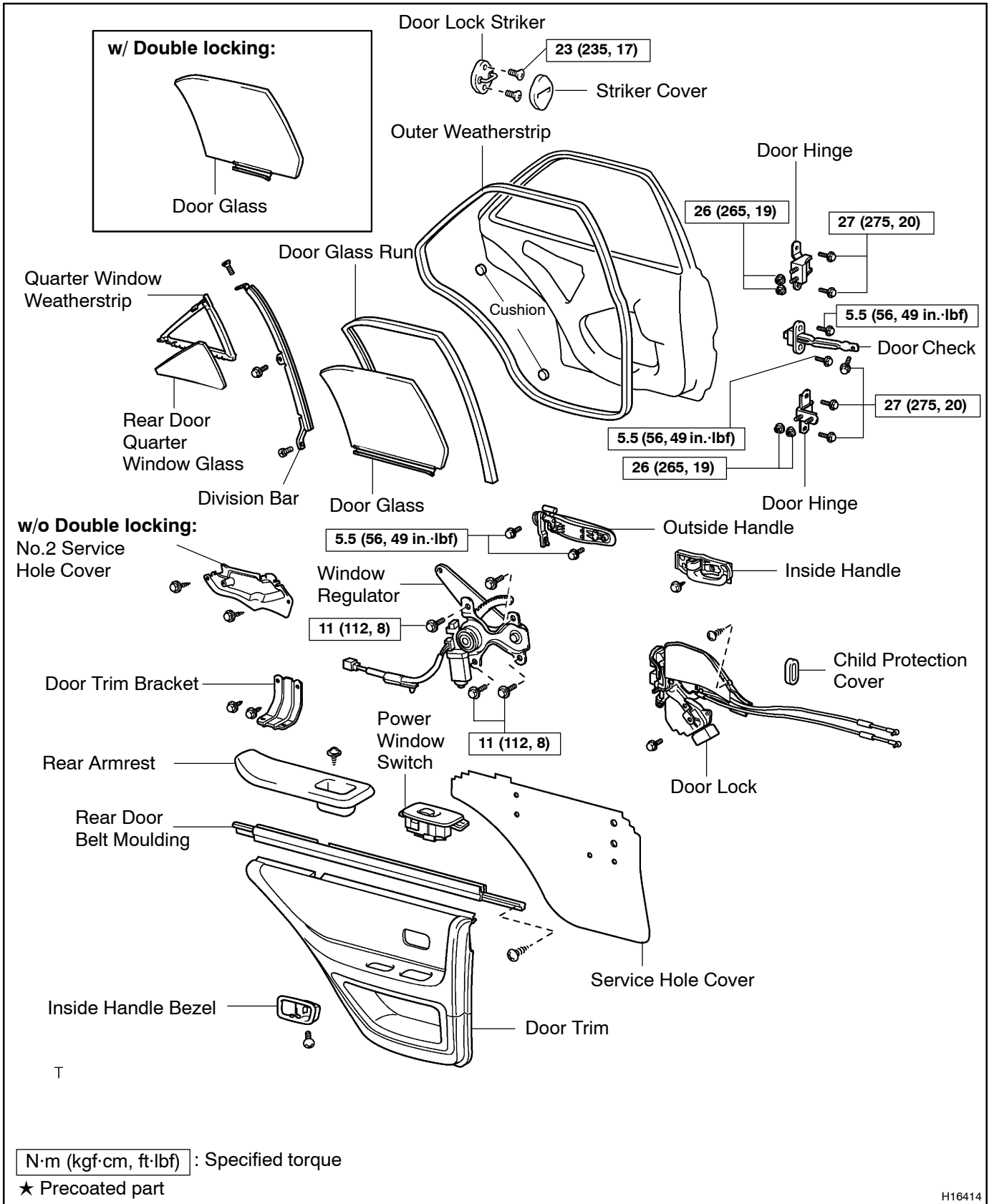
(d) Tighten the striker mounting screws again.

Torque: 23 N·m (235 kgf·cm, 17 ft·lbf)

(e) Install the striker cover.

REAR DOOR COMPONENTS

BO3TJ-01

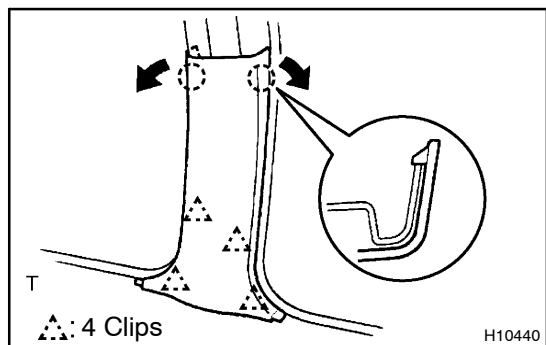


H16414

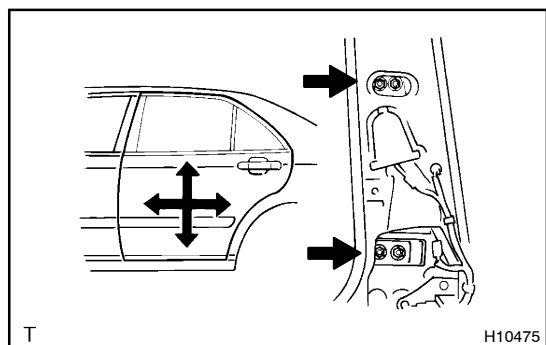
ADJUSTMENT

1. ADJUST DOOR IN FORWARD/REARWARD AND VERTICAL DIRECTIONS

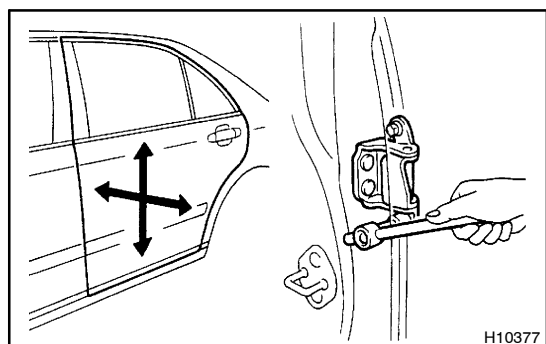
- (a) Remove the front door inside scuff plate.
- (b) Remove the rear door inside scuff plate.



- (c) Remove the center pillar lower garnish.
- (d) Remove the seat belt pretensioner (See page BO-7).



- (e) Adjust the door by loosening the body side hinge nuts.
Torque: 26 N·m (265 kgf·cm, 19 ft·lbf)
- (f) Install the seat belt pretensioner (See page BO-16).
- (g) Install the lower center pillar garnish.
- (h) Install the rear door inside scuff plate.
- (i) Install the front door inside scuff plate.



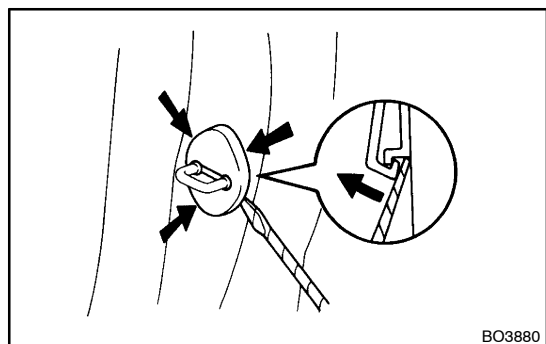
2. ADJUST DOOR IN LEFT/RIGHT AND VERTICAL DIRECTIONS

Adjust the door by loosening the door side hinge bolts.

Torque: 27 N·m (275 kgf·cm, 20 ft·lbf)

3. ADJUST DOOR LOCK STRIKER

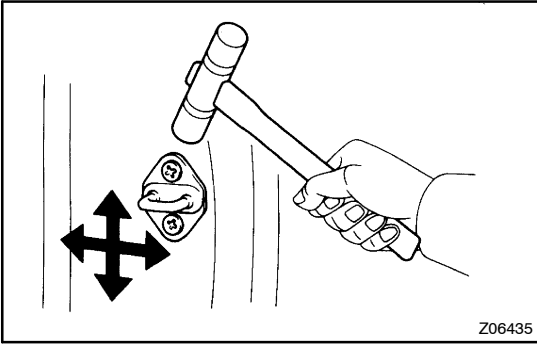
- (a) Check that the door fit and door lock linkages are adjusted correctly.



- (b) Using a screwdriver, remove the striker cover.

HINT:

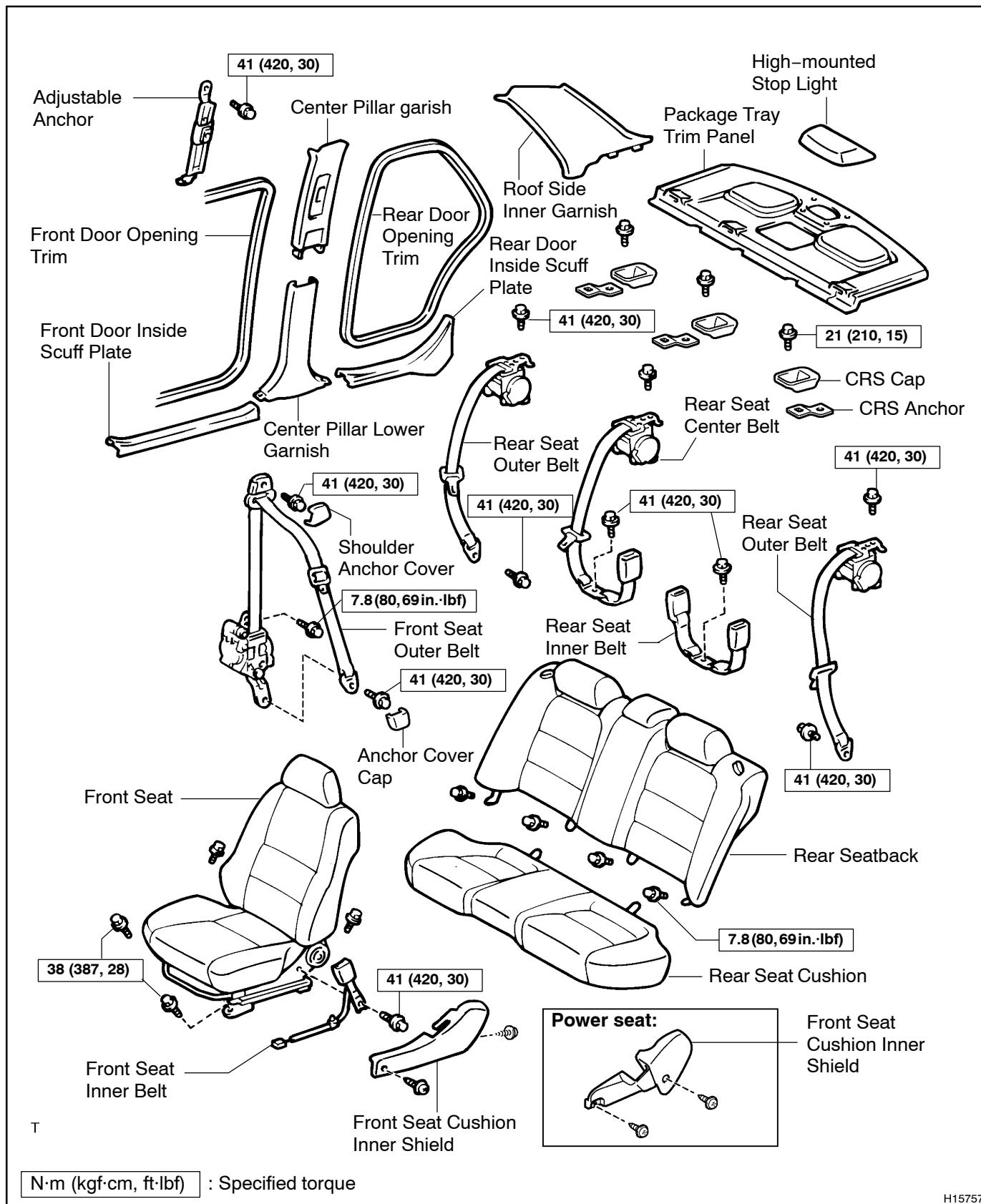
Tape the screwdriver tip before use.



- (c) Adjust the striker position by slightly loosening the striker mounting screws, and hitting the striker with a hammer.
- (d) Tighten the striker mounting screws again.
Torque: 23 N·m (235 kgf·cm, 17 ft·lbf)
- (e) Install the striker cover.

SEAT BELT COMPONENTS

B03TL-01



H15757

SEAT BELT PRETENSIONER REMOVAL

B03TM-01

NOTICE:

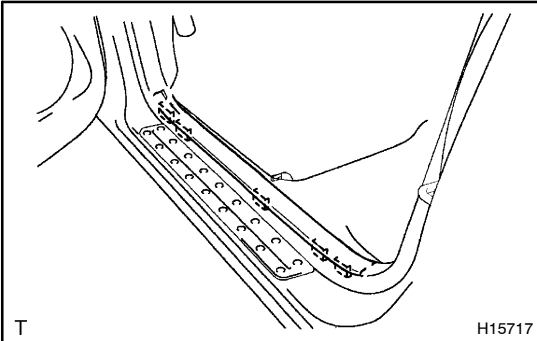
- If the wiring connector of the seat belt pretensioner is disconnected with the ignition switch at ON or ACC, diagnostic trouble codes will be recorded.
- Never use seat belt pretensioner from another vehicle. When replacing parts, replace them with new parts.

1. REMOVE FRONT DOOR INSIDE SCUFF PLATE

Using a screwdriver, remove the front door inside scuff plate.

HINT:

Tape the screwdriver tip before use.

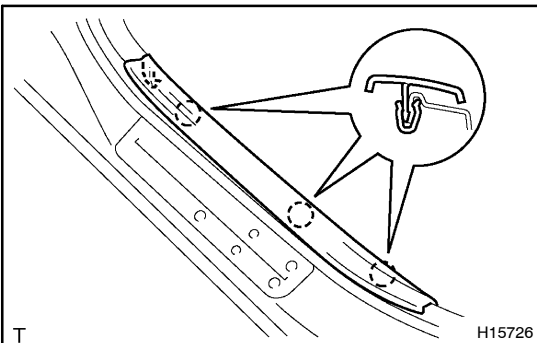


2. REMOVE REAR DOOR INSIDE SCUFF PLATE

Using a screwdriver, remove the rear door inside scuff plate.

HINT:

Tape the screwdriver tip before use.

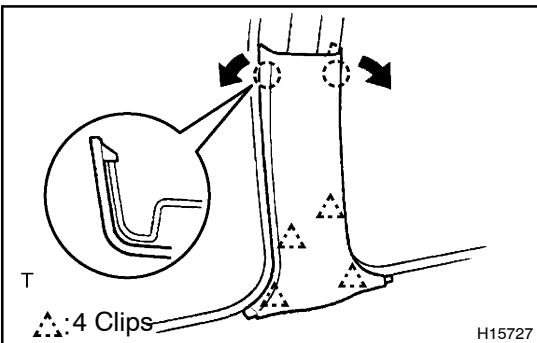


3. REMOVE REAR PART OF FRONT DOOR OPENING TRIM

4. REMOVE FRONT PART OF REAR DOOR OPENING TRIM

5. REMOVE CENTER PILLAR LOWER GARNISH

Remove the center pillar lower garnish as shown in the illustration.



6. REMOVE FRONT SEAT OUTER BELT

(a) Using a screwdriver, remove the shoulder anchor cover.

HINT:

Tape the screwdriver tip before use.

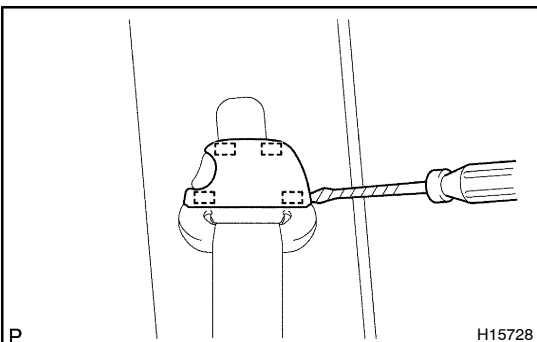
(b) Remove the bolt and shoulder anchor.

(c) Using a screwdriver, remove the floor anchor cover.

HINT:

Tape the screwdriver tip before use.

(d) Remove the bolt and floor anchor.



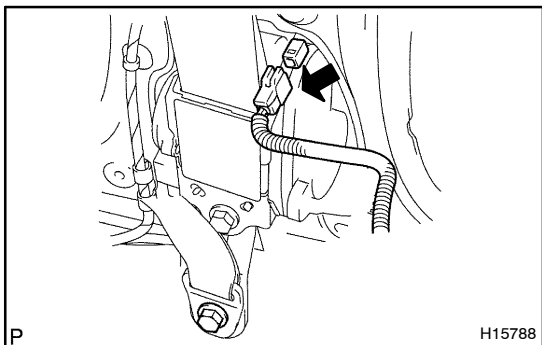
(e) Remove the retractor of front seat outer belt.

CAUTION:

Never disassemble the front seat outer belt.

NOTICE:

When removing the retractor of front seat outer belt, take care not to pull the seat belt pretensioner wire harness.



- (1) Disconnect the pretensioner connector as shown in the illustration.

CAUTION:

When removing the seat belt pretensioner, work must be started 90 seconds after the ignition switch is turned to the "LOCK" position and the negative (-) terminal cable is disconnected from the battery.

- (2) Remove the upper bolt and retractor of front seat outer belt.

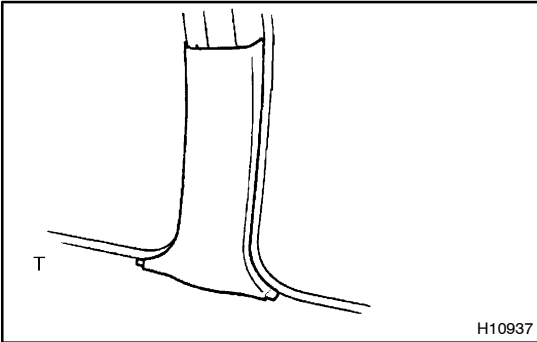
NOTICE:

Except when disposing of the seat belt pretensioner, do not remove the shoulder belt anchor plate from the retractor.

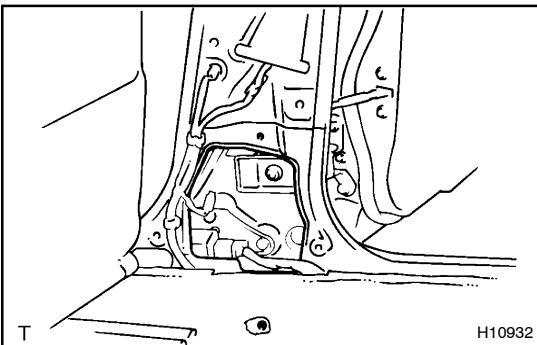
INSPECTION

1. PRETENSIONER IS NOT ACTIVATED

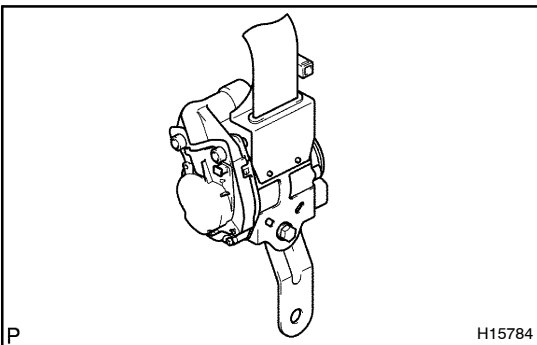
- (a) Perform a diagnostic system check.
(See page DI-3)



- (b) Perform a visual check which includes the following items with the front seat outer belt removed from the vehicle.
- Check for cuts and cracks in, or marked discoloration on the center pillar lower garnish.
 - Check for cuts and cracks in wire harness, and for chipping in connectors.



- Check for deformation of the center pillar.



- Check for cuts and minute cracks in wire harness or marked discoloration on the front seat outer belt.

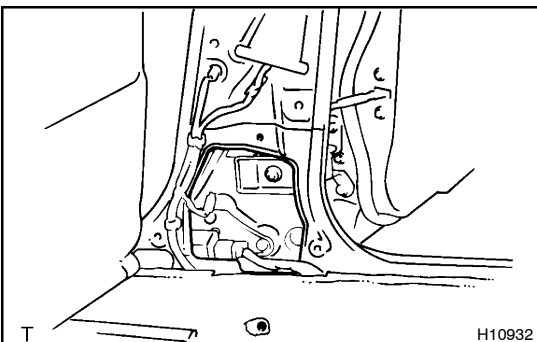
CAUTION:

For removal and installation of the front seat outer belt, see page BO-7 and BO-16.

Be sure to follow the correct procedure.

2. PRETENSIONER IS ACTIVATED

- (a) Perform a diagnostic system check.
(See page DI-3)

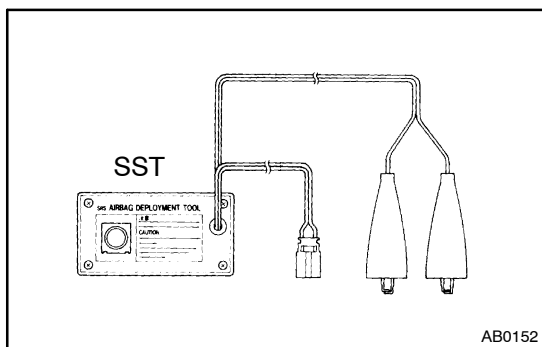


- (b) Perform a visual check which includes the following items with the front seat outer belt removed from the vehicle.
- Check for deformation of the center pillar.
 - Check for damage on the connector and wire harness.

DISPOSAL

HINT:

When scrapping vehicles equipped with a seat belt pretensioner or disposing of a front seat outer belt (with seat belt pretensioner) always first activate the seat belt pretensioner in accordance with the procedure described below. If any abnormality occurs in the seat belt pretensioner operation, contact the SERVICE DEPT. of DISTRIBUTOR. When disposing of a front seat outer belt (with seat belt pretensioner) activated in a collision, follow the same procedure given in step 1-(e) in "DISPOSAL".

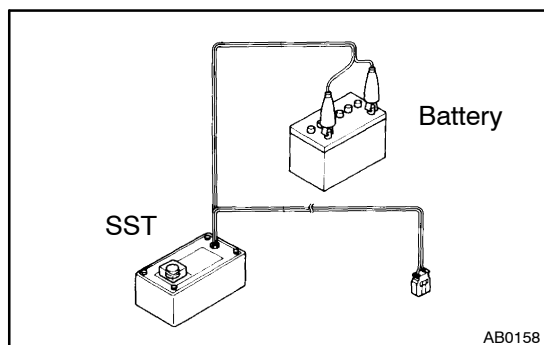


CAUTION:

- Never dispose of front seat outer belt which has an in-activated pretensioner.
- The seat belt pretensioner produces a sizeable exploding sound when it activates, so perform the operation out-of-door and where it will not create a nuisance to nearby residents.
- When activating the seat belt pretensioner, always use the specified SST. (SRS Airbag Deployment Tool) Perform the operation in a place away from electrical noise.

SST 09082-00700, 09082-00730

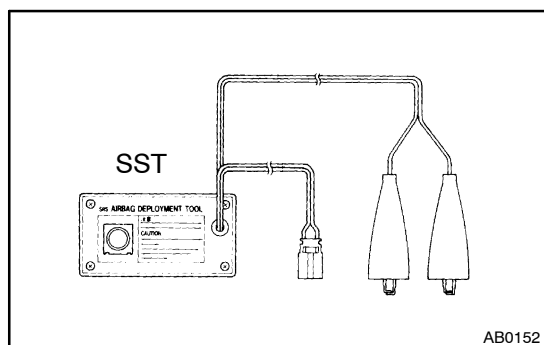
- When activating a front seat outer belt (with seat belt pretensioner), perform the operation at least 10 m (33 ft) away from the front seat outer belt.
- Use gloves and safety glasses when handling a front seat outer belt with activated pretensioner.
- Always wash your hands with water after completing the operation.
- Do not apply water, etc. to a front seat outer belt with activated pretensioner.



1. SEAT BELT PRETENSIONER ACTIVATION WHEN SCRAPPING VEHICLE

HINT:

Have a battery ready as the power source to activate the seat belt pretensioner.

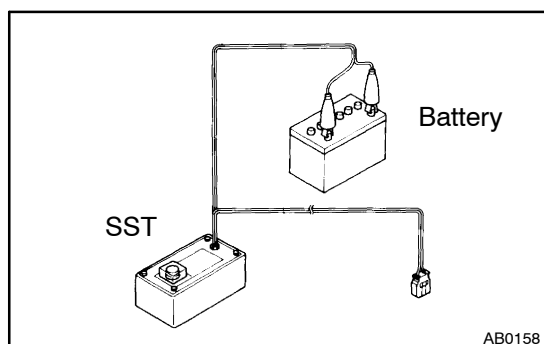


(a) Check the functioning of SST.

CAUTION:

When activating the seat belt pretensioner, always use the specified SST: SRS Airbag Deployment Tool.

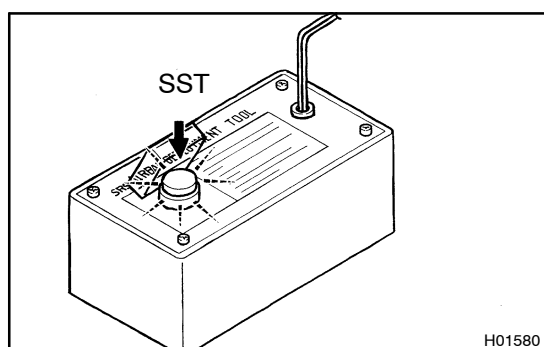
SST 09082-00700, 09082-00730



- (1) Connect the SST to the battery.
Connect the red clip of the SST to the battery positive (+) terminal and the black clip to the battery negative (-) terminal.

HINT:

Do not connect the yellow connector which will be connected with the seat belt pretensioner.



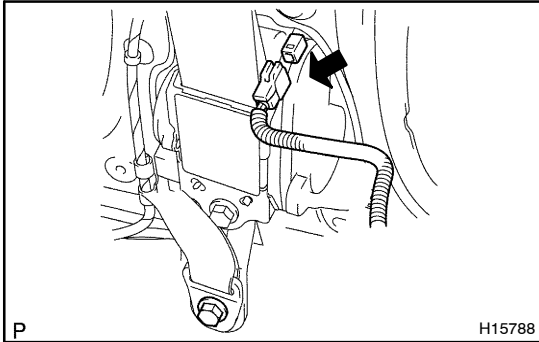
- (2) Press the SST activation switch, and check the LED of the SST activation switch lights up.

CAUTION:

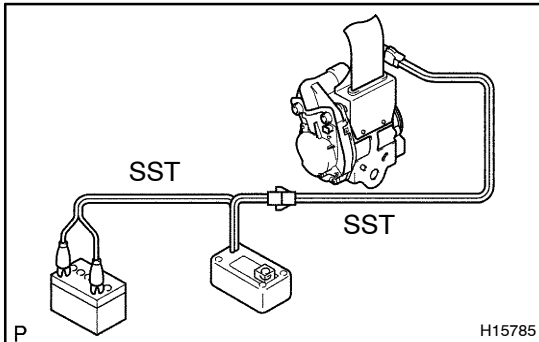
If the LED lights up when the activation switch is not being pressed, SST malfunction is probable, so definitely do not use the SST.

(b) Disconnect the pretensioner connector.

- (1) Remove the front door inside scuff plate.
- (2) Remove the rear door inside scuff plate.
- (3) Remove the rear part of front door opening trim.
- (4) Remove the front part of rear door opening trim.
- (5) Remove the center pillar lower garnish.



- (6) Disconnect the pretensioner connector as shown in the illustration.
- (c) Install the SST.
- (1) Buckle the front seat belt and check that there is no looseness and slack in the front seat inner belt and front seat outer belt.

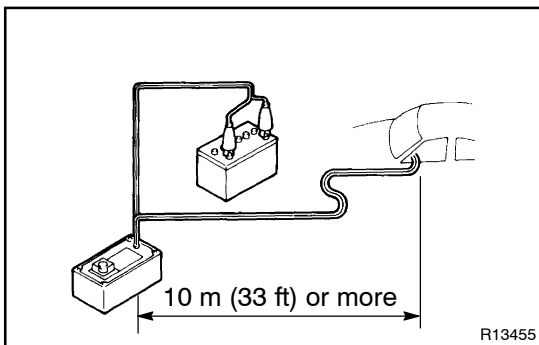


- (2) Connect the 2 SST, then connect them to the seat belt pretensioner.

SST 09082-00700, 09082-00730

NOTICE:

To avoid damaging the SST connector and wire harness.



- (3) Move the SST to at least 10 m (33 ft) away from the front of the vehicle.
- (4) Close all the doors and windows of the vehicle.

NOTICE:

Take care not to damage the SST wire harness.

- (5) Connect the SST red clip to the battery positive (+) terminal and the black clip to the negative (-) terminal.
- (d) Activate the seat belt pretensioner.
- (1) Confirm that no one is inside the vehicle or within 10 m (33 ft) area around the vehicle.
- (2) Press the SST activation switch and activate the seat belt pretensioner.

HINT:

The seat belt pretensioner operates simultaneously as the LED of the SST activation switch lights up.

- (e) Dispose of front seat outer belt (with seat belt pretensioner).

CAUTION:

- **The front seat outer belt is very hot when the seat belt pretensioner is activated, so leave it alone for at least 30 minutes after activation.**
- **Use gloves and safety glasses when handling a front seat outer belt with activated seat belt pretensioner.**
- **Always wash your hands with water after completing the operation.**
- **Do not apply water, etc. to a front seat outer belt with activated seat belt pretensioner.**

HINT:

When scrapping a vehicle, dispose the seat belt pretensioner and scrap the vehicle with activated front seat outer belt still installed.

2. ACTIVATION WHEN DISPOSING OF FRONT SEAT OUTER BELT ONLY

NOTICE:

- When disposing of the front seat outer belt (with seat belt pretensioner) only, never use the customer's vehicle to activate the seat belt pretensioner.
- Be sure to follow the procedure given on the next page when activating the seat belt pretensioner.

HINT:

Have a battery ready as the power source when activating the seat belt pretensioner.

- (a) Remove the front seat outer belt (See page BO-6).

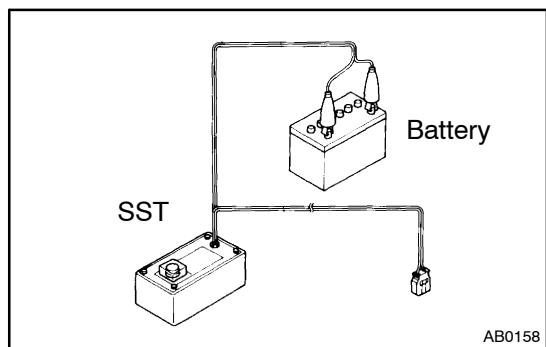
HINT:

Cut the belt near the seat belt retractor.

- (b) Remove the bolt and shoulder belt anchor plate.

- (c) Check functioning of SST (See step 1-(a)).

SST 09082-00700, 09082-00730



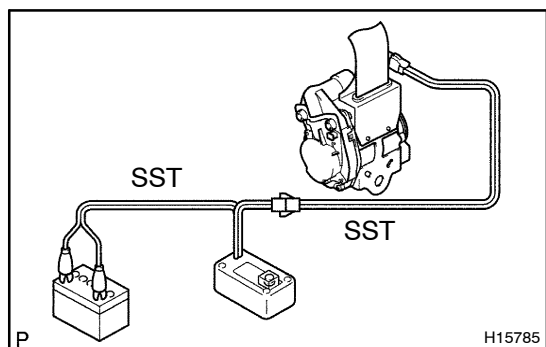
- (d) Install the SST.

- (1) Connect the 2 SST, then connect them to the seat belt pretensioner.

SST 09082-00700, 09082-00730

NOTICE:

To avoid damaging the SST connector and wire harness.



- (2) Place the front seat outer belt on the ground and cover it with the disc wheel with tire.

NOTICE:

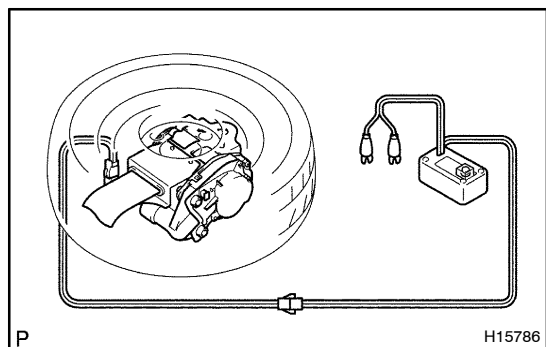
Place the front seat outer belt as shown in the illustration.

- (3) Move the SST as least 10 m (33 ft) away from the disc wheel.

NOTICE:

Take care not to damage the SST wire harness.

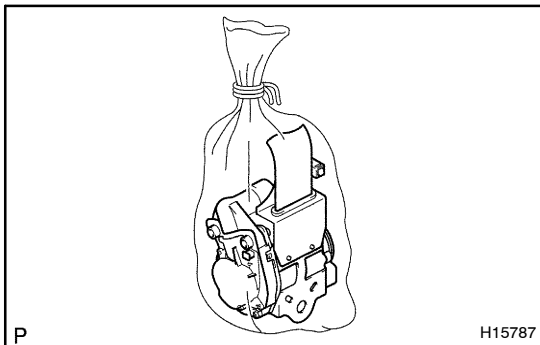
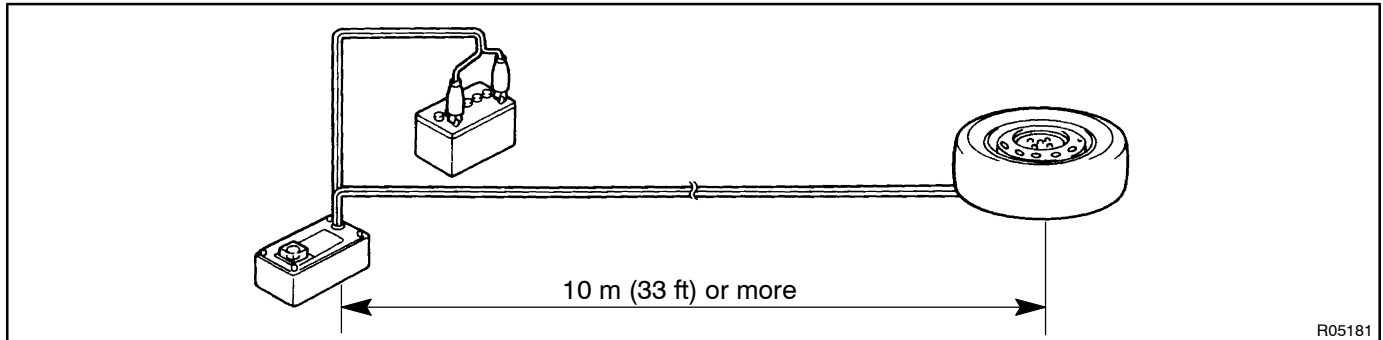
- (e) Activate the seat belt pretensioner.



- (1) Connect the SST red clip to the battery positive (+) terminal and black clip to the battery negative (-) terminal.
- (2) Check that no one is within 10 m (33 ft) area around the disc wheel.
- (3) Press the SST activation switch and activate the seat belt pretensioner.

HINT:

The seat belt pretensioner operates simultaneously as the LED of the SST activation switch lights up.



- (f) Dispose of front seat outer belt (with seat belt pretensioner).

CAUTION:

- **The front seat outer belt is very hot when the seat belt pretensioner is activated, so leave it alone for at least 30 minutes after activation.**
- **Use gloves and safety glasses when handling a front seat outer belt with activated seat belt pretensioner.**
- **Always wash your hands with water after completing the operation.**
- **Do not apply water, etc. to a front seat outer belt with activated seat belt pretensioner.**
 - (1) Remove the disc wheel and SST.
 - (2) Place the front seat outer belt in a vinyl bag, tie the end tightly and dispose of it in the same way as other general parts.

REPLACEMENT

REPLACE REQUIREMENTS

In the following cases, replace the seat belt pretensioner.

- If the seat belt pretensioner has been activated.
- If the seat belt pretensioner has been found to be faulty in troubleshooting.
- If the front seat outer belt has been found to be faulty during checking items 1–(b) or 2–(b) ([See page BO-9](#)).
- If the front seat outer belt has been dropped.

CAUTION:

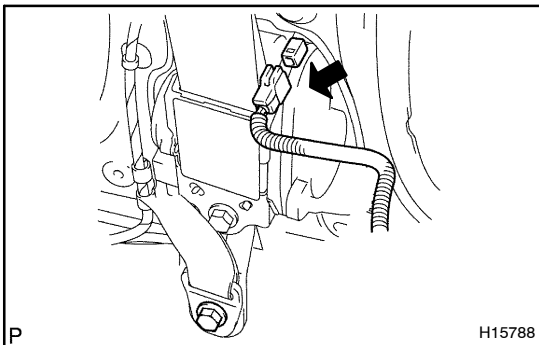
For removal and installation of the seat belt pretensioner, [see page BO-7](#) and [BO-16](#).

Be sure to follow the correct procedure.

INSTALLATION

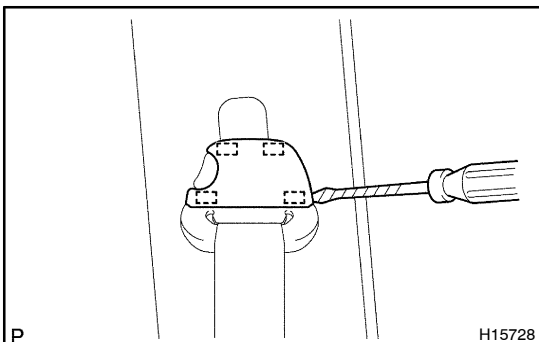
NOTICE:

- Never use seat belt pretensioner from another vehicle. When replacing parts, replace them with new parts.
- Make sure that the front seat outer belt is installed with the specified torque.
- If the front seat outer belt has been dropped, or there are cracks, dents or other defects in the case or connector, replace the front seat outer belt with a new one.
- When installing the front seat outer belt, take care that the wiring does not interfere with other parts and is not pinched between other parts.

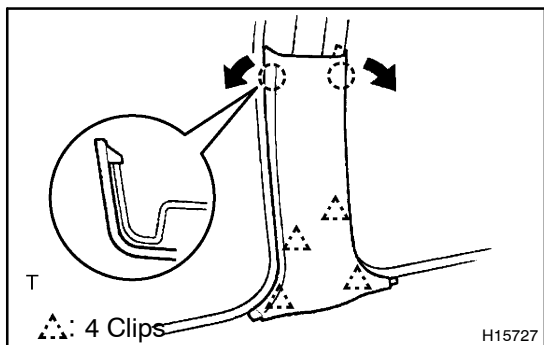


1. INSTALL FRONT SEAT OUTER BELT

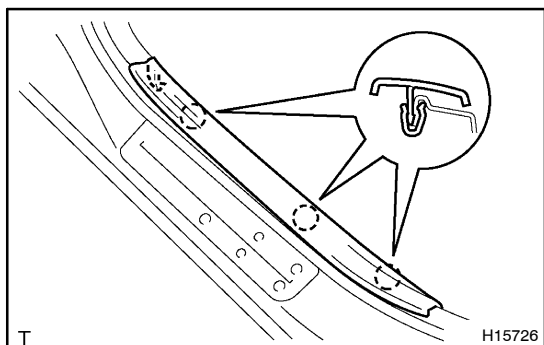
- Install the retractor of front seat outer belt.
 - Install the retractor of front seat outer belt with the upper bolt.
Torque: 7.8 N·m (80 kgf·cm, 69 in·lbf)
 - Connect the pretensioner connector as shown in the illustration.
- Install the floor anchor with the bolt.
Torque: 41 N·m (420 kgf·cm, 30 ft·lbf)
- Install the floor anchor cover.



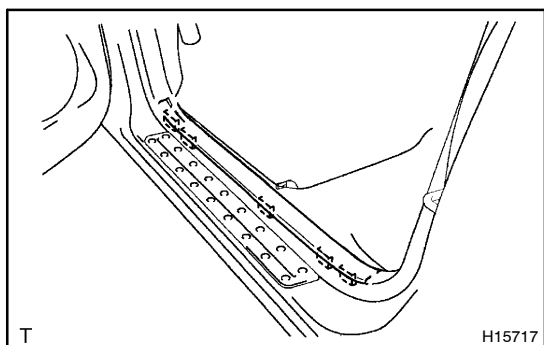
- Install the shoulder anchor with the bolt.
Torque: 41 N·m (420 kgf·cm, 30 ft·lbf)
- Install the shoulder anchor cover.

**2. INSTALL CENTER PILLAR LOWER GARNISH**

Install the center pillar lower garnish to the body.

3. INSTALL FRONT PART OF REAR DOOR OPENING TRIM**4. INSTALL REAR PART OF FRONT DOOR OPENING TRIM****5. INSTALL REAR DOOR INSIDE SCUFF PLATE**

Install the rear door inside scuff plate to the body.

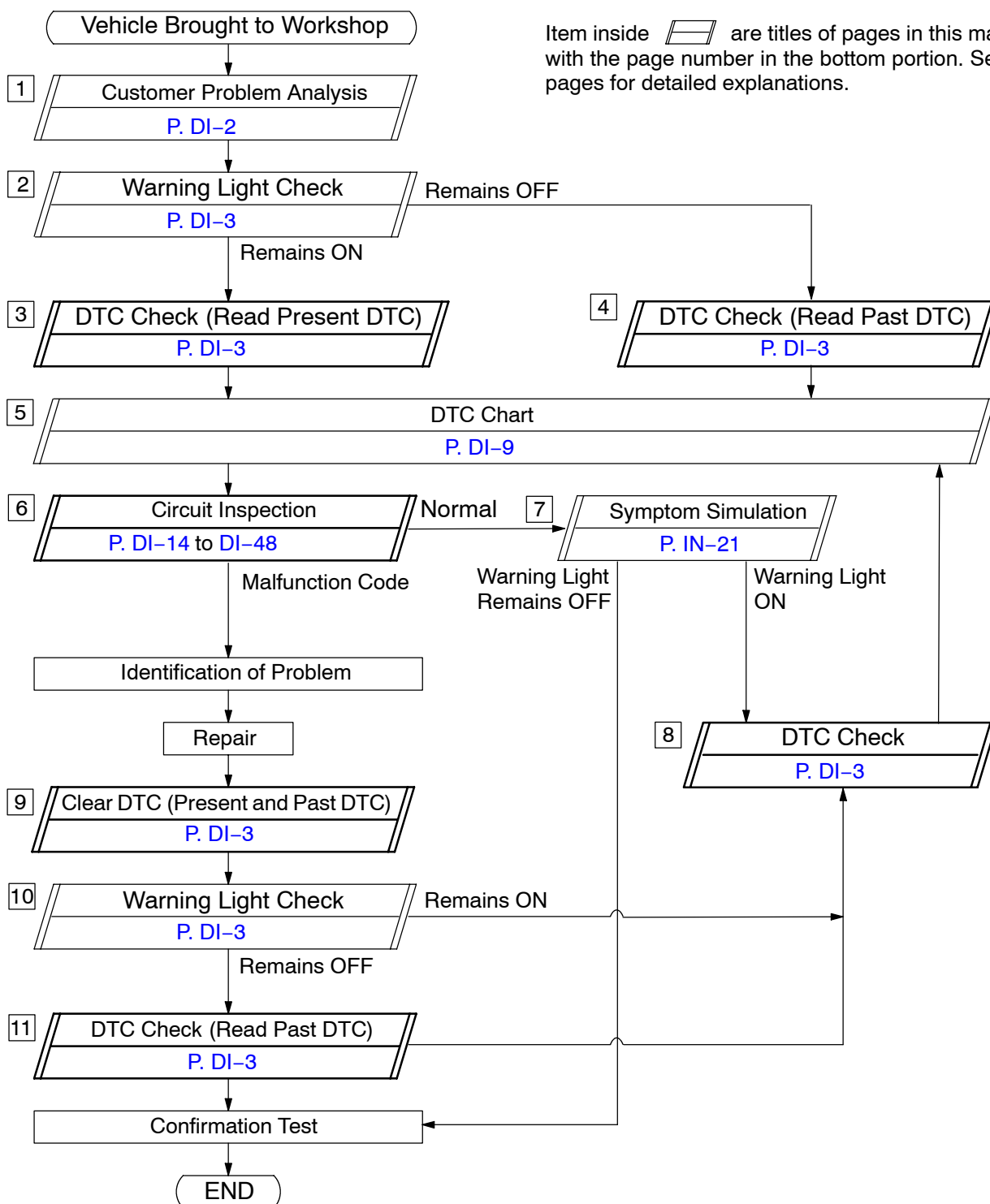
**6. INSTALL FRONT DOOR INSIDE SCUFF PLATE**

Install the front door inside scuff plate to the body.

SUPPLEMENTAL RESTRAINT SYSTEM

HOW TO PROCEED WITH TROUBLESHOOTING

DI422-03



Step 3, 4, 6, 8, 9, 11 : Diagnostic steps permitting the use of the hand-held tester.

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

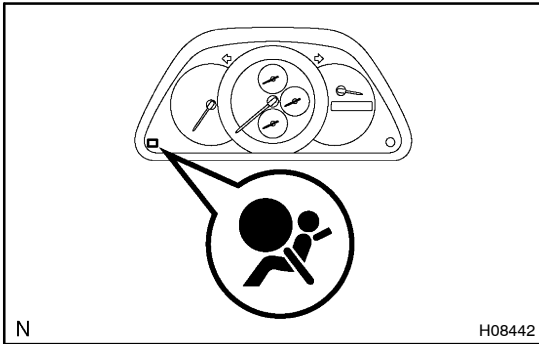
Date Problem Occurred					
Weather	☐ Fine	☐ Cloudy	☐ Rainy	☐ Snowy	☐ Other
Temperature	Approx.				

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

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

Diagnosis System Inspection

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



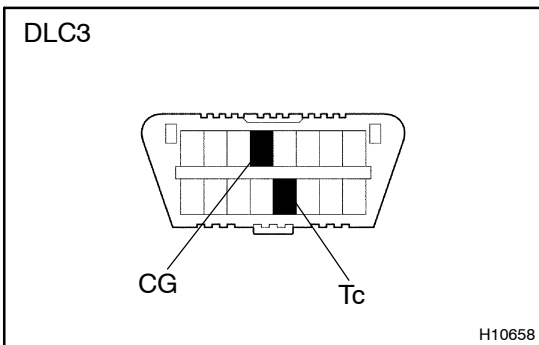
PRE-CHECK

1. SRS WARNING LIGHT CHECK

- (a) Turn the ignition switch to the 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 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-43](#).



2. DTC CHECK (Using diagnosis check wire)

- (a) Present troubles codes:

Output the DTC.

- (1) Turn the ignition switch to the ON position and wait for approx. 20 seconds.
- (2) Using SST, connect terminals Tc and CG of the DLC3.

SST 09843-18020

NOTICE:

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

- (b) Past troubles codes:

Output the DTC.

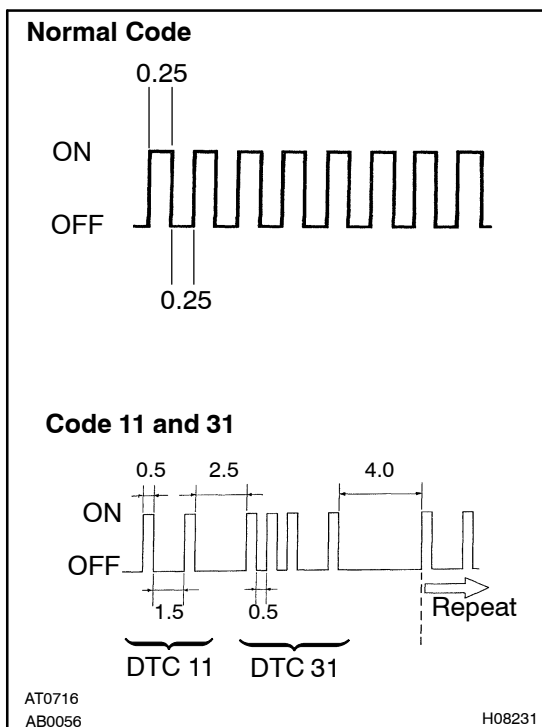
- (1) Using a service wire, connect Terminals Tc and CG of the DLC3.

SST 09843-18020

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

NOTICE:

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



(c) Read the DTC.

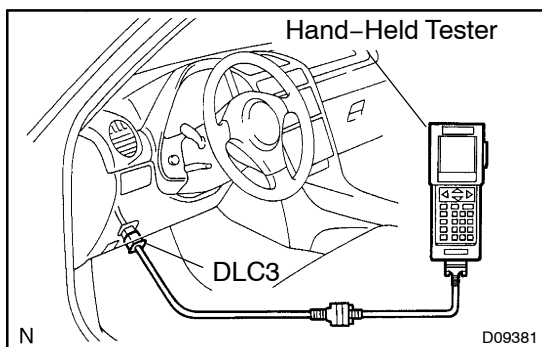
Read the 2-digit DTC as indicated by the number of times the SRS warning light blinks. As an example, the blinking patterns, normal, 11 and 31 are shown in the illustration.

- 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-48](#).

**3. DTC CHECK (Using hand-held tester)**

- Hook up the hand-held tester to the DLC3.
- 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:

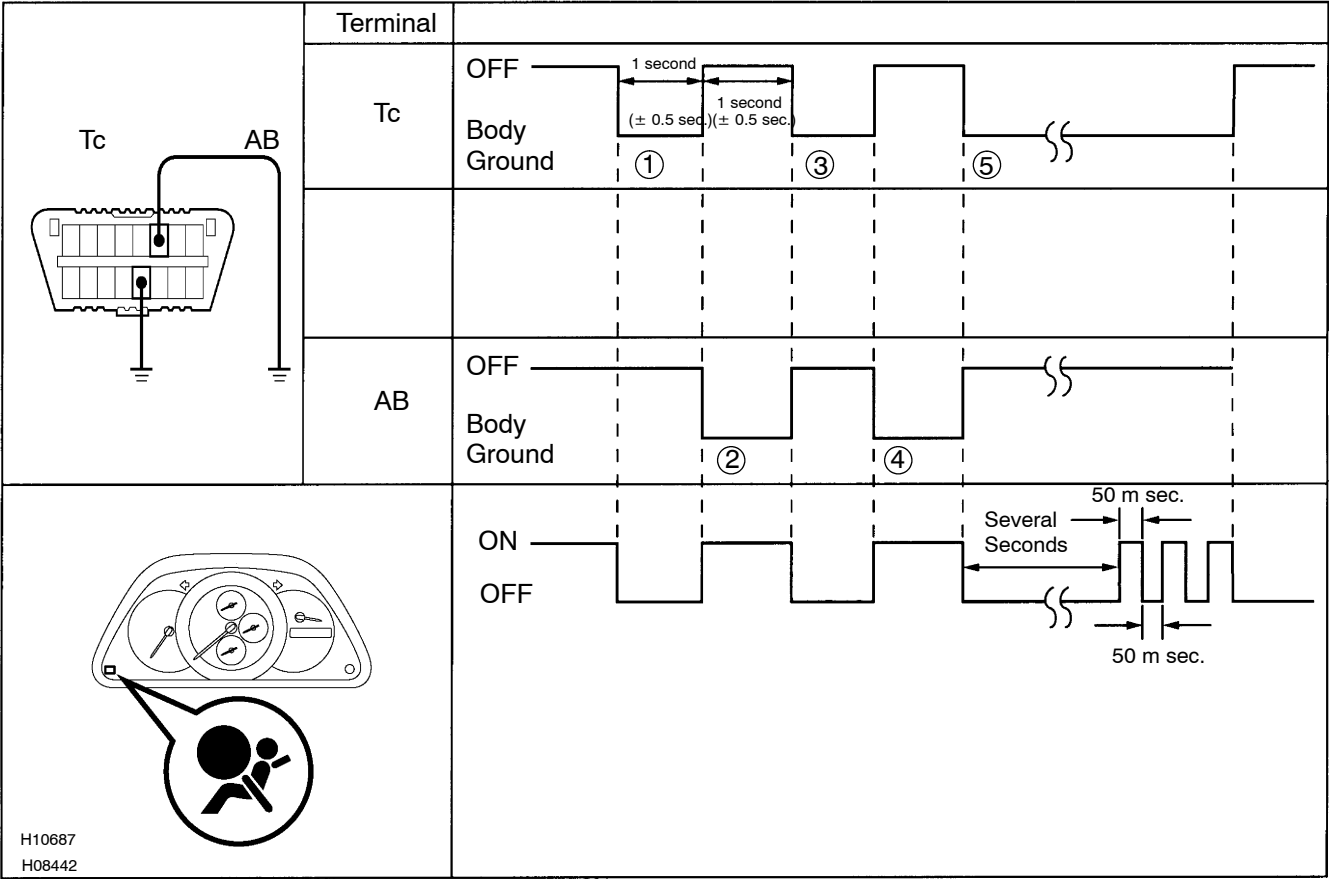
DTC might not be cleared by turning the ignition switch OFF. In this case, proceed to the next step.

5. DTC CLEARANCE (Using service wire)

- Connect the 2 service wires to terminals Tc and AB of DLC3.
- Turn the ignition switch to ON and wait for approx. 6 seconds.

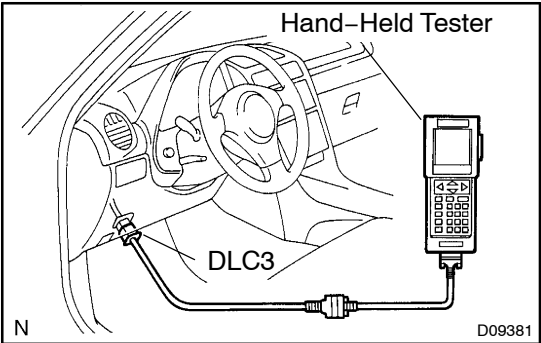
- (c) Starting with the Tc terminal, ground alternately terminal Tc and terminal AB twice each in cycles of 1.0 second. Make sure that the terminals are grounded. Ensure the terminal Tc remains grounded.

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.



H15705

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



6. DTC CLEARANCE (Using hand-held tester)

- (a) Hook up the hand-held tester to the DLC3.
(b) Clear the DTCs by following the prompts on the tester screen.

HINT:
Please refer to the hand-held tester operation's manual for further details.

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.

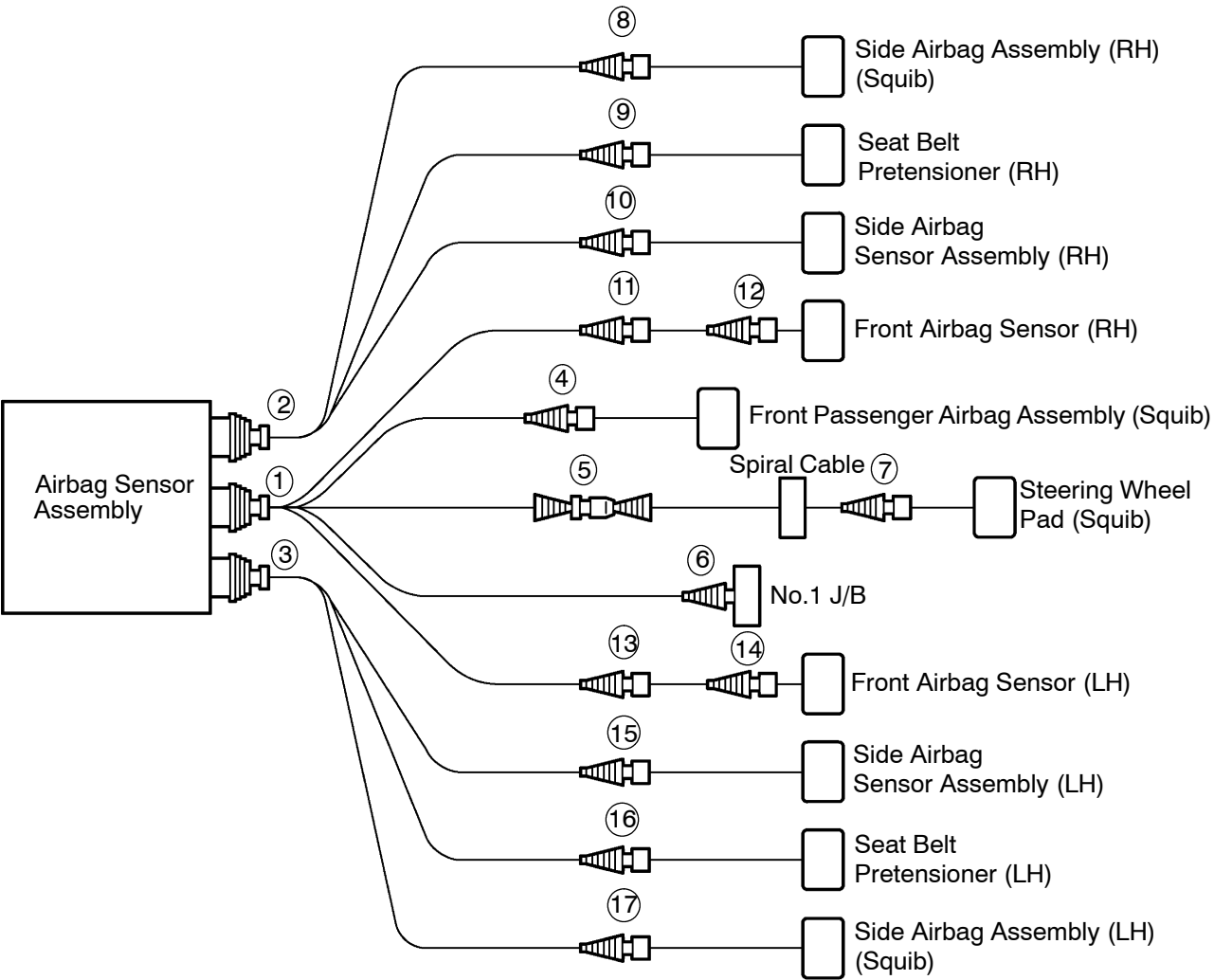
When release of the airbag activation prevention mechanism is directed in the troubleshooting procedure as shown in the illustration of the connectors on the next pages, insert paper which has the same thickness as the male terminal between the terminal and the short spring.

CAUTION:

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

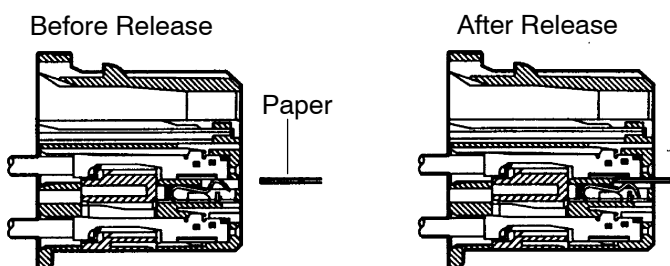
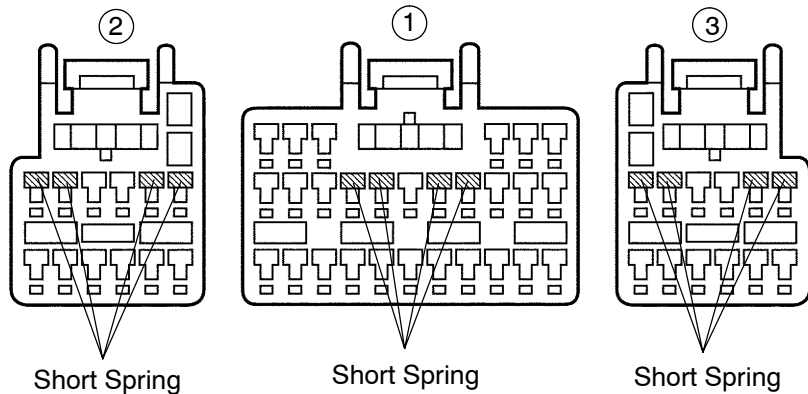
NOTICE:

- **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.**

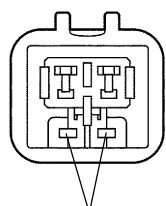


N

Airbag Sensor Assembly Connector

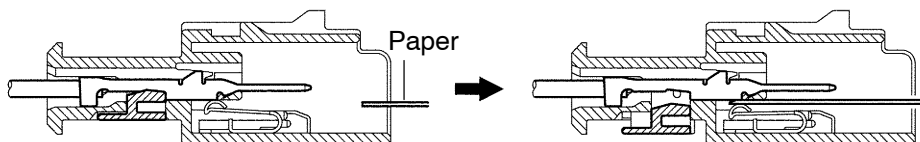


Connector ④ ⑦

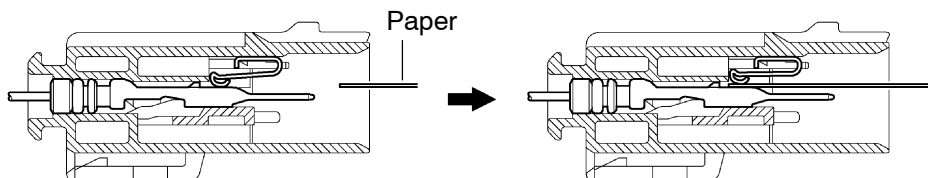
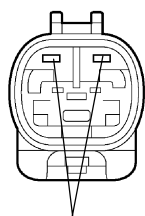


Before Release

After Release



Connector ⑧ ⑰



H01356
H01233
H02248 H02249
H09672 H09658

H10693

DIAGNOSTIC TROUBLE CODE CHART

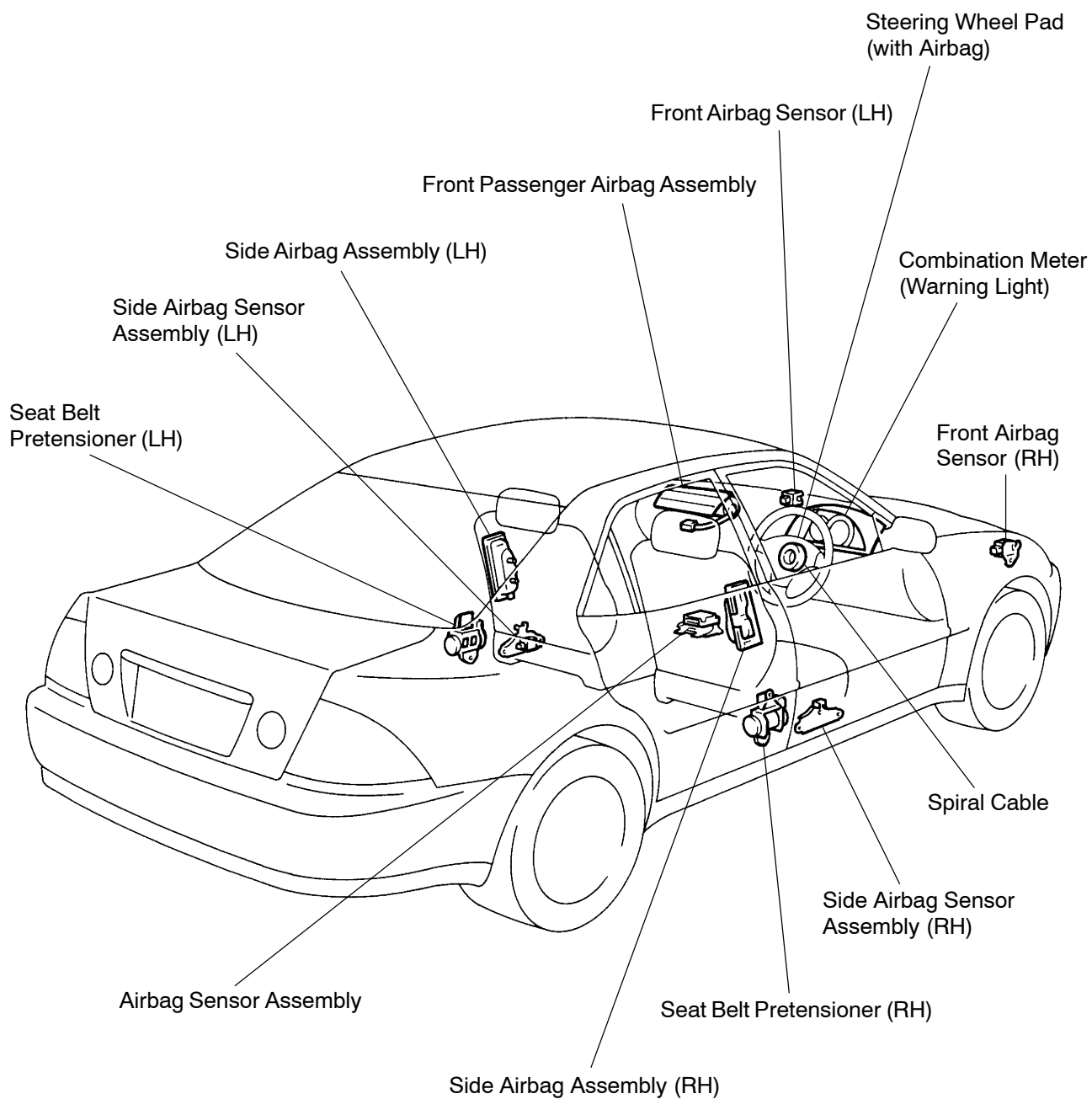
If a malfunction code is displayed during the DTC check, check the circuit listed for that code in the table below (Proceed to the page given for that circuit.).

DTC No. (See Page)	Detection Item	Trouble Area	SRS Warning Light
B0130/63 (DI-14)	• Short in P/T squib (RH) circuit	• Seat belt pretensioner RH (squib) • Airbag sensor assembly • Wire harness	Blink
B0131/64 (DI-18)	• Open in P/T squib (RH) circuit	• Seat belt pretensioner RH (squib) • Airbag sensor assembly • Wire harness	Blink
B0132/61 (DI-21)	• Short in P/T squib (RH) circuit (to Ground)	• Seat belt pretensioner RH (squib) • Airbag sensor assembly • Wire harness	Blink
B0133/62 (DI-24)	• Short in P/T squib (RH) circuit (to B+)	• Seat belt pretensioner RH (squib) • Airbag sensor assembly • Wire harness	Blink
B0135/73 (DI-27)	• Short in P/T squib (LH) circuit	• Seat belt pretensioner LH (squib) • Airbag sensor assembly • Wire harness	Blink
B0136/74 (DI-31)	• Open in P/T squib (LH) circuit	• Seat belt pretensioner LH (squib) • Airbag sensor assembly • Wire harness	Blink
B0137/71 (DI-34)	• Short in P/T squib (LH) circuit (to Ground)	• Seat belt pretensioner LH (squib) • Airbag sensor assembly • Wire harness	Blink
B0138/72 (DI-37)	• Short in P/T squib (LH) circuit (to B+)	• Seat belt pretensioner LH (squib) • Airbag sensor assembly • Wire harness	Blink
Normal (DI-40)	• System normal	–	OFF
	• Voltage source drop	• Battery • Airbag sensor assembly	ON

HINT:

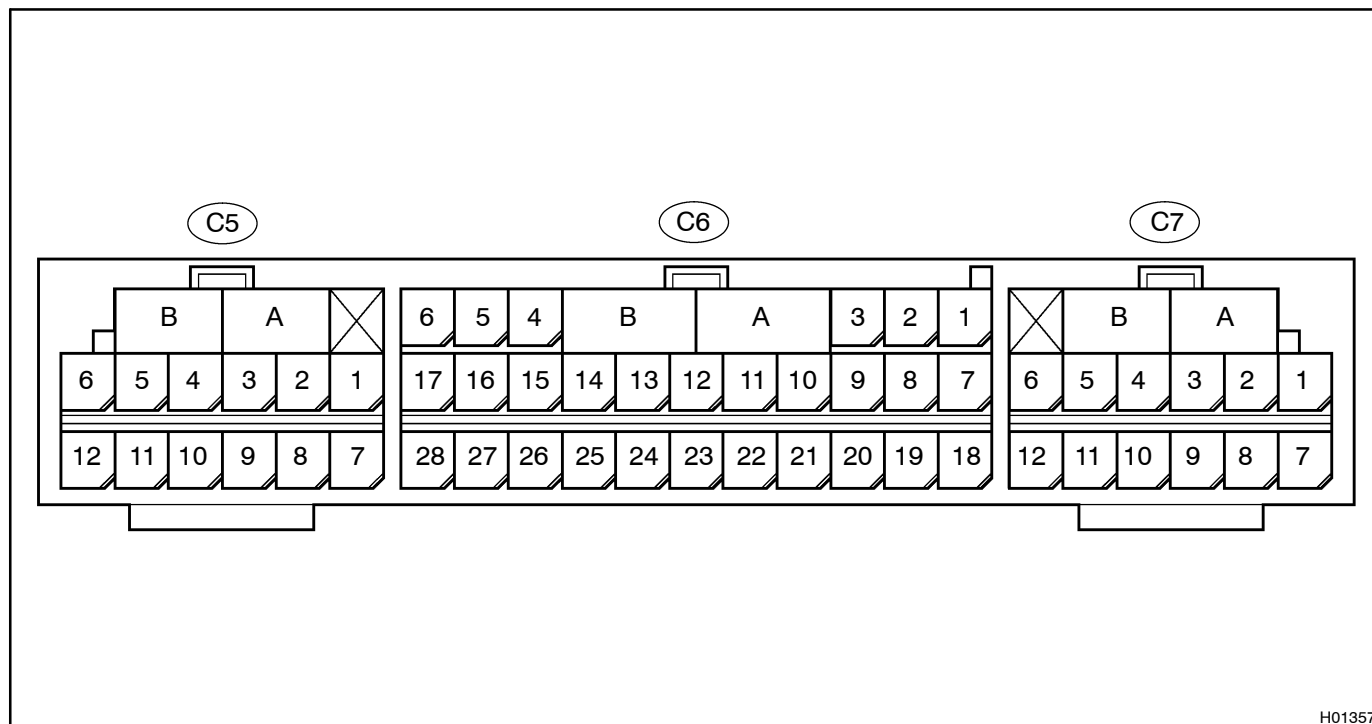
- When the SRS warning light remains lit up and the DTC is the normal code, this means a voltage source drops.
This malfunction is not stored in memory by the airbag sensor assembly and if the power source voltage returns to normal, the SRS warning light will automatically go out.
- When 2 or more codes 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.

PARTS LOCATION



N

TERMINALS OF ECU



H01357

No.	Symbol	Terminal Name
A	–	Electrical Connector Check Mechanism
B	–	Electrical Connector Check Mechanism
C6 – 3	LA	SRS Warning Light
C6 – 5	IG2	Power Source (IGN Fuse)
C6 – 6	ACC	Power Source (CIG Fuse)
C6 – 9	+SR	Front Airbag Sensor (RH)
C6 – 10	P+	Squib (Passenger)
C6 – 11	P–	Squib (Passenger)
C6 – 12	SIL	Diagnosis
C6 – 13	D–	Squib (Driver)
C6 – 14	D+	Squib (Driver)
C6 – 15	+SL	Front Airbag Sensor (LH)
C6 – 19	Tc	Diagnosis
C6 – 20	–SR	Front Airbag Sensor (RH)
C6 – 26	–SL	Front Airbag Sensor (LH)
C6 – 27	E1	Ground
C6 – 28	E2	Ground
C5 – 1	PL–	Squib (Seat Belt Pretensioner, LH)
C5 – 2	PL+	Squib (Seat Belt Pretensioner, LH)
C5 – 5	SFL+	Squib (Side, LH)
C5 – 6	SFL–	Squib (Side, LH)
C5 – 7	VUPL	Side Airbag Sensor Assembly (LH)
C5 – 9	SSL	Side Airbag Sensor Assembly (LH)
C5 – 10	FSL	Side Airbag Sensor Assembly (LH)
C5 – 12	ESL	Side Airbag Sensor Assembly (LH)

No.	Symbol	Terminal Name
C7 - 1	SFR-	Squib (Side, RH)
C7 - 2	SFR+	Squib (Side, RH)
C7 - 5	PR+	Squib (Pretensioner, RH)
C7 - 6	PR-	Squib (Pretensioner, RH)
C7 - 7	ESR	Side Airbag Sensor Assembly (RH)
C7 - 9	FSR	Side Airbag Sensor Assembly (RH)
C7 - 10	SSR	Side Airbag Sensor Assembly (RH)
C7 - 12	VUPR	Side Airbag Sensor Assembly (RH)

PROBLEM SYMPTOMS TABLE

Proceed with troubleshooting of each circuit in the table below.

Symptom	Suspect Area	See page
• With the ignition switch in ON position, the SRS warning light sometimes lights up after approx. 6 seconds have elapsed.	• SRS warning light circuit (Always lights up when ignition switch is in LOCK position.)	DI-43
• SRS warning light is always lit up even when ignition switch is in the LOCK position.		
• With the ignition switch in ON position, the SRS warning light does not light up.	• SRS warning light circuit (Does not light up when ignition switch is turned to ON.)	DI-43
• DTC is not displayed.	• Tc terminal circuit	DI-48
• SRS warning light is always lit up at the time of DTC check procedure.		
• DTC is displayed without Tc and CG terminal connection.		

CIRCUIT INSPECTION

DTC	B0130/63	Short in P/T Squib (RH) Circuit
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CIRCUIT DESCRIPTION

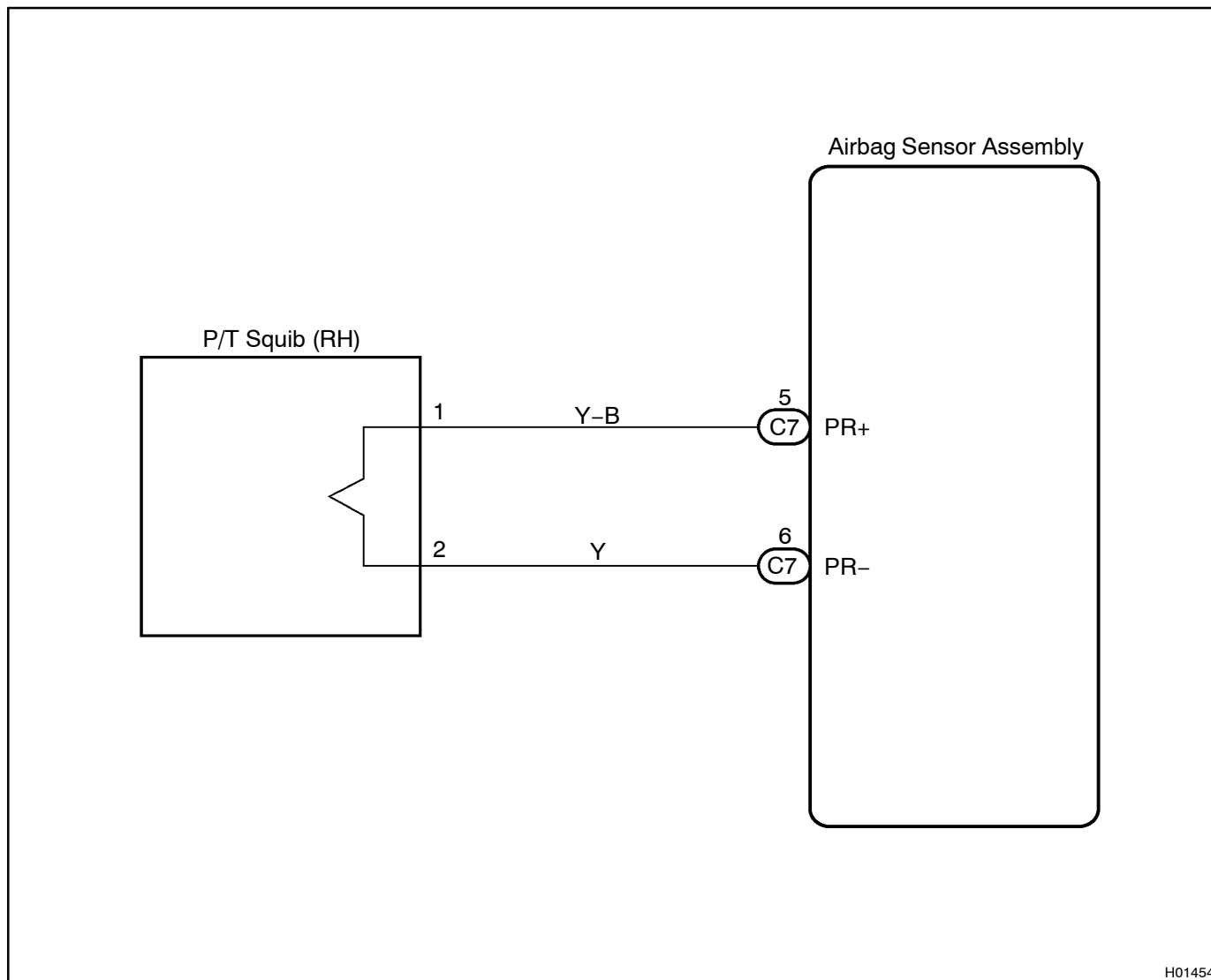
The P/T squib (RH) circuit consists of the airbag sensor assembly and seat belt pretensioner (RH). It causes the SRS to deploy when the SRS deployment conditions are satisfied.

For details of the function of each component, see OPERATION on page RS-2 in Pub. No. RM684E.

DTC B0130/63 is recorded when a short is detected in the P/T squib (RH) circuit.

DTC No.	DTC Detecting Condition	Trouble Area
B0130/63	• 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

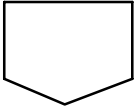
WIRING DIAGRAM



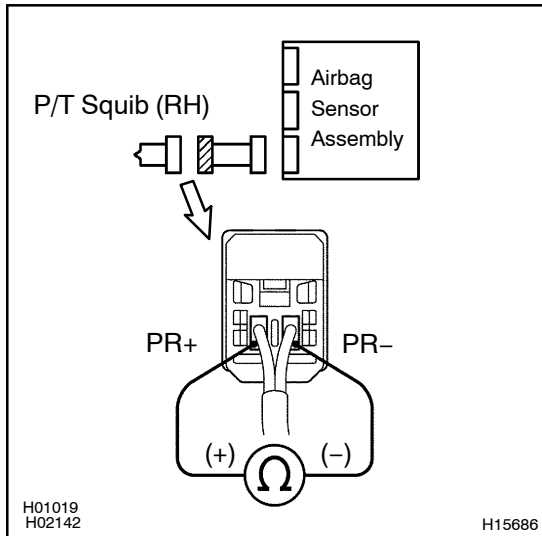
H01454

INSPECTION PROCEDURE

- 1 Prepare for inspection (See step 1 on [page DI-40](#)).



- 2 Check P/T squib (RH) circuit.



PREPARATION:

Release the 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-3](#)).

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:

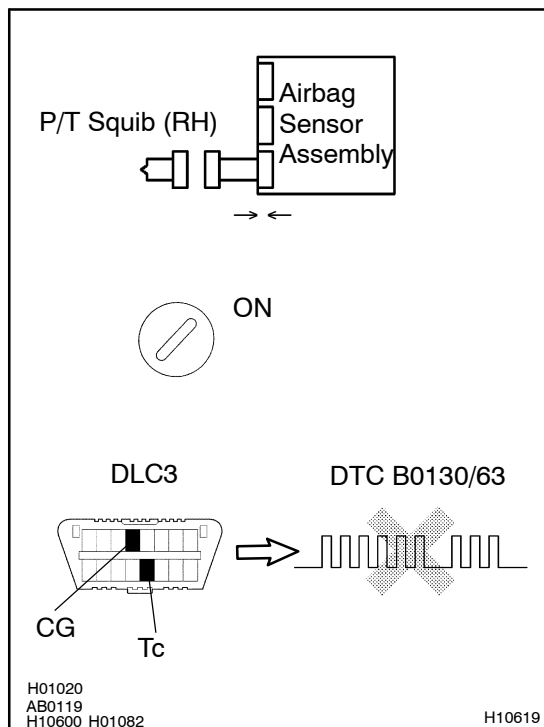
Resistance: 1 M Ω or Higher

NG

Repair or replace harness or connector between seat belt pretensioner (RH) and airbag sensor assembly.

OK

3 Check airbag sensor assembly.



PREPARATION:

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

CHECK:

- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Clear the DTC stored in memory ([See page DI-3](#)).
- Turn the ignition switch to LOCK, and wait at least for 20 seconds.
- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Check the DTC ([See page DI-3](#)).

OK:

DTC B0130/63 is not output.

HINT:

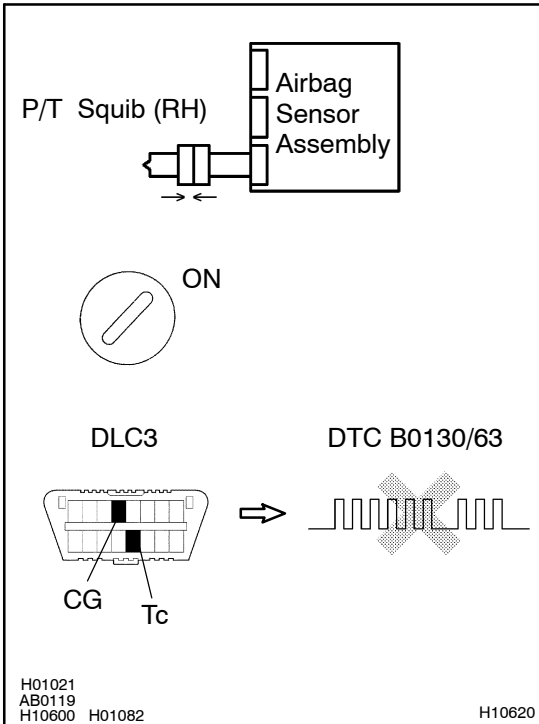
Codes other than code B0130/63 may be output at this time, but they are not relevant to this check.

NG

Replace airbag sensor assembly.

OK

4 Check P/T squib (RH).



PREPARATION:

- Turn the ignition switch to LOCK.
- Disconnect negative (-) terminal cable from the battery, and wait at least for 90 seconds.
- Connect the seat belt pretensioner (RH) connector.
- Connect negative (-) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

- Turn the ignition switch to LOCK, and wait at least for 20 second.
- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Clear the DTC stored in memory ([See page DI-3](#)).
- Turn the ignition switch to LOCK, and wait at least for 20 seconds.
- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Check the DTC ([See page DI-3](#)).

OK:

DTC B0130/63 is not output.

HINT:

Codes other than code B0130/63 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.

DTC	B0131/64	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 SRS to deploy when the SRS deployment conditions are satisfied.

For details of the function of each component, see OPERATION on page RS-2 in Pub. No. RM684E.

DTC B0131/64 is recorded when an open is detected in the P/T squib (RH) circuit.

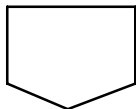
DTC No.	DTC Detecting Condition	Trouble Area
B0131/64	• Open circuit in PR+ wire harness or PR- wire harness of squib • P/T squib (RH) malfunction • Airbag sensor assembly malfunction	• Seat belt pretensioner (RH) • Airbag sensor assembly • Wire harness

WIRING DIAGRAM

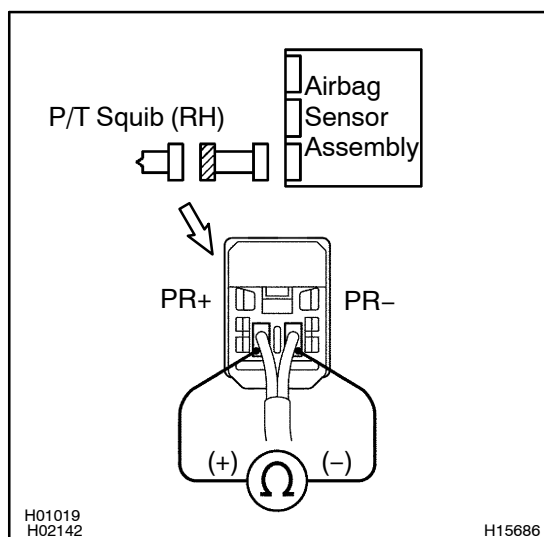
See page DI-14.

INSPECTION PROCEDURE

1	Prepare for inspection (See step 1 on page DI-40).
----------	---



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:

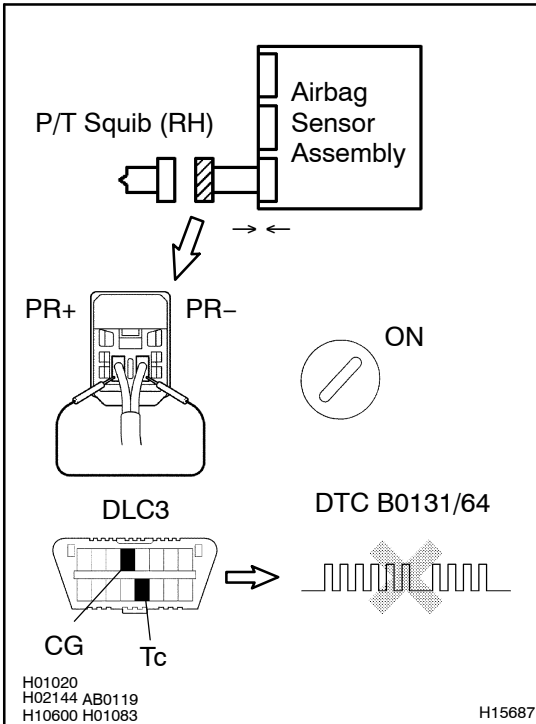
Resistance: Below 1 Ω

NG

Repair or replace harness or connector between seat belt pretensioner (RH) and airbag sensor assembly.

OK

3 Check airbag sensor assembly.



PREPARATION:

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

CHECK:

- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Clear the DTC stored in memory ([See page DI-3](#)).
- Turn the ignition switch to LOCK, and wait at least for 20 seconds.
- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Check the DTC ([See page DI-3](#)).

OK:

DTC B0131/64 is not output.

HINT:

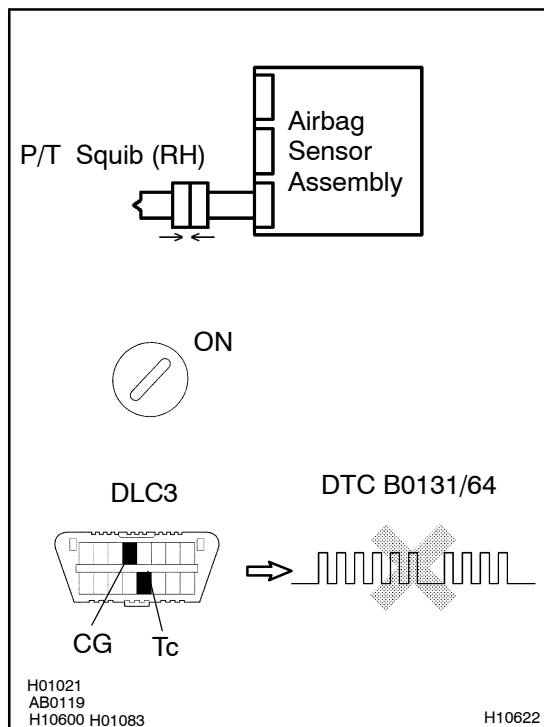
Codes other than code B0131/64 may be output at this time, but they are not relevant to this check.

NG

Replace airbag sensor assembly.

OK

4 Check P/T squib (RH).



PREPARATION:

- Turn the ignition switch to LOCK.
- Disconnect negative (-) terminal cable from the battery, and wait at least for 90 seconds.
- Connect the seat belt pretensioner (RH) connector.
- Connect negative (-) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Clear the DTC stored in memory ([See page DI-3](#)).
- Turn the ignition switch to LOCK, and wait at least for 20 seconds.
- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Check the DTC ([See page DI-3](#)).

OK:

DTC B0131/64 is not output.

HINT:

Codes other than code B0131/64 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.

DTC	B0132/61	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 SRS to deploy when the SRS deployment conditions are satisfied.

For details of the function of each component, see OPERATION on page RS-2 in Pub. No. RM684E.

DTC B0132/61 is recorded when a ground short is detected in the P/T squib (RH) circuit.

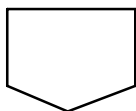
DTC No.	DTC Detecting Condition	Trouble Area
B0132/61	• Short circuit in P/T squib (RH) wire harness (to ground) • P/T squib (RH) malfunction • Airbag sensor assembly malfunction	• Seat belt pretensioner (RH) • Airbag sensor assembly • Wire harness

WIRING DIAGRAM

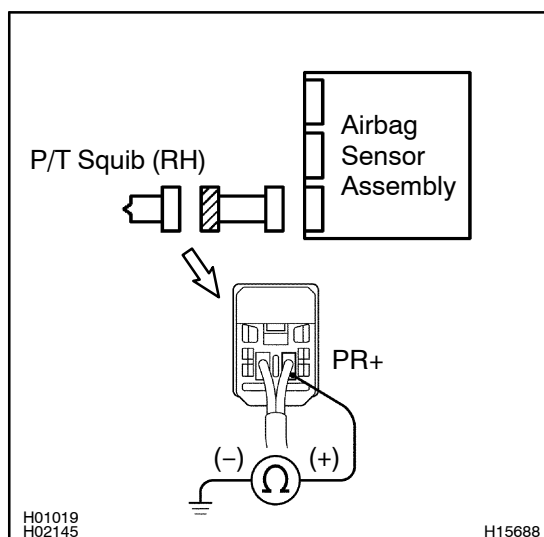
See page DI-14.

INSPECTION PROCEDURE

1	Prepare for inspection (See step 1 on page DI-40).
----------	---



2	Check P/T squib (RH) circuit.
----------	--------------------------------------



CHECK:

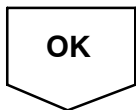
For the connector (on the seat belt pretensioner side) between the seat belt pretensioner (RH) and the airbag sensor assembly, measure the resistance between PR+ and body ground.

OK:

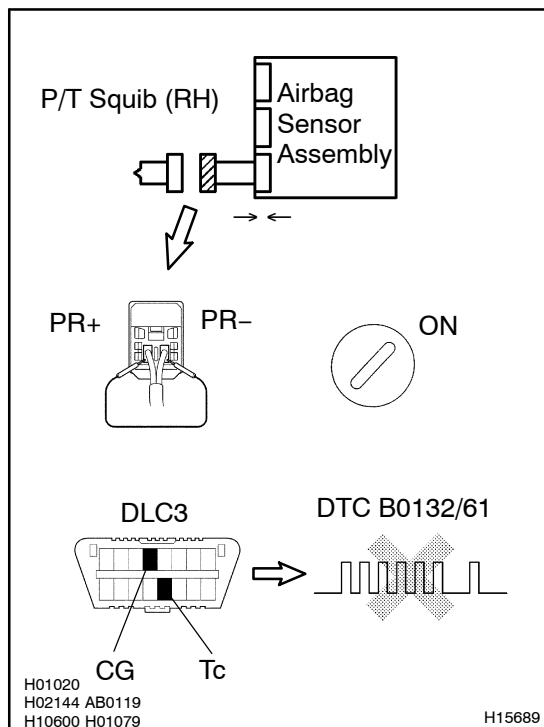
Resistance: 1 MΩ or Higher



Repair or replace harness or connector between seat belt pretensioner (RH) and airbag sensor assembly.



3 Check airbag sensor assembly.



PREPARATION:

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

CHECK:

- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Clear the DTC stored in memory (See step 5 on [page DI-3](#)).
- Turn the ignition switch to LOCK, and wait at least for 20 seconds.
- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Check the DTC ([See page DI-3](#)).

OK:

DTC B0132/61 is not output.

HINT:

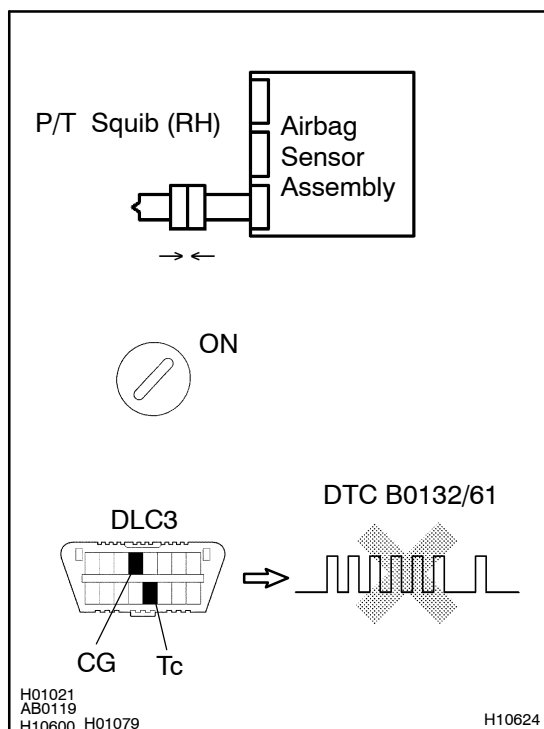
Codes other than code B0132/61 may be output at this time, but they are not relevant to this check.

NG

Replace airbag sensor assembly.

OK

4 Check P/T squib (RH).



PREPARATION:

- Turn the ignition switch to LOCK.
- Disconnect negative (–) terminal cable from the battery, and wait at least for 90 seconds.
- Connect the seat belt pretensioner (RH) connector.
- Connect negative (–) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Clear the DTC stored in memory (See step 5 on [page DI-3](#)).
- Turn the ignition switch to LOCK, and wait at least for 20 seconds.
- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Check the DTC ([See page DI-3](#)).

OK:

DTC B0132/61 is not output.

HINT:

Codes other than code B0132/61 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.

DTC	B0133/62	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 SRS to deploy when the SRS deployment conditions are satisfied.

For details of the function of each component, see OPERATION on page RS-2 in Pub. No. RM684E.

DTC B0133/62 is recorded when a B+ short is detected in the P/T squib (RH) circuit.

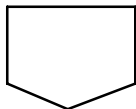
DTC No.	DTC Detecting Condition	Trouble Area
B0133/62	• Short circuit in seat belt pretensioner (RH) wire harness (to B+) • P/T squib (RH) malfunction • Airbag sensor assembly malfunction	• Seat belt pretensioner (RH) • Airbag sensor assembly • Wire harness

WIRING DIAGRAM

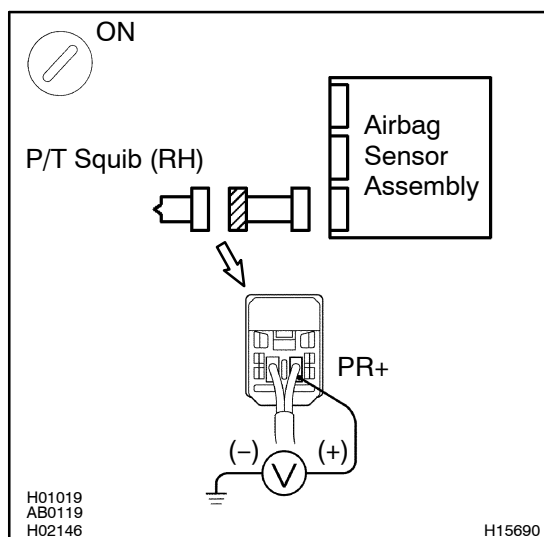
See page DI-14.

INSPECTION PROCEDURE

1	Prepare for inspection (See step 1 on page DI-40).
----------	---



2	Check P/T squib (RH) circuit.
----------	--------------------------------------



CHECK:

- Turn the ignition switch to ON.
- 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:

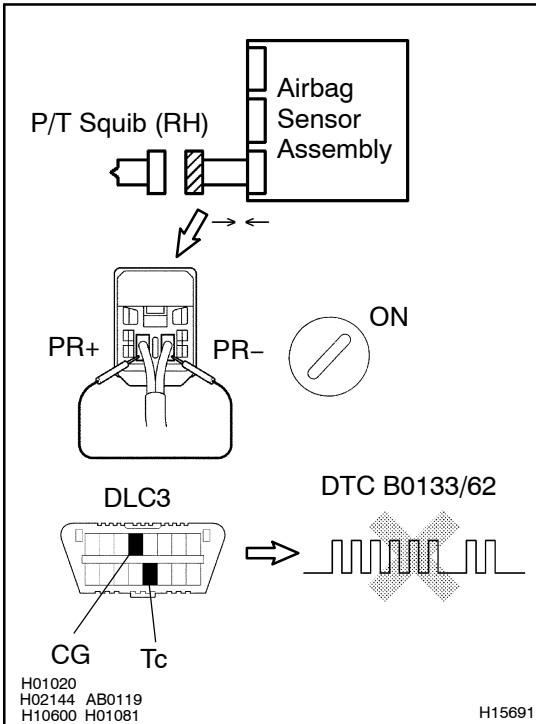
Voltage: 0 V

NG

Repair or replace harness or connector between seat belt pretensioner (RH) and airbag sensor assembly.

OK

3 Check airbag sensor assembly.



PREPARATION:

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

CHECK:

- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Clear the DTC stored in memory (See step 5 on [page DI-3](#)).
- Turn the ignition switch to LOCK, and wait at least for 20 seconds.
- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Check the DTC ([See page DI-3](#)).

OK:

DTC B0133/62 is not output.

HINT:

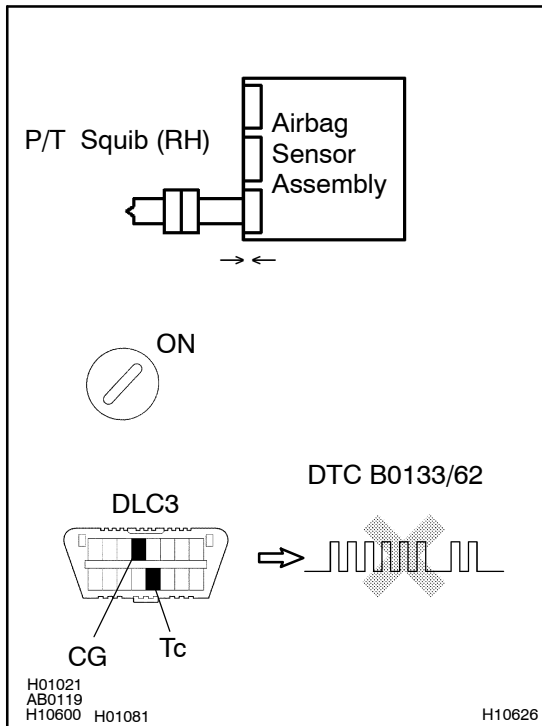
Codes other than code B0133/62 may be output at this time, but they are not relevant to this check.

NG

Replace airbag sensor assembly.

OK

4 Check P/T squib (RH).



PREPARATION:

- Turn the ignition switch to LOCK.
- Disconnect negative (-) terminal cable from the battery, and wait at least for 90 seconds.
- Connect the seat belt pretensioner (RH) connector.
- Connect negative (-) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Clear the DTC stored in memory (See step 5 on [page DI-3](#)).
- Turn the ignition switch to LOCK, and wait at least for 20 seconds.
- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Check the DTC ([See page DI-3](#)).

OK:

DTC B0133/62 is not output.

HINT:

Codes other than code B0133/62 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.

DTC	B0135/73	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).

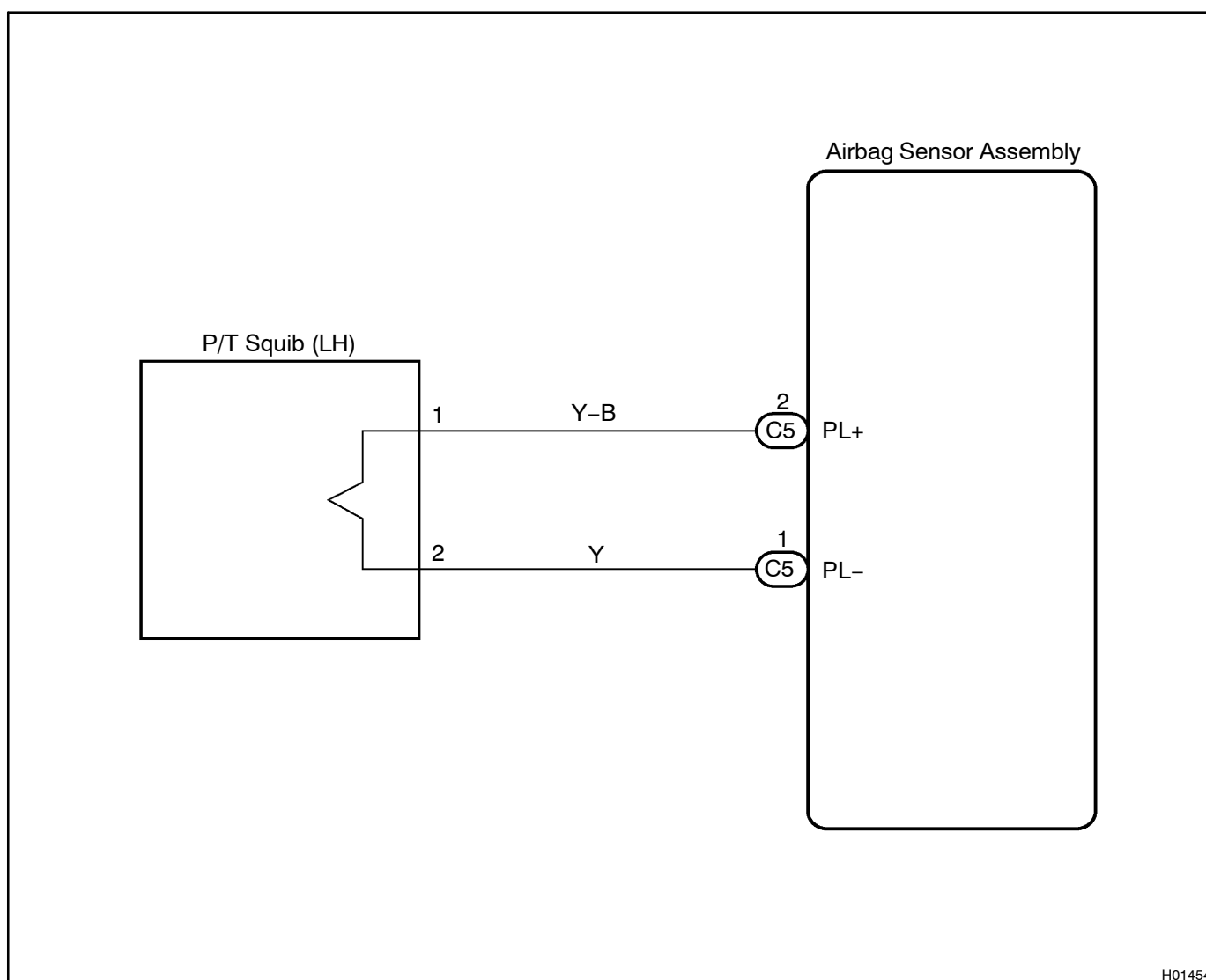
It causes the SRS to deploy when the SRS deployment conditions are satisfied.

For details of the function of each component, see OPERATION on page RS-2 in Pub. No. RM684E.

DTC B0135/73 is recorded when a short is detected in the P/T squib (LH) circuit.

DTC No.	DTC Detecting Condition	Trouble Area
B0135/73	• 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

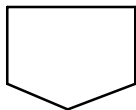
WIRING DIAGRAM



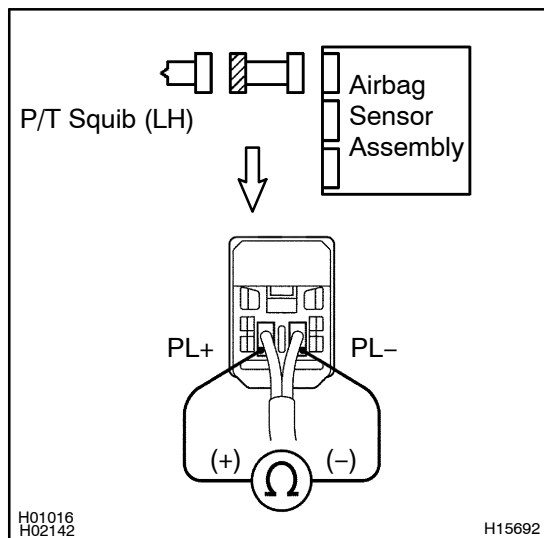
H01454

INSPECTION PROCEDURE

- | | |
|----------|---|
| 1 | Prepare for inspection (See step 1 on page DI-40). |
|----------|---|



- | | |
|----------|--------------------------------------|
| 2 | Check P/T squib (LH) circuit. |
|----------|--------------------------------------|

**PREPARATION:**

Release the 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-3](#)).

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:

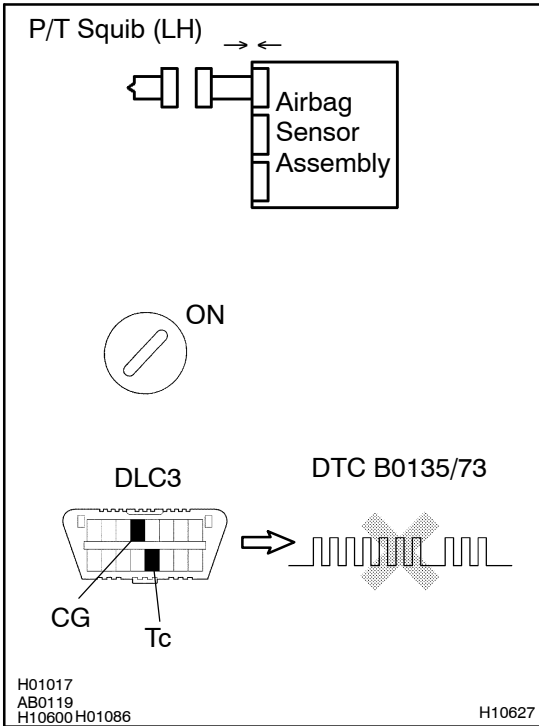
Resistance: 1 MΩ or Higher

NG

Repair or replace harness or connector between seat belt pretensioner (LH) and airbag sensor assembly.

OK

3 Check airbag sensor assembly.



PREPARATION:

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

CHECK:

- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Clear the DTC stored in memory ([See page DI-3](#)).
- Turn the ignition switch to LOCK, and wait at least for 20 seconds.
- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Check the DTC ([See page DI-3](#)).

OK:

DTC B0135/73 is not output.

HINT:

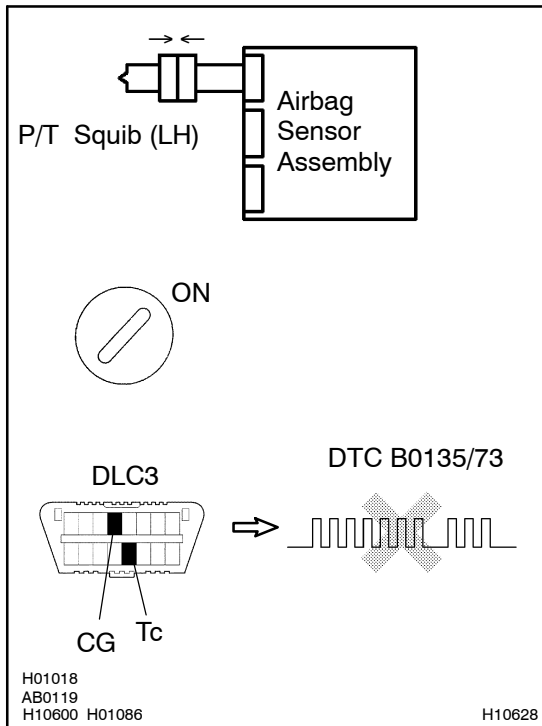
Codes other than code B0135/73 may be output at this time, but they are not relevant to this check.

NG

Replace airbag sensor assembly.

OK

4 Check P/T squib (LH).



PREPARATION:

- Turn the ignition switch to LOCK.
- Disconnect negative (-) terminal cable from the battery, and wait at least for 90 seconds.
- Connect the seat belt pretensioner (LH) connector.
- Connect negative (-) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

- Turn the ignition switch to LOCK, and wait at least for 20 second.
- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Clear the DTC stored in memory ([See page DI-3](#)).
- Turn the ignition switch to LOCK, and wait at least for 20 seconds.
- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Check the DTC ([See page DI-3](#)).

OK:

DTC B0135/73 is not output.

HINT:

Codes other than code B0135/73 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.

DTC	B0136/74	Open in P/T Squib (LH) Circuit
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CIRCUIT DESCRIPTION

The P/T squib circuit (LH) consists of the airbag sensor assembly and seat belt pretensioner (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 in Pub. No. RM684E. DTC B0136/74 is recorded when an open is detected in the P/T squib (LH) circuit.

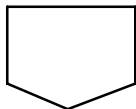
DTC No.	DTC Detecting Condition	Trouble Area
B0136/74	• Open circuit in PL+ wire harness or PL- wire harness of squib • P/T squib (LH) malfunction • Airbag sensor assembly malfunction	• Seat belt pretensioner (LH) • Airbag sensor assembly • Wire harness

WIRING DIAGRAM

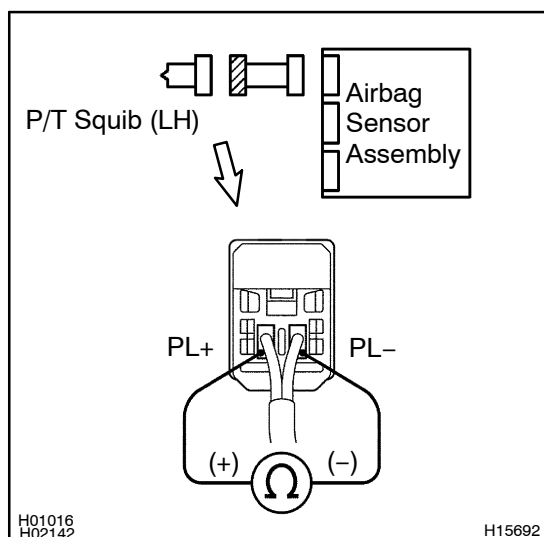
See page DI-27.

INSPECTION PROCEDURE

1	Prepare for inspection (See step 1 on page DI-40).
----------	---



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:

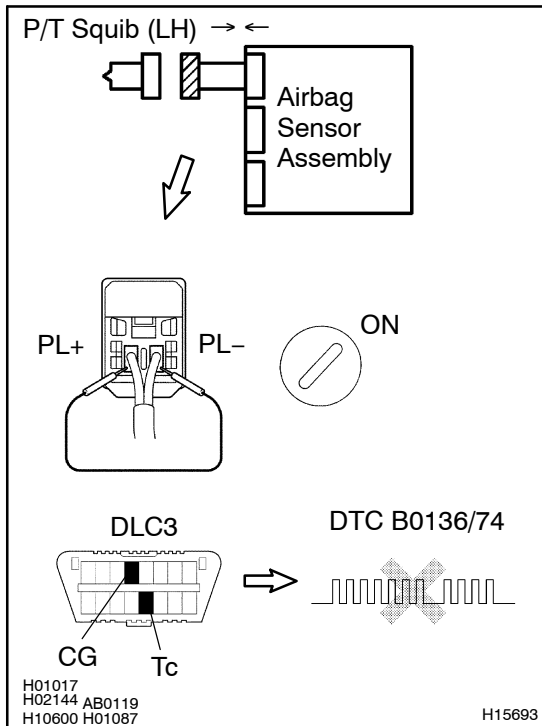
Resistance: Below 1 Ω

NG

Repair or replace harness or connector between seat belt pretensioner (LH) and airbag sensor assembly.

OK

3 Check airbag sensor assembly.



PREPARATION:

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

CHECK:

- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Clear the DTC stored in memory ([See page DI-3](#)).
- Turn the ignition switch to LOCK, and wait at least for 20 seconds.
- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Check the DTC ([See page DI-3](#)).

OK:

DTC B0136/74 is not output.

HINT:

Codes other than code B0136/74 may be output at this time, but they are not relevant to this check.

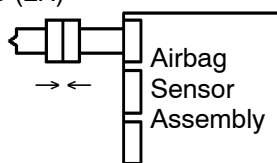
NG

Replace airbag sensor assembly.

OK

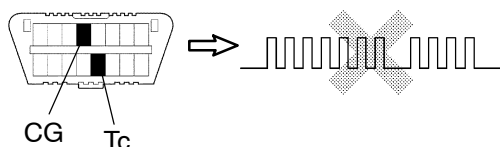
4 Check P/T squib (LH).

P/T Squib (LH)



DLC3

DTC B0136/74



H01018
AB0119
H10600 H01087

H10630

PREPARATION:

- Turn the ignition switch to LOCK.
- Disconnect negative (-) terminal cable from the battery, and wait at least for 90 seconds.
- Connect the seat belt pretensioner (LH) connector.
- Connect negative (-) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Clear the DTC stored in memory ([See page DI-3](#)).
- Turn the ignition switch to LOCK, and wait at least for 20 seconds.
- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Check the DTC ([See page DI-3](#)).

OK:

DTC B0136/74 is not output.

HINT:

Codes other than code B0136/74 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	B0137/71	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 SRS to deploy when the SRS deployment conditions are satisfied.

For details of the function of each component, see OPERATION on page RS-2 in Pub. No. RM684E.

DTC B0137/71 is recorded when a ground short is detected in the P/T squib (LH) circuit.

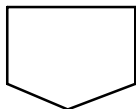
DTC No.	DTC Detecting Condition	Trouble Area
B0137/71	• Short circuit in P/T squib (LH) wire harness (to ground) • P/T squib (LH) malfunction • Airbag sensor assembly malfunction	• Seat belt pretensioner (LH) • Airbag sensor assembly • Wire harness

WIRING DIAGRAM

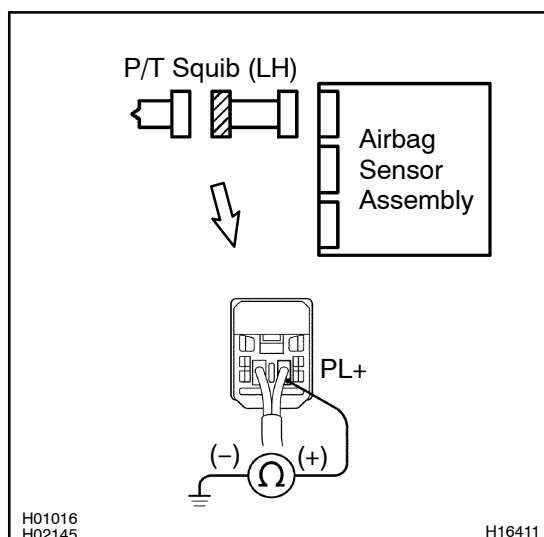
See page DI-27.

INSPECTION PROCEDURE

1	Prepare for inspection (See step 1 on page DI-40).
----------	---



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:

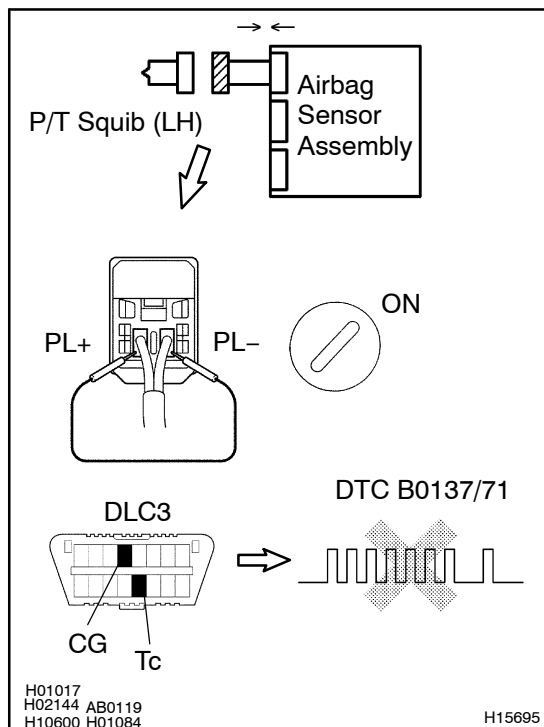
Resistance: 1 MΩ or Higher

NG

Repair or replace harness or connector between seat belt pretensioner (LH) and airbag sensor assembly.

OK

3 Check airbag sensor assembly.



PREPARATION:

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

CHECK:

- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Clear the DTC stored in memory (See step 5 on page DI-3).
- Turn the ignition switch to LOCK, and wait at least for 20 seconds.
- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Check the DTC (See page DI-3).

OK:

DTC B0137/71 is not output.

HINT:

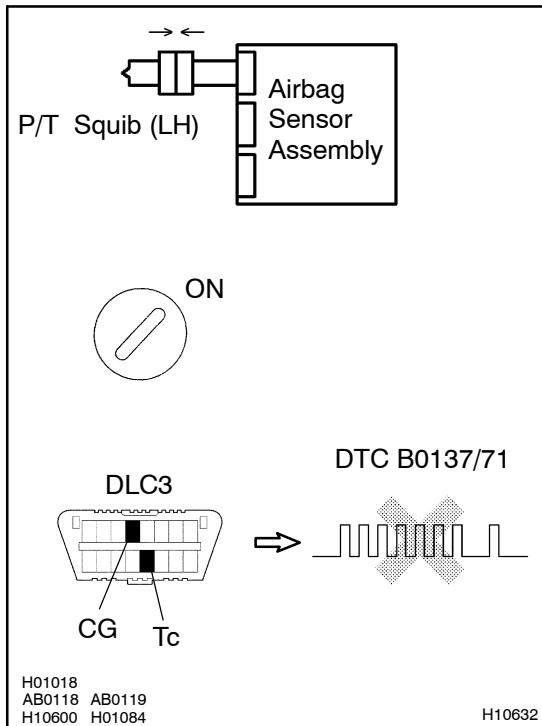
Codes other than code B0137/71 may be output at this time, but they are not relevant to this check.

NG

Replace airbag sensor assembly.

OK

4 Check P/T squib (LH).



PREPARATION:

- Turn the ignition switch to LOCK.
- Disconnect negative (-) terminal cable from the battery, and wait at least for 90 seconds.
- Connect the seat belt pretensioner (LH) connector.
- Connect negative (-) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Clear the DTC stored in memory (See step 5 on [page DI-3](#)).
- Turn the ignition switch to LOCK, and wait at least for 20 seconds.
- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Check the DTC ([See page DI-3](#)).

OK:

DTC B0137/71 is not output.

HINT:

Codes other than code B0137/71 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.

DTC	B0138/72	Short in P/T Squib (LH) Circuit (to B+)
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CIRCUIT DESCRIPTION

The P/T squib (LH) circuit consists of the airbag sensor assembly and seat belt pretensioner (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 in Pub. No. RM684E. DTC B0138/72 is recorded when a B+ short is detected in the P/T squib (LH) circuit.

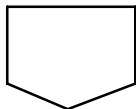
DTC No.	DTC Detecting Condition	Trouble Area
B0138/72	• Short circuit in seat belt pretensioner (LH) wire harness (to B+) • P/T squib (LH) malfunction • Airbag sensor assembly malfunction	• Seat belt pretensioner (LH) • Airbag sensor assembly • Wire harness

WIRING DIAGRAM

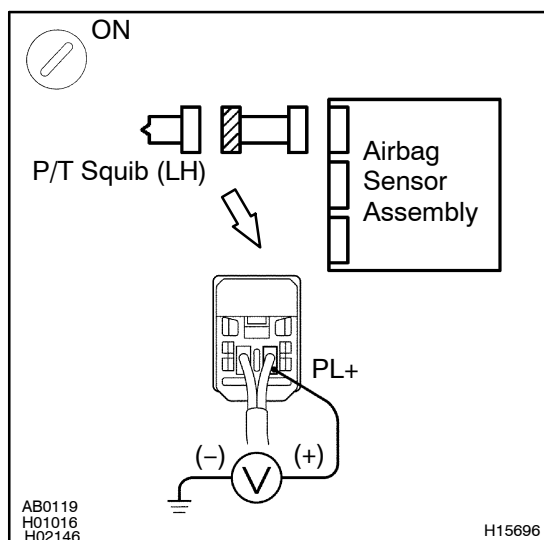
See page DI-27.

INSPECTION PROCEDURE

1	Prepare for inspection (See step 1 on page DI-40).
----------	---



2	Check P/T squib (LH) circuit.
----------	--------------------------------------



CHECK:

- Turn the ignition switch to ON.
- 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:

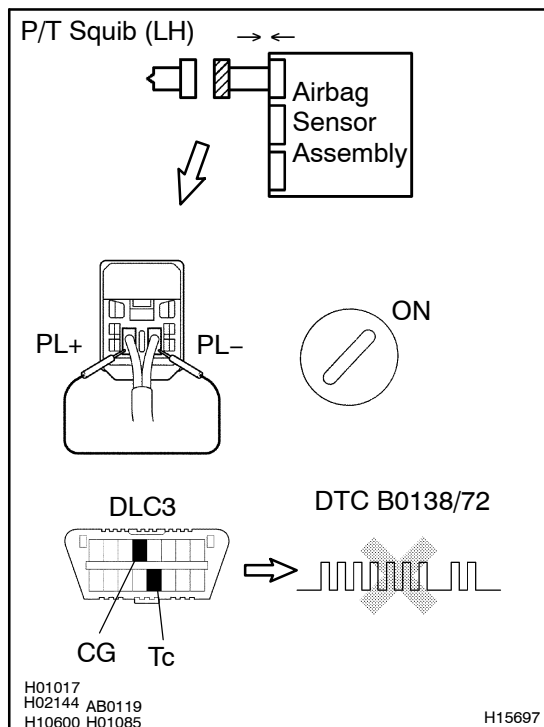
Voltage: 0 V

NG

Repair or replace harness or connector between seat belt pretensioner (LH) and airbag sensor assembly.

OK

3 Check airbag sensor assembly.



PREPARATION:

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

CHECK:

- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Clear the DTC stored in memory (See step 5 on [page DI-3](#)).
- Turn the ignition switch to LOCK, and wait at least for 20 seconds.
- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Check the DTC ([See page DI-3](#)).

OK:

DTC B0138/72 is not output.

HINT:

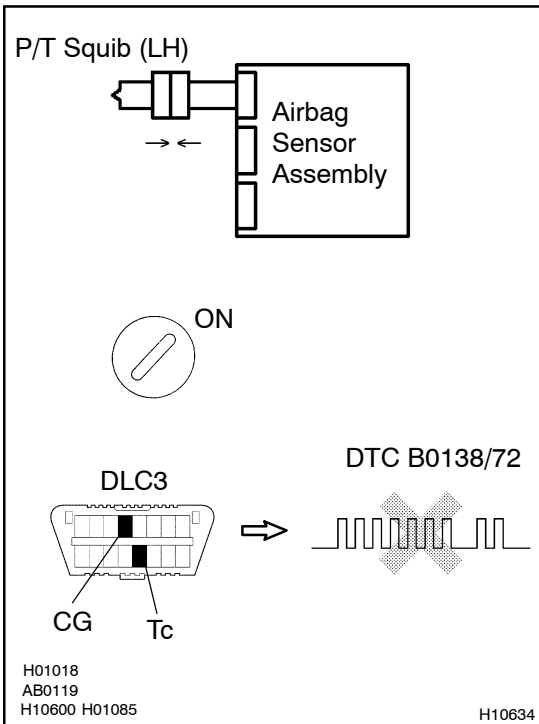
Codes other than code B0138/72 may be output at this time, but they are not relevant to this check.

NG

Replace airbag sensor assembly.

OK

4 Check P/T squib (LH).



PREPARATION:

- Turn the ignition switch to LOCK.
- Disconnect negative (-) terminal cable from the battery, and wait at least for 90 seconds.
- Connect the seat belt pretensioner (LH) connector.
- Connect negative (-) terminal cable to the battery, and wait at least for 2 seconds.

CHECK:

- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Clear the DTC stored in memory (See step 5 on [page DI-3](#)).
- Turn the ignition switch to LOCK, and wait at least for 20 seconds.
- Turn the ignition switch to ON, and wait at least for 20 seconds.
- Check the DTC ([See page DI-3](#)).

OK:

DTC B0138/72 is not output.

HINT:

Codes other than code B0138/72 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.

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.

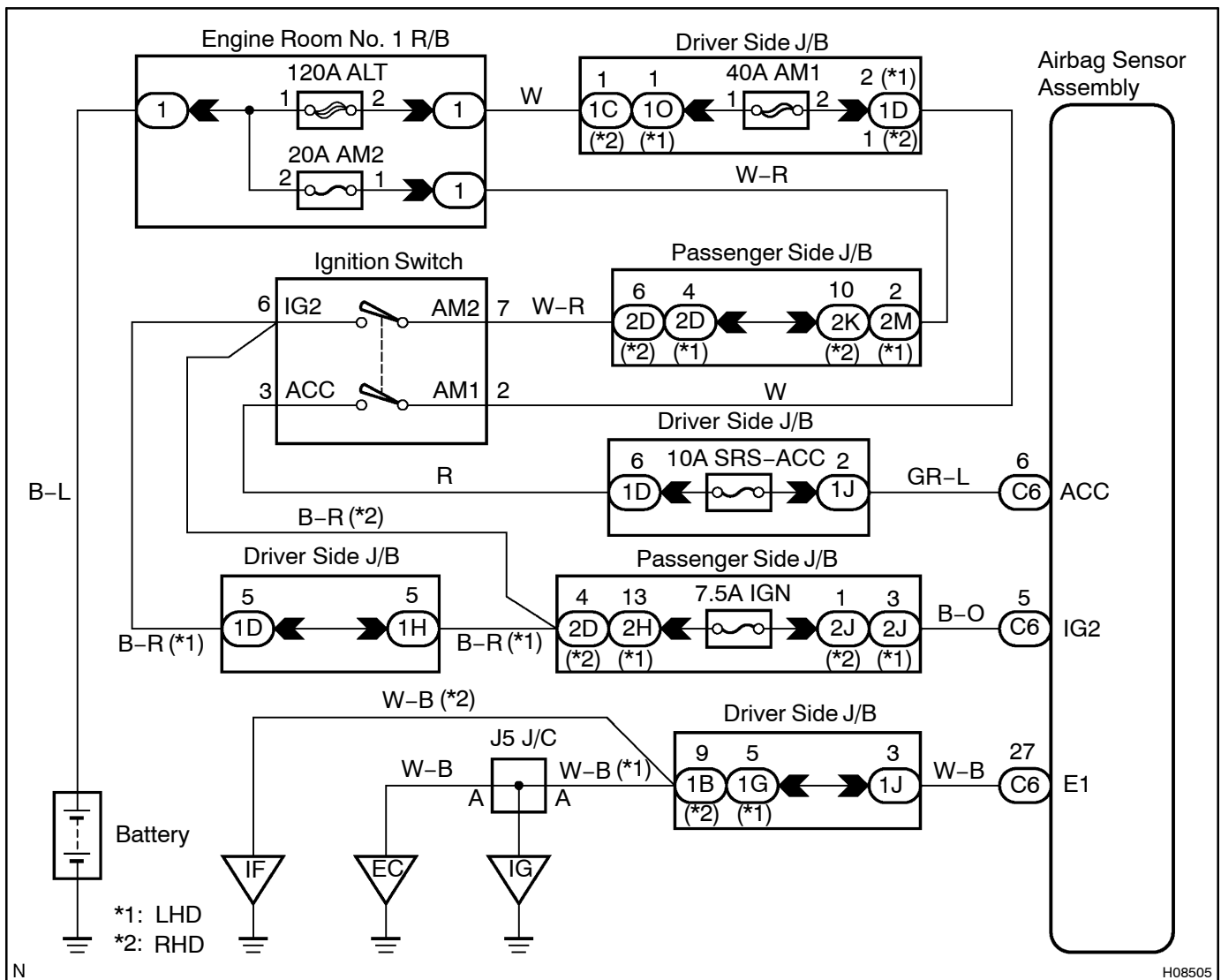
When the battery voltage drops, the voltage-increase circuit (DC-DC converter) functions to increase the voltage of the SRS to normal voltage.

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.

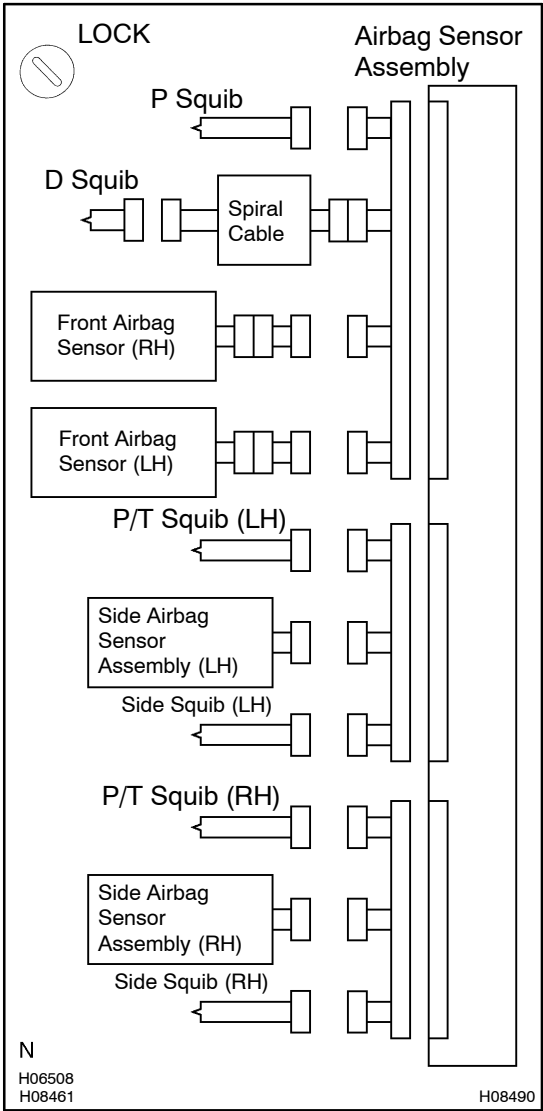
DTC No.	Diagnosis
(Normal)	Source voltage drop

WIRING DIAGRAM



INSPECTION PROCEDURE

1	Prepare for inspection.
---	-------------------------

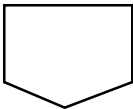


PREPARATION:

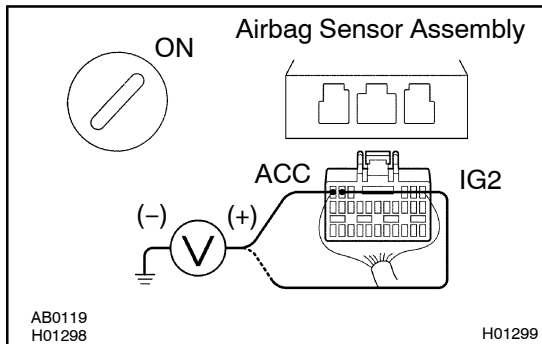
- Disconnect negative (-) terminal cable from the battery, and wait at least for 90 seconds.
- Remove the steering wheel pad (See Pub.No. RM684E on page RS-14).
- Disconnect the connector of the front passenger airbag assembly (See Pub. No. RM684E on page RS-27).
- Disconnect the connectors of the side airbag assembly RH and LH (See Pub. No. RM684E on page RS-39).
- Disconnect the connectors of the seat belt pretensioner RH and LH (See page BO-7).
- Disconnect the connectors of the airbag sensor assembly (See Pub. No. RM684E on page RS-54).
- Disconnect the connectors of the front airbag sensor RH and LH (See Pub. No. RM684E on page RS-59).
- Disconnect the connectors of the side airbag sensor assembly RH and LH (See Pub. No. RM684E on page RS-64).

CAUTION:

Store the steering wheel pad, front passenger airbag assembly and seatback assembly (with side airbag assembly) with the front surface facing upward.



2 Check source voltage.



PREPARATION:

Connect negative (-) terminal cable to the battery.

CHECK:

- Turn the ignition switch ON.
- Measure the voltage of each of IG2 and ACC on the sensor and operate electric system (defogger, wiper, headlight, heater blower, etc.).

OK:

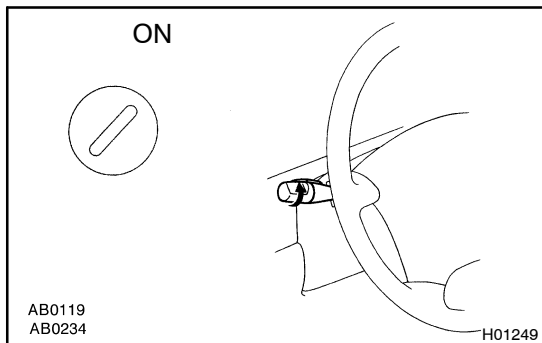
Voltage: 10 – 14 V

NG

Check harness between battery and airbag sensor assembly, and check battery and charging system.

OK

3 Does SRS warning light turn OFF?



PREPARATION:

- Turn the ignition switch to LOCK.
- Connect the steering wheel pad connector.
- Connect the front passenger airbag assembly connector.
- Connect the airbag sensor assembly connectors.
- Connect the side airbag assembly connectors.
- Connect the seat belt pretensioner connectors.
- Connect the side airbag sensor assembly connectors.
- Connect the front airbag sensor connectors.
- Turn the ignition switch to 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

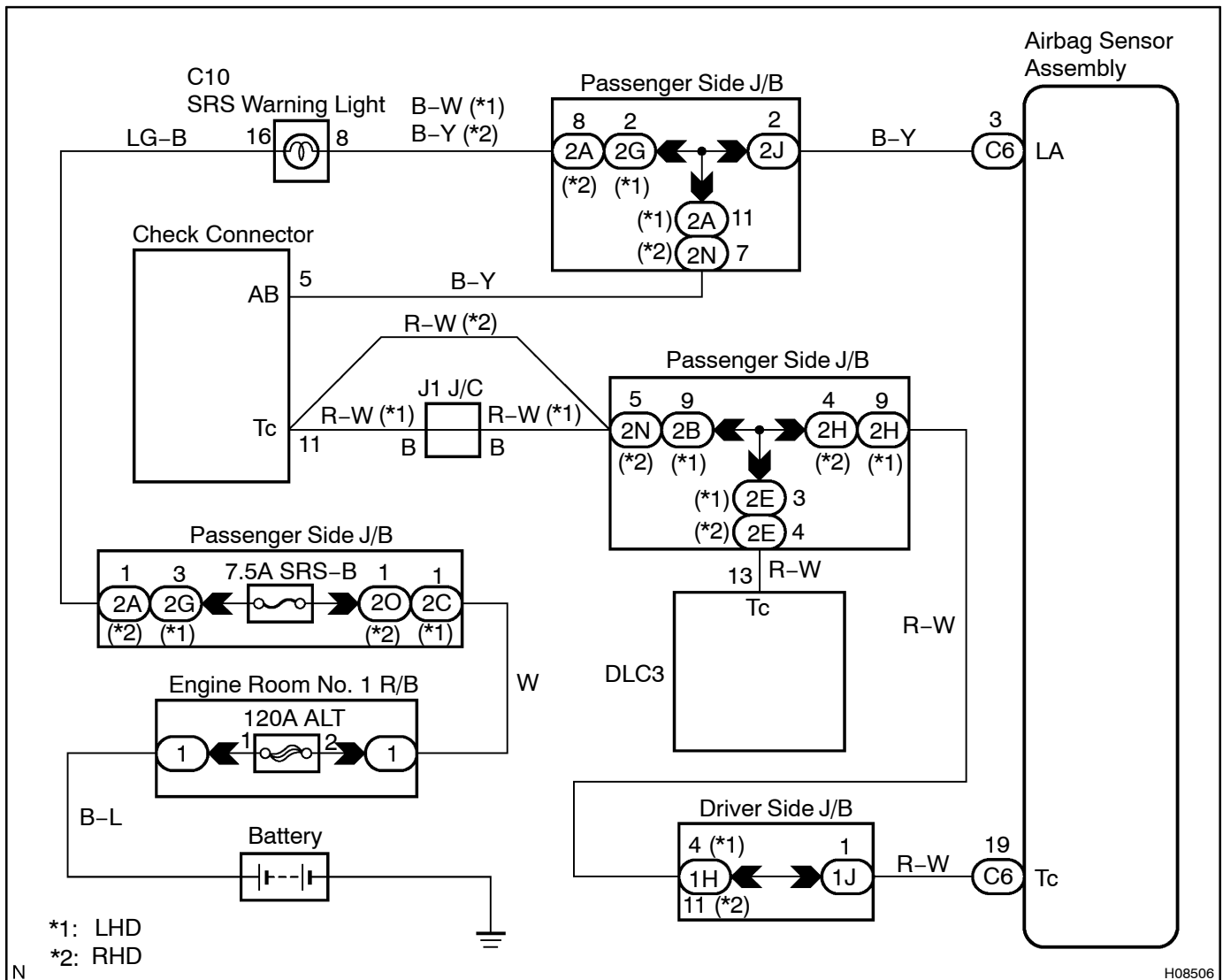
CIRCUIT DESCRIPTION

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 ON position, and then turns OFF automatically.

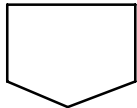
If there is a malfunction in the SRS, the SRS warning light lights up to inform the driver of the abnormality. When terminals Tc and CG of the DLC3 are connected, the DTC is displayed by blinking the SRS warning light.

WIRING DIAGRAM

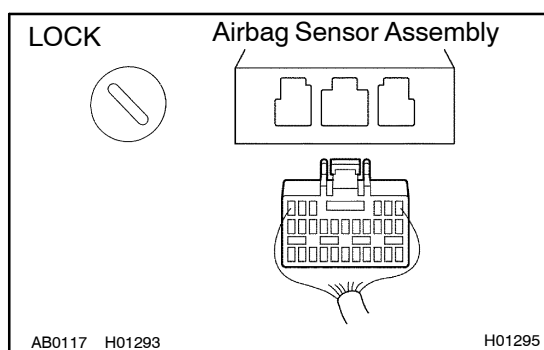


INSPECTION PROCEDURE**Always lights up, when ignition switch is in LOCK position**

- | | |
|----------|---|
| 1 | Prepare for inspection (See step 1 on page DI-40). |
|----------|---|



- | | |
|----------|---|
| 2 | Does SRS warning light turn OFF? |
|----------|---|

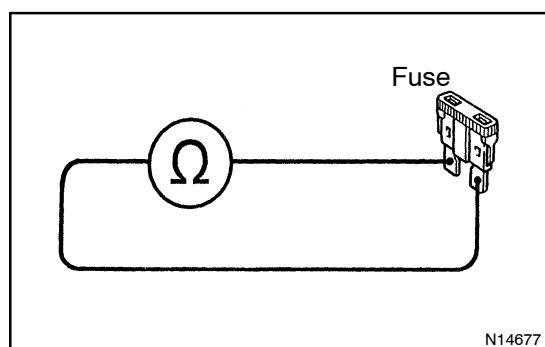
**PREPARATION:**

- (a) Turn the 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 the SRS warning light.

NO**Check SRS warning light circuit or terminal AB circuit of DLC3.****YES****Replace airbag sensor assembly.**

Does not light up, when ignition switch is turned to ON**1 Check SRS-B Fuse.****PREPARATION:**

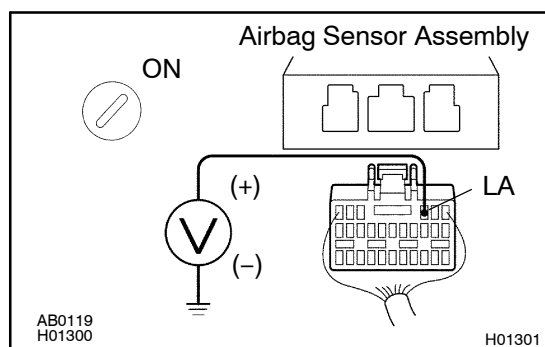
Remove SRS-B fuse.

CHECK:

Check continuity of SRS-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-40](#)).****3 Check SRS warning light circuit.****PREPARATION:**

- Connect negative (-) terminal cable to the battery.
- Turn the ignition switch to ON.

CHECK:

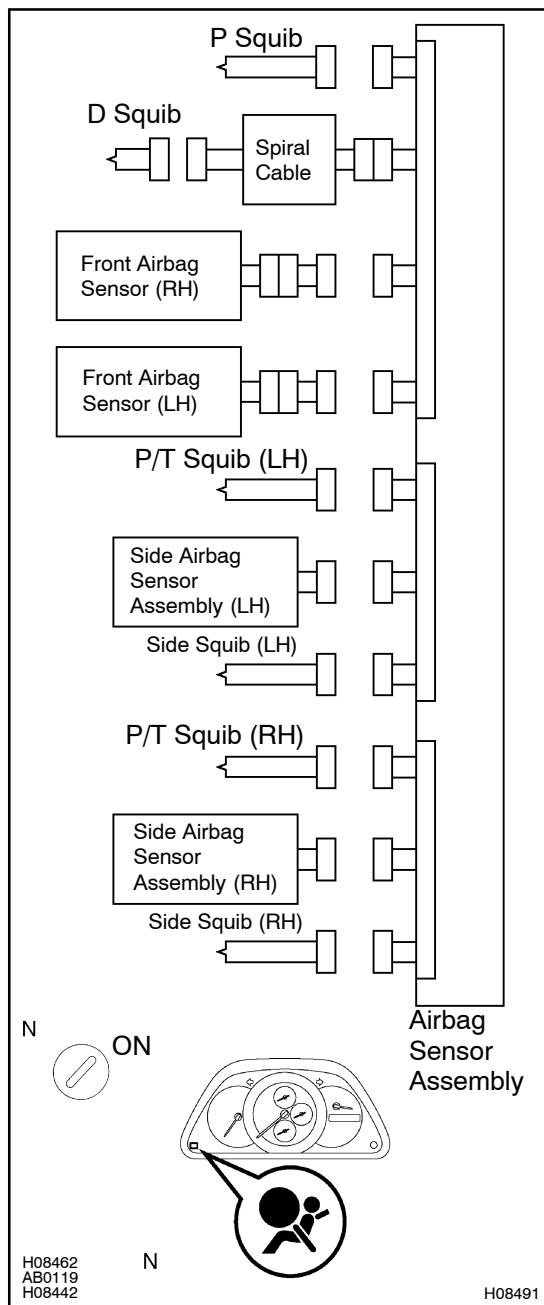
Measure the voltage LA terminal of the harness side connector of the airbag sensor assembly.

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:

- Disconnect negative (-) terminal cable from the battery.
- Connect the airbag sensor assembly connectors.
- Connect negative (-) terminal cable to the battery, and wait at least for 2 seconds.
- Turn the ignition switch to ON.

CHECK:

Check operation of the 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 SRS–B fuse burnt out again?

NO

Using simulation method, reproduce malfunction symptoms ([See page IN-21](#)).

YES

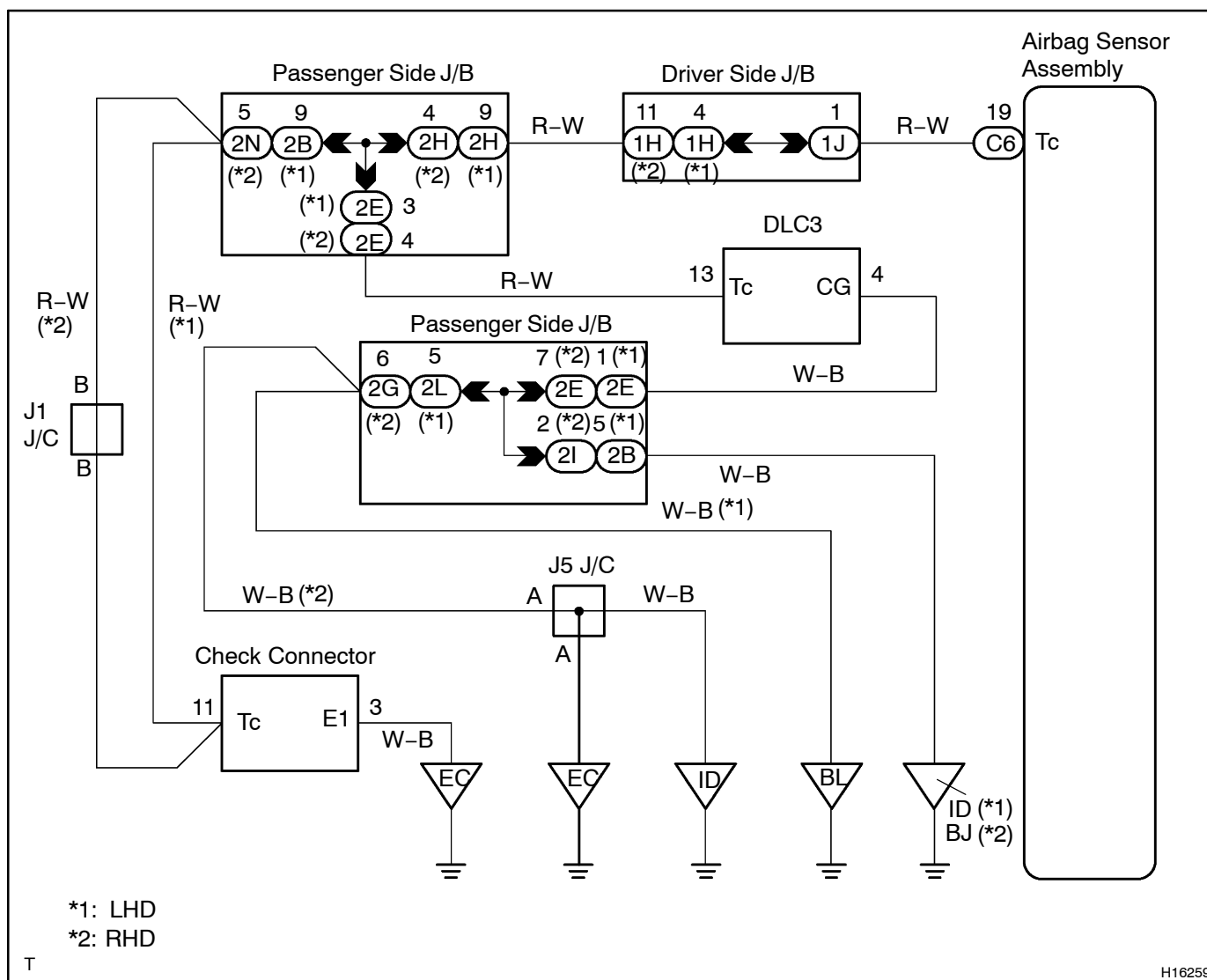
Check harness between SRS–B fuse and SRS warning light.

Tc Terminal Circuit

CIRCUIT DESCRIPTION

By connecting terminals Tc and CG of DLC3 the airbag sensor assembly is set in the DTC output mode. The DTCs are displayed by blinking the SRS warning light.

WIRING DIAGRAM

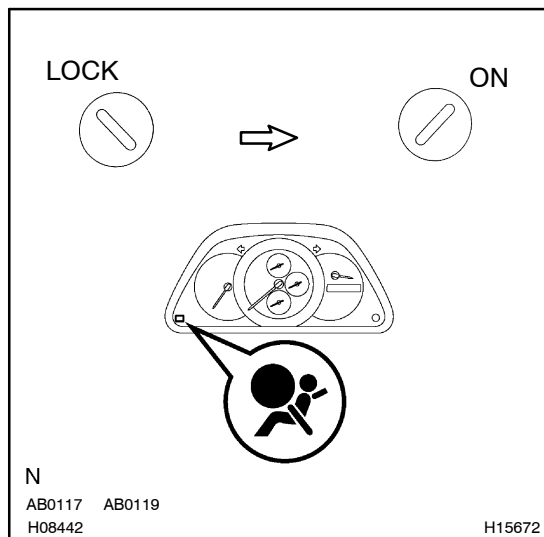


H16259

INSPECTION PROCEDURE

If the DTC is not displayed, do the following troubleshooting.

1 Does SRS warning light light up for approx. 6 seconds?



PREPARATION:

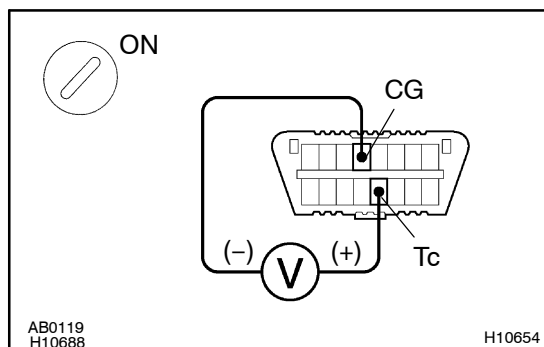
Check operation of the SRS warning light after the ignition switch is turned from LOCK position to ON position.

NO

Check SRS warning light system
(See page DI-3).

YES

2 Check voltage between terminals Tc and CG of DLC3.



PREPARATION:

Turn the ignition switch to ON.

CHECK:

Measure the voltage between terminals Tc and CG of DLC3.

OK:

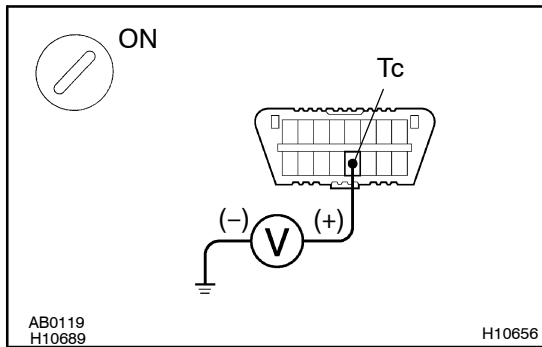
Voltage: 10 – 14 V

OK

Go to step 4.

NG

3 Check voltage between terminal Tc of DLC3 and body ground.

**CHECK:**

Measure the voltage between terminal Tc of DLC3 and body ground.

OK:

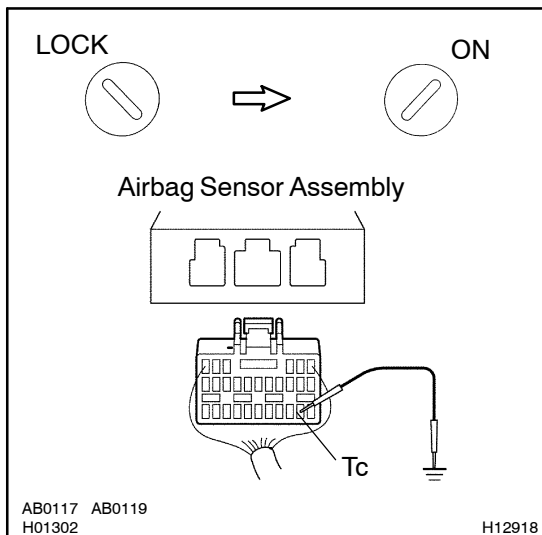
Voltage: 10 – 14 V

OK

Check harness between terminal CG of check connector and body ground.

NG

4 Check airbag sensor assembly.

**PREPARATION:**

- Turn the ignition switch to LOCK.
- Disconnect negative (-) terminal cable from the battery, and wait at least for 90 seconds.
- Disconnect the airbag sensor assembly connector.
- Insert a service wire into terminal Tc from back side as shown in the illustration.
- Connect the airbag sensor assembly connector with a service wire.
- Connect negative (-) terminal cable to the battery.
- Turn the ignition switch to ON and wait at least for 20 seconds.
- Connect a service wire of terminal Tc to body ground.

CHECK:

Check operation of the SRS warning light.

OK:

SRS warning light comes on.

NOTICE:

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

OK

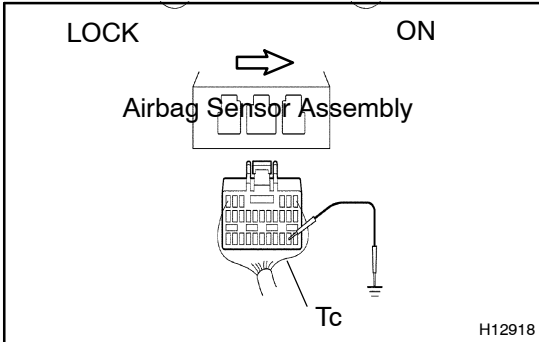
Check harness between the airbag sensor assembly and check connector.

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 the 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

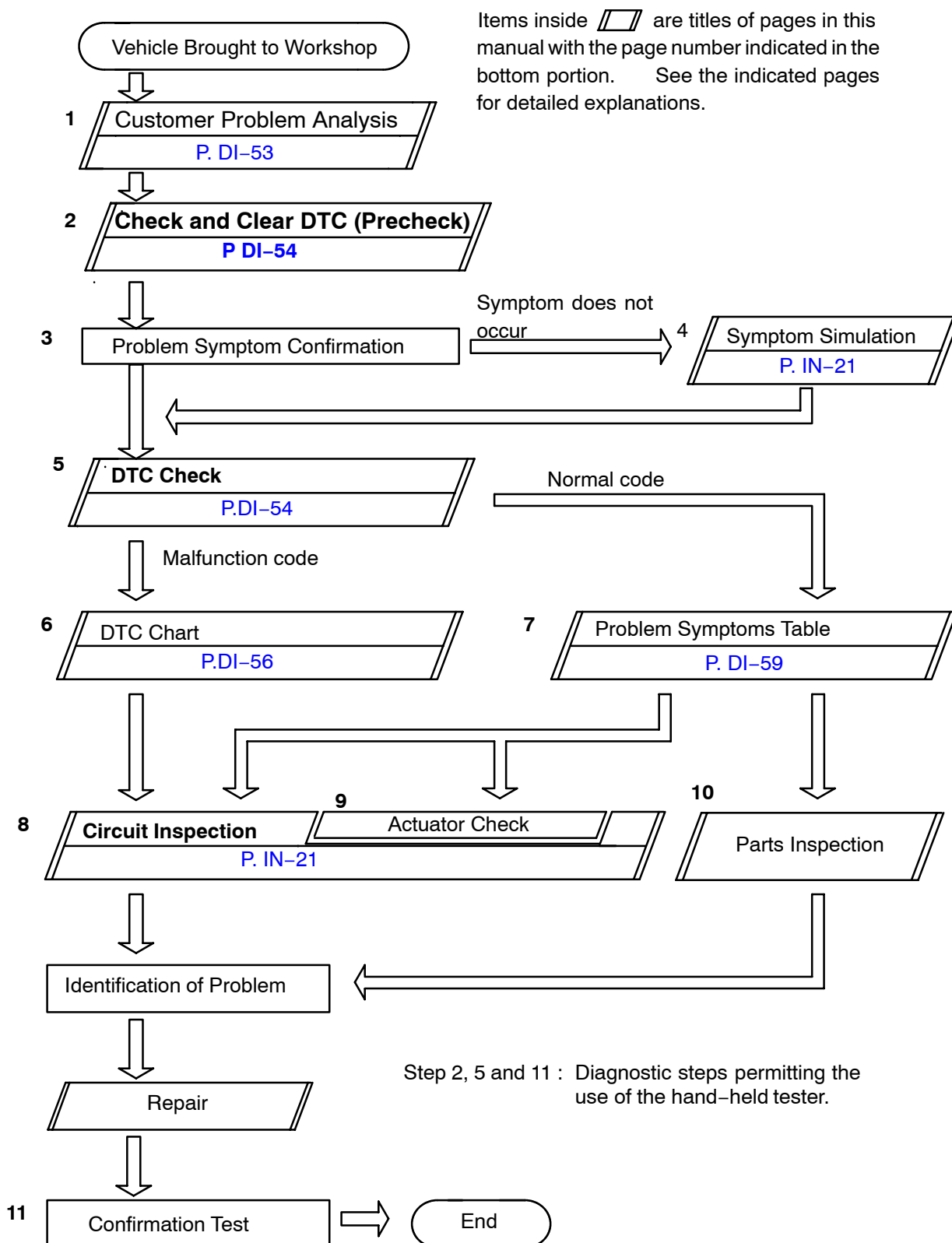
Replace airbag sensor assembly.

AIR CONDITIONING SYSTEM

HOW TO PROCEED WITH TROUBLESHOOTING

DI602-02

Perform troubleshooting in accordance with the procedure on the following page.



CUSTOMER PROBLEM ANALYSIS CHECK

AIR CONDITIONING SYSTEM Check Sheet

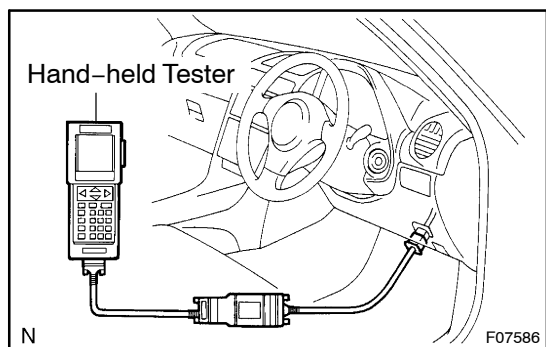
Inspector's name: _____

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

Date of Problem Occurrence	/ /
How Often does Problem Occur?	☐ Continuous ☐ Intermittent (times a day)
Weather	☐ Fine ☐ Cloudy ☐ Snowy ☐ Various / Other
Outdoor Temperature	☐ Hot ☐ Warm ☐ Cool ☐ Cold (Approx. °F / °C)

Symptoms	Air Flow Control is Faulty	☐ Blower motor does not operation ☐ Blower motor speed does not change (Always Hi, Always Med, Always Lo)
	Temperature Control is Faulty	☐ Cabin temperature does not go down ☐ Cabin temperature does not rise ☐ Response is slow
	Air Inlet Control is Faulty	☐ Cannot change between FRS and REC (Always Fresh or always Recirculating)
	Vent Control is Faulty	☐ Mode will not chage ☐ Will not enter the desired mode

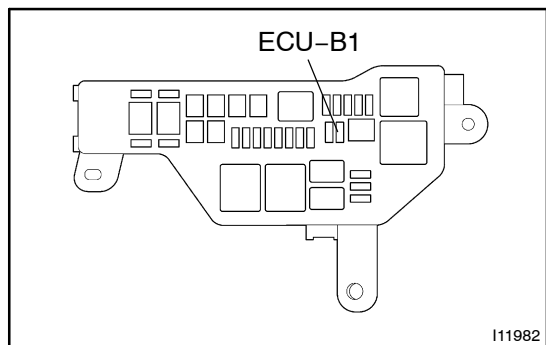
DTC Check	1st Time	☐ Normal Code ☐ Malfunction Code (Code)
	2nd Time	☐ Normal Code ☐ Malfunction Code (Code)



PRE-CHECK

1. DTC CHECK USING HAND-HELD TESTER

- (a) Hook up the hand-held tester to the DLC3.
- (b) Read the diagnostic trouble codes by following the prompts on the tester screen.
Please refer to the hand-held tester operator's manual for further details.



2. CLEARING DTC

- (a) Pull out the ECU-B1 fuse in engine room J/B for 10 sec. or longer to clear diagnostic the DTC's memory.
- (b) After reinserting the fuse, check that the normal code is output.

3. ACTUATOR CHECK

- (a) Connect the hand-held tester to the DLC 3.
- (b) Turn the ignition switch to ON and hand held tester main switch ON.
- (c) Select the ACTIVE TEST mode on the hand-held tester.
- (d) Check the temperature and air flow visual and by hand.

Step No.	Pattern No.	Conditions				
		Blower motor	Air flow vent	Air inlet damper	Magnetic clutch	Air mix damper
1	0	OFF	FACE	FRESH	OFF	Cool side (-10% open)
2	1	1	↑	↑	↑	↑
3	2	17	↑	RECIRC/FRESH (54.5% open)	ON	↑
4	3	↑	↑	↑	↑	↑
5	4	↑	↑	RECIRC	↑	Cool / Hot (50% open)
6	5	↑	BI-LEVEL	↑	↑	↑
7	6	↑	FOOT*1	↑	↑	Hot side (110% open)
8	7	↑	FOOT*2	↑	↑	↑
9	8	↑	FOOT/DEF	↑	↑	↑
10	9	31	DEF	↑	↑	↑

(*1): There is air flow from defroster.

(*2): There is no air flow from defroster.

DIAGNOSTIC TROUBLE CODE CHART

If 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.)

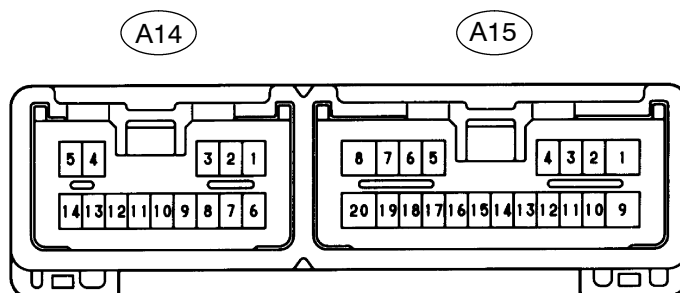
DTC No. (See page)	Detection Item	Trouble Area	Memory
B1400	Normal	–	–
B1411*2 (DI-61)	Room temperature sensor circuit	- Room temp. sensor - Harness or connector between room temp. sensor and A/C control assembly - A/C control assembly	–
B1412*3 (DI-64)	Ambient temperature sensor circuit	- Ambient temp. sensor - Harness or connector between ambient temp. sensor and engine (and ECT) ECU - Harness or connector between engine (and ECT) ECU and A/C control assembly - A/C control assembly	–
B1413 (DI-67)	Evaporator temperature sensor circuit	- Evaporator temp. sensor - Harness or connector between evaporator temp. sensor and A/C control assembly - A/C control assembly	–
B1421*4 (DI-70)	Solar sensor circuit	- Solar sensor - Harness or connector between solar sensor and A/C control assembly - A/C control assembly	– –
B1423 (DI-679*1)	Open in pressure sensor circuit Abnormal refrigerant pressure [below 196 kPa (2.0 kgf/cm ² , 28 psi) over 3,140 kPa (32.0 kgf/cm ² , 455 psi)]	- Pressure switch - Harness or connector between pressure switch and engine (and ECT) ECU. - Harness or connector between engine (and ECT) ECU and A/C control assembly - Refrigerant pipe line - A/C control assembly - Compressor	–
B1431 (DI-73)	Air mix damper position sensor circuit	- Air mix damper position sensor - A/C control assembly - Harness or connector between air mix damper position sensor and A/C control assembly	–
B1432 (DI-76)	Air inlet damper position sensor circuit	- Air inlet damper position sensor circuit - A/C amplifier - Harness or connector between air inlet damper position sensor and A/C control amplifier	–
B1433 (DI-79)	Air outlet damper position sensor circuit	- Air outlet damper position sensor circuit - A/C control assembly - Harness or connector between air outlet damper position sensor and A/C control assembly	–

*1: LEXUS IS200 Repair Manual Pub. No. RM684E

HINT:

- *2: If the room temp. is approx. –20°C (–4°F) or lower, DTC B1411 may be output even though the system is normal.
- *3: If the ambient temperature is approx. –50°C (–58°F) or lower, a DTC may be output even though the system is normal.
- *4: If the check is being performed in a dark place, DTC B1421 (solar sensor circuit abnormal) could be displayed. In this case, perform DTC check again while shining a light, such as an inspection light, on the solar sensor. If DTC B1421 is still displayed, there could be trouble in the solar sensor circuit.

TERMINALS OF ECU



I07266

Symbols (Terminals No.)	Wiring Color	Condition	STD Voltage (V)
MPX- ↔ GND (A14-1 ↔ A14-14)	O ↔ W-B*1 O ↔ BR*2	IG ON.	Pulse generation
PKB ↔ GND (A14-2 ↔ A14-14)	Y-R ↔ W-B*1 Y-R ↔ BR*2	IG ON. Brake warning light: ON	Below 1.0 V
		IG ON. Brake warning light: OFF	10 - 14 V
PWR ↔ GND (A14-3 ↔ A14-14)	L-W ↔ W-B*1 L-W ↔ BR*2	IG ON. Pattern select switch: PWR	Below 1.0 V
		IG ON. Pattern select switch: Except PWR	10 - 14 V
ACC ↔ GND (A14-4 ↔ A14-14)	GR ↔ W-B*1 GR ↔ BR*2	IG ACC.	10 - 14 V
		IG OFF.	Below 1.0 V
+B ↔ Body ground (A14-5 ↔ Body ground)	R-Y ↔ Body Ground	Always	10 - 14 V
HR ↔ Body Ground (A14-6 ↔ Body Ground)	L ↔ Body Ground	IG ON.	Below 1.0 V
		IG OFF.	10 - 14 V
BLW ↔ GND (A14-7 ↔ A14-14)	V ↔ W-B*1 V ↔ BR*2	IG ON. Operate blower motor	Pulse generation
SNOW ↔ GND (A14-8 ↔ A14-14)	B-Y ↔ W-B*1 B-Y ↔ BR*2	IG ON. Pattern select switch: SNOW	Below 1.0 V
		IG ON. Pattern select switch: Except SNOW	10 - 14 V
P-S/B ↔ GND (A14-10 ↔ A14-14)	P-G ↔ W-B*1 P-B ↔ BR*2	IG ON. Passenger seat belt warning: Flash	Below 1.0 V
		IG ON. Passenger seat belt warning: OFF	10 - 14 V
REOST ↔ GND (A14-11 ↔ A14-14)	W-G ↔ W-B*1 W-G ↔ BR*2	Light control switch: ON	Below 1.0 V
		Light control switch: OFF	No voltage
ILL+ ↔ GND (A14-12 ↔ A14-14)	G ↔ W-B*1 G ↔ BR*2	Light control switch: ON	10 - 14 V
		Light control switch: OFF	Below 1.0 V
IG ↔ GND (A14-13 ↔ A14-14)	B-R ↔ W-B*1 B-R ↔ BR*2	IG ON.	10 - 14 V
		IG OFF.	Below 1.0 V
GND ↔ Body ground (A14-14 ↔ Body ground)	W-B*1 ↔ Body Ground BR*2 ↔ Body Ground	Always	Continuity
HAZD ↔ GND (A15-1 ↔ A14-14)	G-W ↔ W-B*1 G-W ↔ BR*2	IG ON. Hazard switch: ON	Continuity
		IG ON. Hazard switch: OFF	No Continuity
FRS ↔ GND (A15-2 ↔ A14-14)	R-W ↔ W-B*1 R-W ↔ BR*2	IG ON. Air inlet selector: FRESH	10 - 14 V
		IG ON. Air inlet selector: RECIRC	Below 1.0 V
AOD ↔ GND (A15-3 ↔ A14-14)	L-R ↔ W-B*1 L-R ↔ BR*2	IG ON. Mode selector: FACE	Below 1.0 V
		IG ON. Mode selector: DEF	10 - 14 V
AMH ↔ GND (A15-4 ↔ A14-14)	LG-R ↔ W-B*1 LG-R ↔ BR*2	IG ON. Temperature control: Max. Hot	10 - 14 V
		IG ON. Temperature control: Max. Cool	Below 1.0 V

Symbols (Terminals No.)	Wiring Color	Condition	STD Voltage (V)
TE ↔ SG (A15-5 ↔ A15-18)	B-R ↔ BR-W	IG ON. Evaporator temp.: 0 °C (32 °F)	2.0 – 2.4 V
		IG ON. Evaporator temp.: 15 °C (59 °F)	1.4 – 1.8 V
S5 ↔ SG (A15-6 ↔ A15-18)	GR-R ↔ BR-W	IG ON.	4.5 – 5.5 V
MPX ₊ ↔ GND (A15-8 ↔ A14-14)	L ↔ R-B* ¹ L ↔ BR* ²	IG ON.	Pulse generation
REC ↔ GND (A15-9 ↔ A14-14)	Y-G ↔ W-B* ¹ Y-G ↔ BR* ²	IG ON. Air inlet selector: FRESH	Below 1.0 V
		IG ON. Air inlet selector: RECIRC	10 – 14 V
AOF ↔ GND (A15-10 ↔ A14-14)	P-L ↔ W-B* ¹ P-L ↔ BR* ²	IG ON. Mode selector: FACE	10 – 14 V
		IG ON. Mode selector: DEF	Below 1.0 V
AMC ↔ GND (A15-11 ↔ A14-14)	P-B ↔ W-B* ¹ P-B ↔ BR* ²	IG ON. Temperature control: Max. Hot	Below 1.0 V
		IG ON. Temperature control: Max. Cool	10 – 14 V
TS ↔ SG (A15-13 ↔ A15-18)	GR-L ↔ BR-W	IG ON. Solar sensor subject to electric light	0.8 – 4.3 V
		IG ON. Solar sensor is covered by a cloth	Below 0.8 V
TP ↔ SG (A15-14 ↔ A15-18)	V-W ↔ BR-W	IG ON. Temperature control: Max. Hot	0.5 – 1.5 V
		IG ON. Temperature control: Max. Cool	3.5 – 4.5 V
TPM ↔ SG (A15-15 ↔ A15-18)	R-Y ↔ BR-W	IG ON. Mode selector: FACE	3.5 – 4.5 V
		IG ON. Mode selector: DEF	0.5 – 1.5 V
TPI ↔ SG (A15-16 ↔ A15-18)	GR-R ↔ BR-W	IG ON. Air inlet selector: RECIRC	3.5 – 4.5 V
		IG ON. Air inlet selector: FRESH	0.5 – 1.5 V

*¹:LHD models*²:RHD models

PROBLEM SYMPTOMS TABLE

Symptom	Suspect Area	See page
Whole functions of the A/C system does not operate	1. A/C control assembly 2. ACC power source circuit	IN-31 DI-703*
Air Flow Control: No blower operation	1. ACC power source circuit 2. Heater main relay circuit 3. Blower motor circuit 4. A/C control assembly	DI-703* DI-706* DI-709* IN-31
Air Flow Control: No blower control	1. Heater main relay circuit 2. Blower motor circuit 3. A/C control assembly 4. Solar sensor circuit	DI-706* DI-709* IN-31 DI-70
Air Flow Control: Insufficient air flow	Blower motor circuit	DI-709*
Temperature Control: No cool air comes out	1. Refrigerant volume 2. Drive belt tension 3. Refrigeration system inspection with manifold gauge set 4. Compressor circuit 5. Pressure switch circuit 6. Air mix damper position sensor circuit 7. Air mix damper control servomotor circuit 8. Room temp. sensor circuit 9. Ambient temp. sensor circuit 10. A/C control assembly	AC-23* AC-16* AC-3* DI-712* DI-679* DI-73 DI-85 DI-61 DI-64 IN-31
Temperature Control: No warm air comes out	1. Air mix damper position sensor circuit 2. Air mix damper control servomotor circuit 3. Room temp. sensor circuit 4. Ambient temp. sensor circuit 5. Evaporator temp. sensor circuit 6. A/C control assembly	DI-73 DI-85 DI-61 DI-64 DI-67 IN-31
Temperature Control: Output air is warmer or cooler than the set temperature or response is slow	1. Refrigerant volume 2. Drive belt tension 3. Refrigeration system inspection with manifold gauge set 4. Cooling fan system 5. Solar sensor circuit 6. Room temp. sensor circuit 7. Ambient temp. sensor circuit 8. Evaporator temp. sensor circuit 9. Air mix damper position sensor circuit 10. Air mix damper control servomotor circuit 11. Air inlet damper position sensor circuit 12. Air inlet damper control servomotor circuit 13. Condenser 14. Evaporator 15. Heater radiator 16. Expansion valve 17. A/C control assembly	AC-23* AC-16* AC-3* CO-22* DI-70 DI-61 DI-64 DI-67 DI-73 DI-85 DI-76 DI-82 AC-48* AC-32* AC-32* AC-53* IN-31
Temperature Control: No temperature control (only Max. cool or Max. warm)	1. Room temp. sensor circuit 2. Ambient temp. sensor circuit 3. Air mix damper position sensor circuit 4. Air mix damper control servomotor circuit 5. A/C control assembly	DI-61 DI-64 DI-73 DI-85 IN-31
No air inlet control	1. Air inlet damper position sensor circuit 2. Air inlet damper control servomotor circuit 3. A/C control assembly	DI-76 DI-82 IN-31

Symptom	Suspect Area	See page
No air flow mode	1. Air outlet damper position sensor circuit 2. Air outlet damper control servomotor circuit 3. A/C control assembly	DI-79 DI-88 IN-31
Engine idle up does not occur, or is continuous	1. Compressor circuit 2. A/C control assembly	DI-712* IN-31
Set temp. value displayed does not change up with operation of temp. control switch.	A/C control assembly	IN-31
DTC not recorded. Set mode is cleared when IG switch is turned off.	1. Back-up power source circuit 2. A/C control assembly	DI-697* IN-31

*: LEXUS IS200 Repair Manual Pub. No. RM684E

CIRCUIT INSPECTION

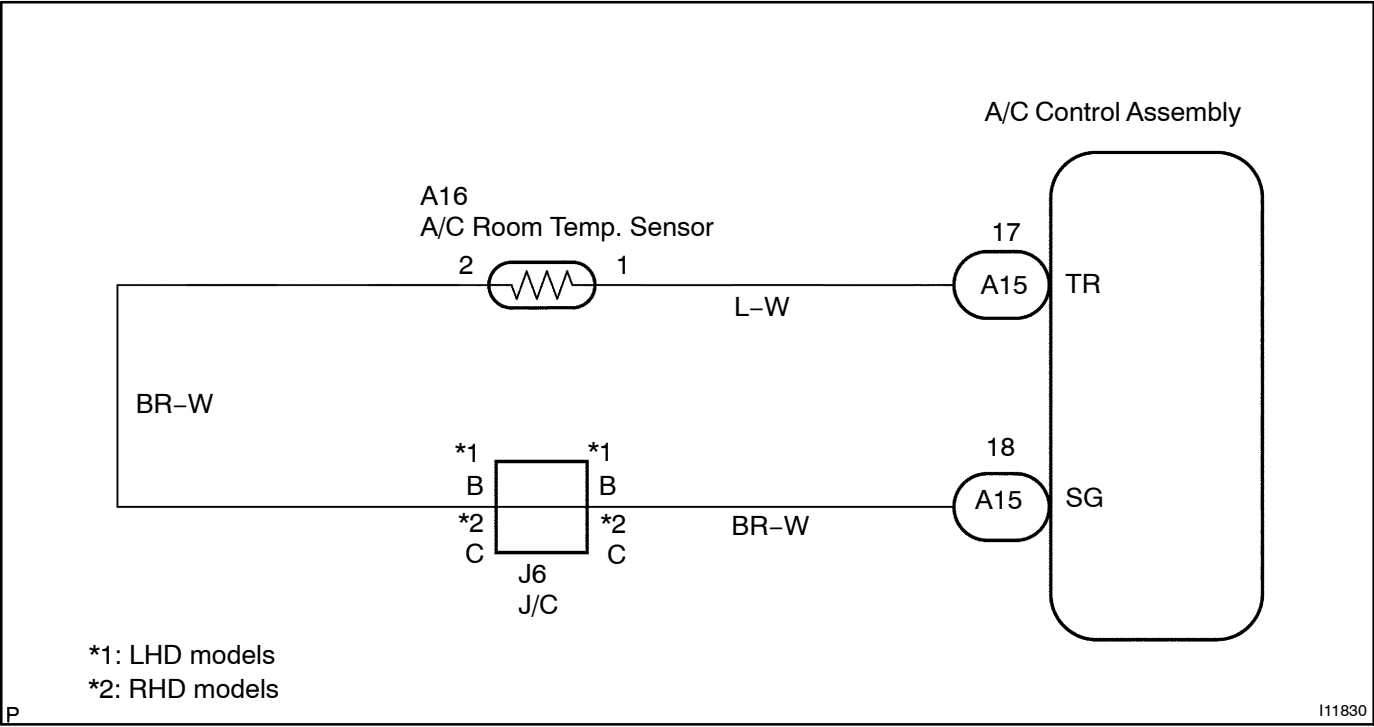
DTC	B1411	Room Temperature Sensor Circuit
-----	-------	---------------------------------

CIRCUIT DESCRIPTION

This sensor detects the temperature inside the cabin and sends the appropriate signals to the A/C control assembly.

DTC No.	Detection Item	Trouble Area
B1411	Open or short in room temperature sensor circuit.	• Room temperature sensor. • harness or connector between room temperature sensor and A/C control assembly. • A/C control assembly.

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

In case of using the hand-held tester, start the inspection step 1 and in case of not using the hand-held tester, start from step 2.

1 Check room temp. sensor using hand-held tester.

PREPARATION:

Connect the hand-held tester to the DLC3.

CHECK:

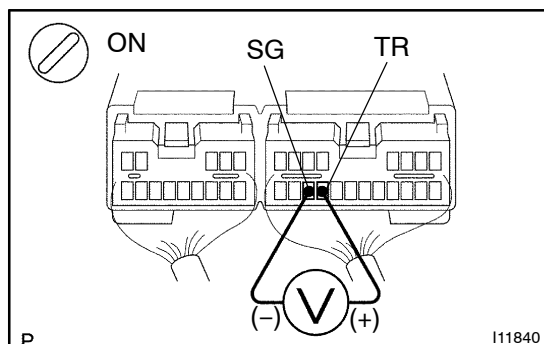
Check the room temp. sensor using DATA LIST.

OK

Check and replace A/C control assembly.

NG

2 Check voltage between terminals TR and SG of A/C control assembly connector.



PREPARATION:

Remove A/C control assembly with connectors still connected.

CHECK:

- (a) Turn ignition switch to ON.
- (b) Measure voltage between terminals TR and SG of A/C control assembly connector at each temperature.

OK:

Voltage :

at 25°C (77°F) : 1.8 – 2.2 V

at 40°C (104°F) : 1.2 – 1.6 V

HINT:

As the temperature increases, the voltage decreases.

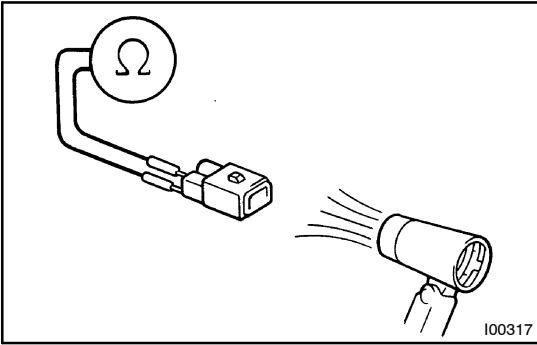
NG

Go to step 3.

OK

Proceed to next circuit inspection shown on problem symptoms table (See page DI-59). However, if DTC B1411 is displayed, check and replace A/C control assembly.

3 Check room temperature sensor.



PREPARATION:

Remove room temperature sensor
(See Pub. No. RM684E on page AC-66).

CHECK:

Measure resistance between terminals 1 and 2 of room temperature sensor connector at each temperature.

OK:

Resistance :

at 25°C (77°F) : 1.65 – 1.75 KΩ

at 50°C (122°F) : 0.55 – 0.65 KΩ

HINT:

As the temperature increases, the resistance decreases.

NG

Replace room temperature sensor.

OK

4 Check harness and connector between A/C control assembly and room temperature sensor (See page IN-31).

NG

Repair or replace harness or connector.

OK

Check and replace A/C control assembly.

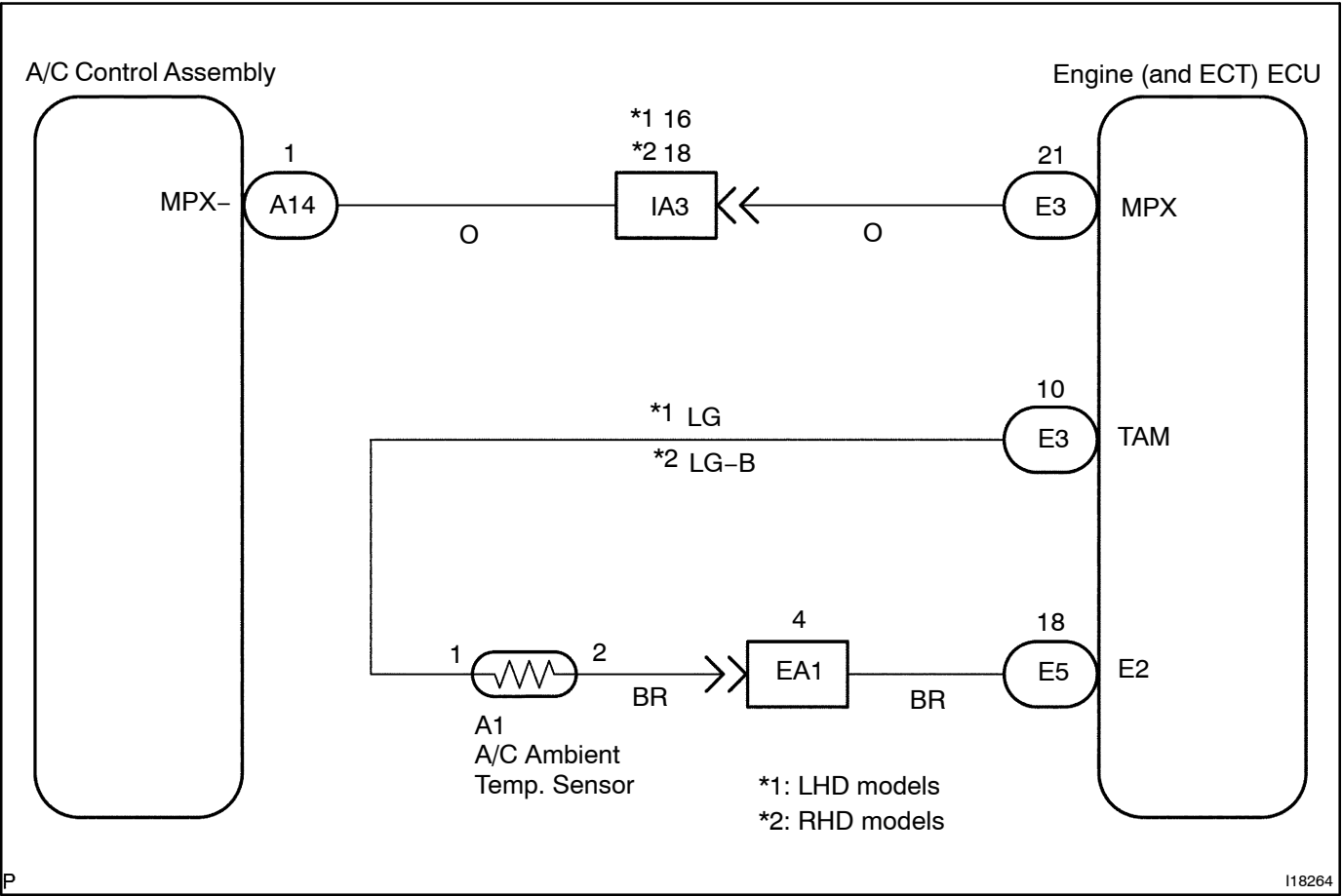
DTC	B1412	Ambient Temperature Sensor Circuit
-----	-------	------------------------------------

CIRCUIT DESCRIPTION

This sensor detects the ambient temperature and sends the appropriate signals to the A/C control assembly.

DTC No.	Detection Item	Trouble Area
B1412	Open or short in ambient temperature sensor circuit.	• Ambient temperature sensor. • Harness or connector between ambient temperature sensor and engine (and ECT) ECU • Harness or connector between engine (and ECT) ECU and A/C control assembly • Engine (and ECT) ECU • A/C control assembly

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

In case of using the hand-held tester, start the inspection step 1 and in case of not using the hand-held tester, start from step 2.

1 Check ambient temp. sensor using hand-held tester.

PREPARATION:

Connect the hand-held tester to the DLC3.

CHECK:

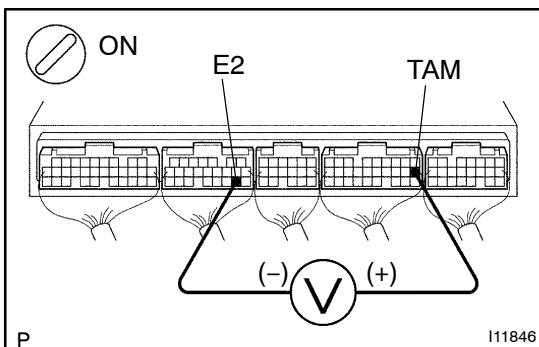
Check the ambient temp. sensor using DATA LIST.

OK

Check and replace engine (and ECT) ECU.

NG

2 Check voltage between terminals TAM and E2 of engine (and ECT) ECU.



PREPARATION:

Remove engine (and ECT) ECU with connectors still connected.

CHECK:

- Turn ignition switch to ON.
- Measure voltage between terminals TAM and E2 of engine (and ECT) ECU connector at each temperature.

OK:

Voltage :

at 25°C (77°F) : 1.35 – 1.75 V

at 40°C (104°F) : 0.85 – 1.25 V

HINT:

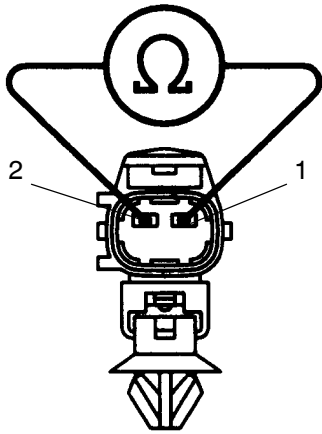
As the temperature increases, the voltage decreases.

NG

Go to step 3.

OK

Proceed to next circuit inspection shown on problem symptoms table (See page DI-59). However, if DTC B1412 is displayed, check and replace engine (and ECT) ECU and A/C control assembly.

3 Check ambient temperature sensor.**PREPARATION:**

Disconnect ambient temperature sensor
(See Pub. No. RM684E on page AC-67).

CHECK:

Measure resistance between terminals 1 and 2 of ambient temperature sensor connector at each temperature.

OK:**Resistance :**

at 25°C (77°F) : 1.6 – 1.8 kΩ

at 50°C (122°F) : 0.5 – 0.7 kΩ

HINT:

As the temperature increases, the resistance decreases.

NOTICE:

When installing the ambient temperature sensor, be sure to connect the sensor connector before connecting the battery.

NG**Replace ambient temperature sensor.****OK****4 Check harness and connector between engine (and ECT) ECU and ambient temperature sensor (See page IN-31).****NG****Repair or replace harness or connector.****OK****5 Check harness and connector between engine (and ECT) ECU and A/C control assembly (See page IN-31).****NG****Repair or replace harness or connector.****OK**

Check and replace engine (and ECT) ECU or A/C control assembly.

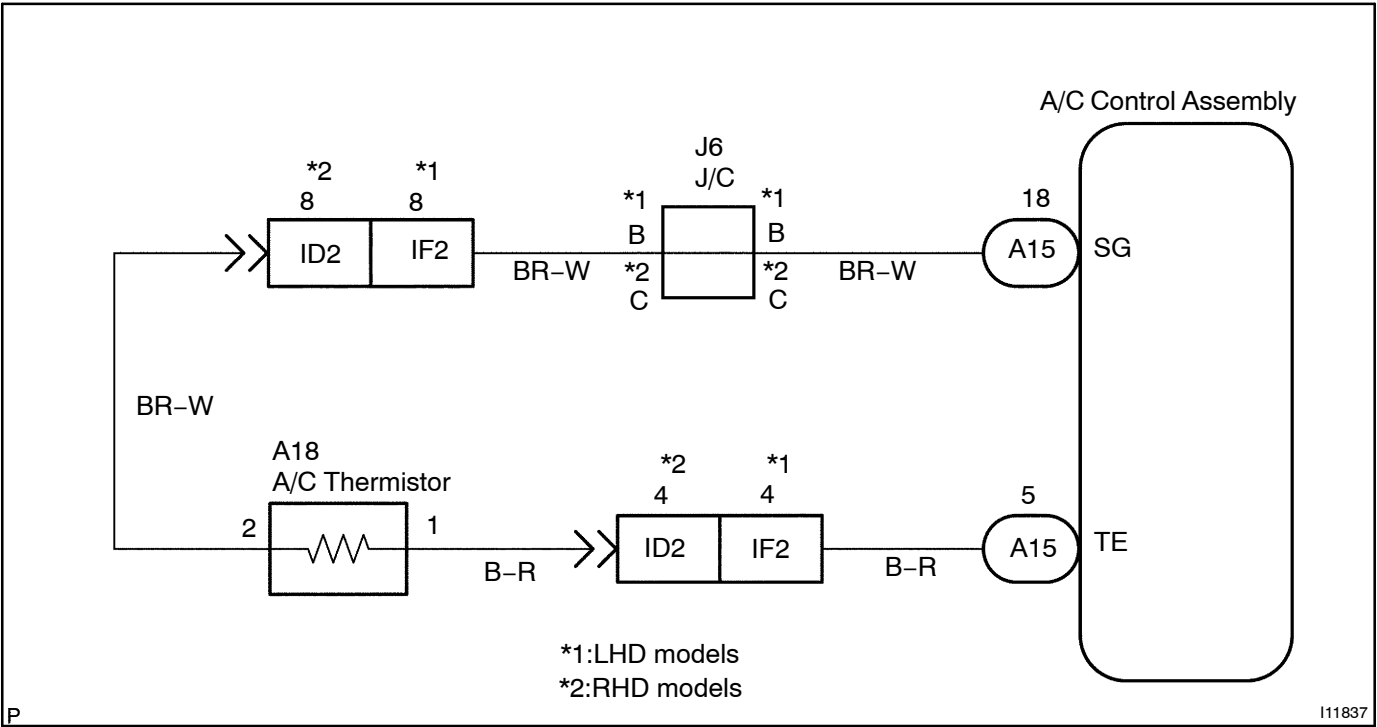
DTC	B1413	Evaporator Temperature Sensor circuit
-----	-------	---------------------------------------

CIRCUIT DESCRIPTION

This sensor detects the temperature inside the A/C unit and sends the appropriate signals to the A/C control assembly.

DTC No.	Detection Item	Trouble Area
B1413	Open or short in evaporator temperature sensor circuit.	• Evaporator temperature sensor. • Harness or connector between evaporator temperature sensor and A/C control assembly. • A/C control assembly.

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

In case of using the hand-held tester start the inspection step 1 and in case of not using the hand-held tester, start from step 2.

1 Check evaporator temp. sensor using hand-held tester.

PREPARATION:

Connect the hand-held tester to the DLC3.

CHECK:

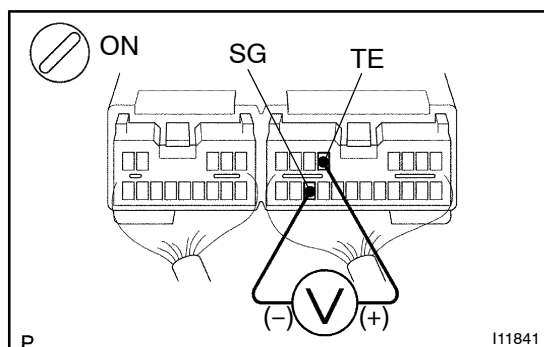
Check the evaporator temp. sensor using DATA LIST.

OK

Check and replace A/C control assembly.

NG

2 Check voltage between terminals TE and SG5 of A/C control assembly connector.



PREPARATION:

Remove the A/C control assembly with connectors still connected.

CHECK:

- Turn ignition switch to ON.
- Measure voltage between terminals TE and SG of A/C control assembly connector at each temperature.

OK:

Voltage :

at 0°C (32°F) : 2.0 – 2.4 V

at 15°C (59°F) : 1.4 – 1.8 V

HINT:

As the temperature increases, the voltage decreases.

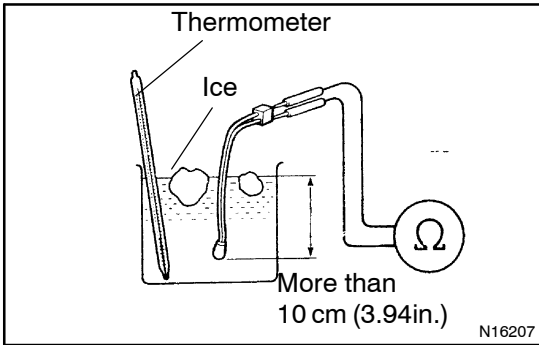
NG

Go to step 3.

OK

Proceed to next circuit inspection shown on problem symptoms table (See page DI-59). However, if DTC B1413 is displayed, check and replace A/C control assembly.

3 Check evaporator temperature sensor.



PREPARATION:

Remove evaporator temperature sensor
(See Pub. No. RM684E on page AC-68).

CHECK:

Measure resistance between terminals 1 and 2 of evaporator temperature sensor connector at each temperature.

OK:

Resistance :

at 0°C (32°F) : 4.5 – 5.2 kΩ

at 15°C (59°F) : 2.0 – 2.7 kΩ

HINT:

As the temperature increases, the resistance decreases.

NG

Replace evaporator temperature sensor.

OK

4 Check harness and connector between A/C control assembly and evaporator temperature sensor (See page IN-31).

NG

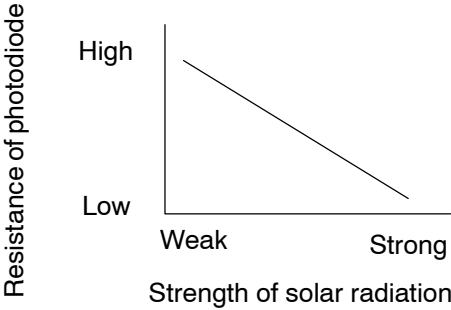
Repair or replace harness or connector.

OK

Check and replace A/C control assembly.

DTC	B1421	Solar Sensor Circuit
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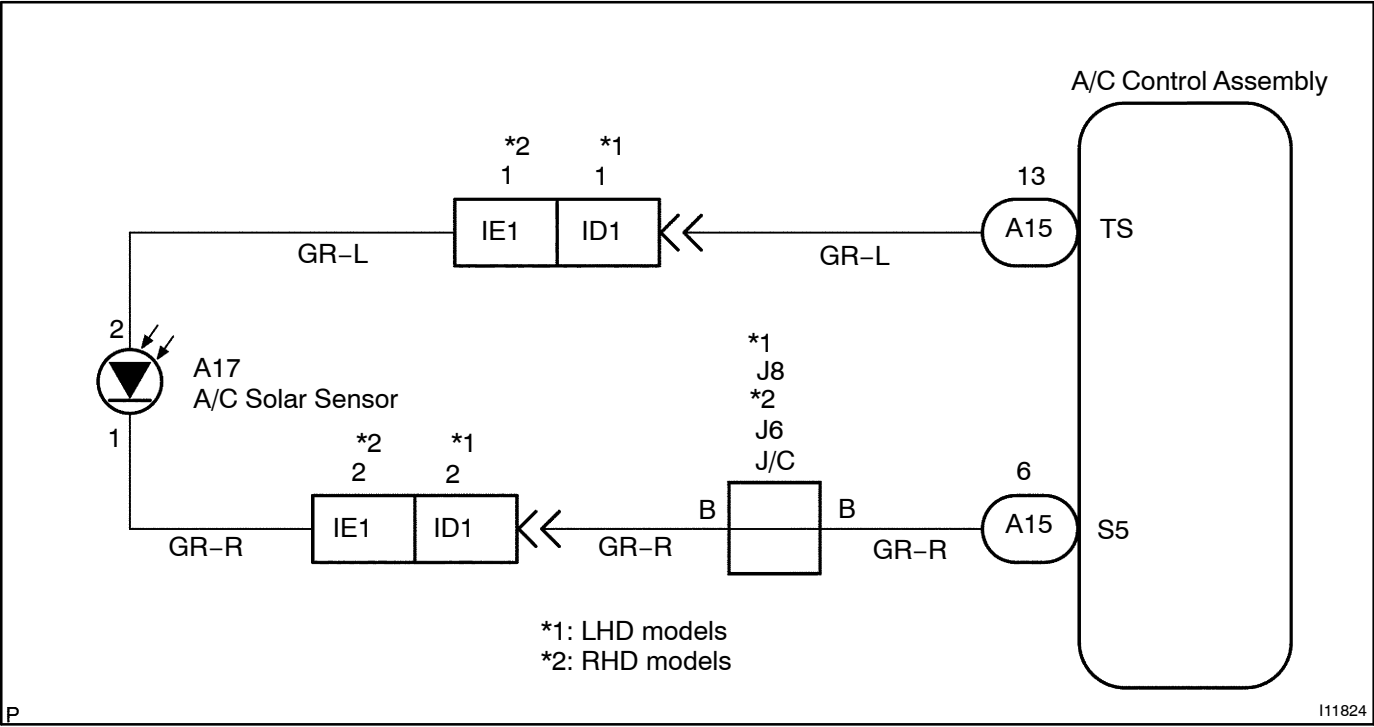
CIRCUIT DESCRIPTION



A photo diode in the solar sensor detects solar radiation and sends signals to the A/C control assembly.

DTC No.	Detection Item	Trouble Area
B1421	Open or short in solar sensor circuit. Please note that display of diagnostic trouble code B1421 is not abnormal when the sensor is not receiving solar radiation.	•Solar sensor. •Harness or connector between solar sensor and A/C control assembly. •A/C control assembly.

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

In case of using the hand-held tester, start the inspection step 1 and in case of not using the hand-held tester, start from step 2.

1 Check solar sensor using hand-held tester.

PREPARATION:

Connect the hand-held tester to the DLC3.

CHECK:

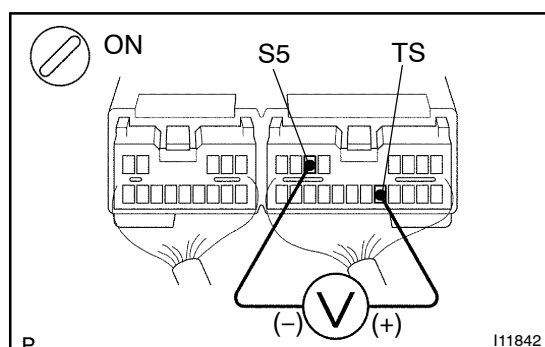
Check the solar sensor using DATA LIST.

OK

Check and replace A/C control assembly.

NG

2 Check voltage between terminals S5 and TS of A/C control assembly connector.



PREPARATION:

Remove A/C control assembly with connectors still connected.

CHECK:

- Turn ignition switch to ON.
- Measure voltage between terminals S5 and TS of A/C control assembly connector when the solar sensor is subjected to an electric light, and when the sensor is covered by a cloth.

OK:

Condition	Voltage
Sensor subjected to electric light	0.8 – 4.3 V
Sensor covered by a cloth	Below 0.8 V

HINT:

As the inspection light is moved away from the sensor, the voltage increases.

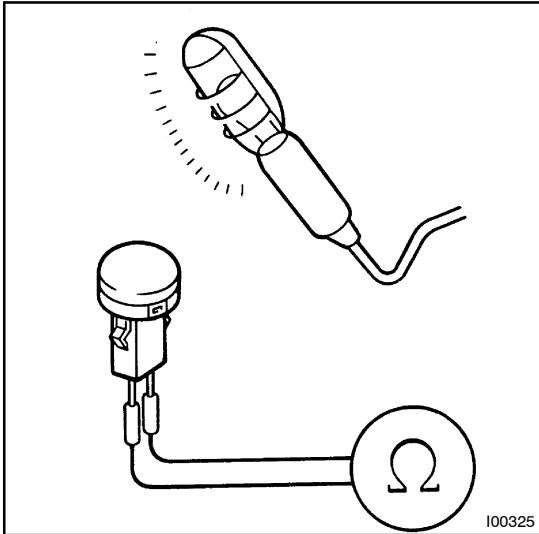
NG

Go to step 3.

OK

Proceed to next circuit inspection shown on problem symptoms table (See page DI-59). However, if DTC B1421 is displayed, check and replace A/C control assembly.

3 Check solar sensor.



PREPARATION:

Remove solar sensor (See Pub. No. RM684E on page AC-65).

CHECK:

- Cover the sensor with a cloth.
- Measure resistance between terminals 1 and 2 of solar sensor connector.

HINT:

Connect positive (+) lead of ohmmeter to terminal 1 and negative (-) lead to terminal 2 of the solar sensor.

OK:

Resistance : $\infty \Omega$ (no continuity)

PREPARATION:

- Remove the cloth from the solar sensor and subject the sensor to electric light.
- Measure resistance.

OK:

Resistance : Approx. 10 k Ω (continuity)

HINT:

As the electric light is moved away from the sensor, the resistance increases.

NG

Replace solar sensor.

OK

4 Check harness and connector between A/C control assembly and solar sensor (See page IN-31).

NG

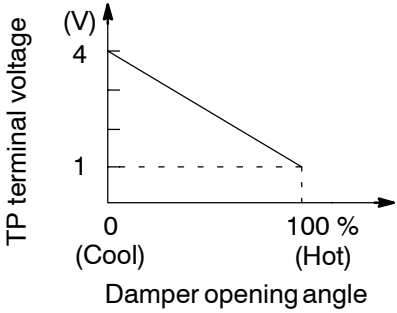
Repair or replace harness or connector.

OK

Check and replace A/C control assembly.

DTC	B1431	Air Mix Damper Position Sensor Circuit
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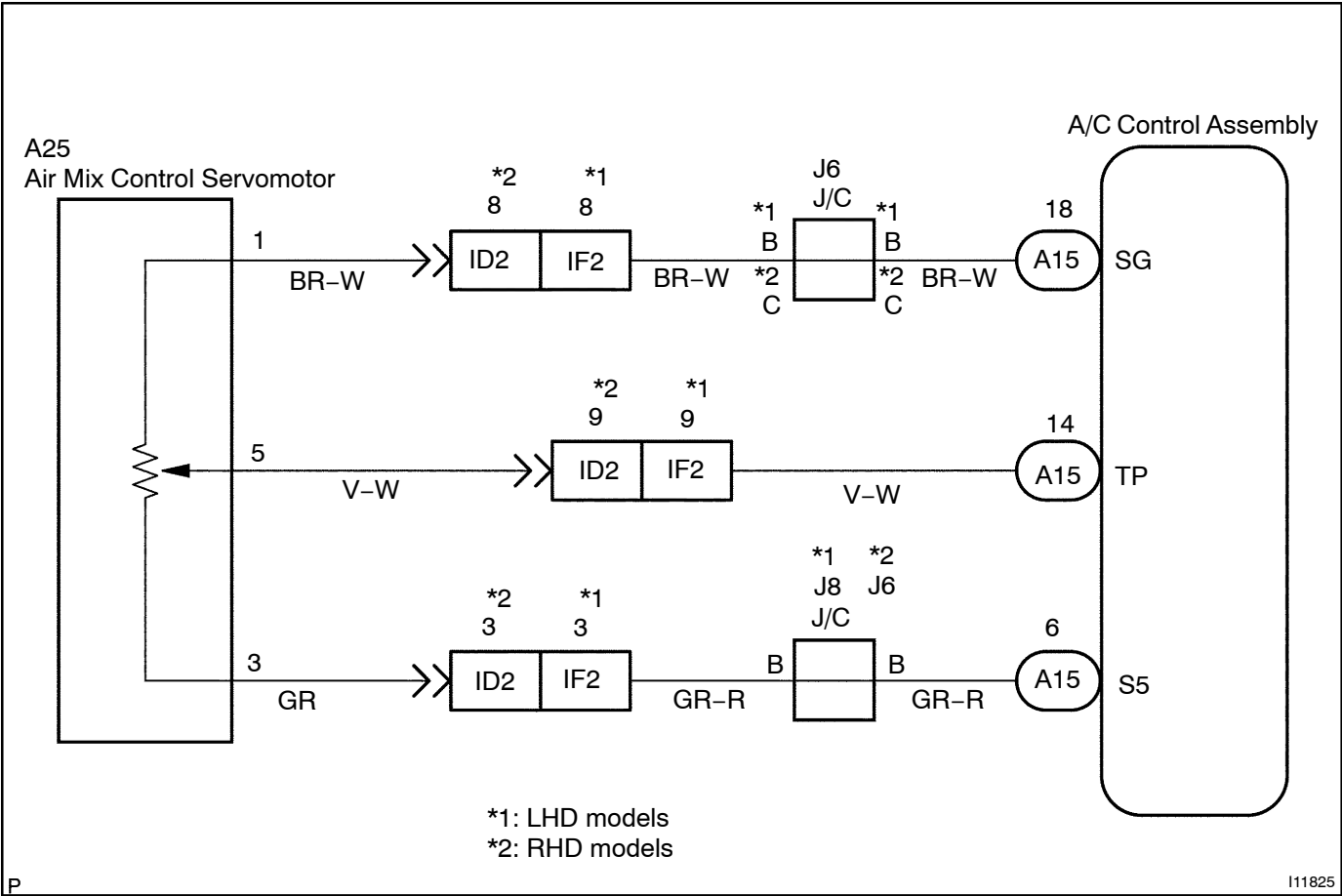
CIRCUIT DESCRIPTION



This sensor detects the position of the air mix damper and sends the appropriate signals to the A/C control assembly. The position sensor is built into the air mix damper control servomotor assembly.

DTC No.	Detection Item	Trouble Area
B1431	Short to ground or power source circuit in air mix damper position sensor circuit.	- Air mix damper position sensor. - Harness or connector between air mix damper control servomotor assembly and A/C control assembly. - A/C control assembly.

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

In case of using the hand-held tester, start the inspection from step1 and in case of not using the hand-held tester, start from step 2.

1 Check air mix damper position using hand-held tester.

PREPARATION:

Connect the hand-held tester to the DLC3.

CHECK:

Check the current position of air mix damper and the target position of air mix damper.

OK:

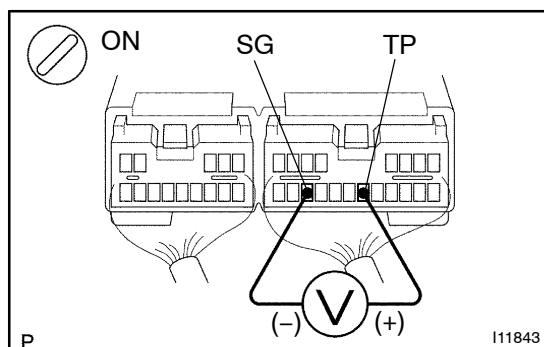
The current position and target position are almost similar.

OK

Check and replace A/C control assembly.

NG

2 Check voltage between terminals TP and SG of A/C control assembly connector.



PREPARATION:

Remove A/C control assembly with connectors still connected.

CHECK:

- Turn ignition switch to ON.
- Change the set temperature to activate the air mix damper control servomotor, and measure the voltage between terminals TP and SG of A/C control assembly connector each time when the set temperature is changed.

OK:

Set Temperature	Voltage
Max. cool	3.5 - 4.5 V
Max. warm	0.5 - 1.5 V

HINT:

As the set temperature increases, the voltage decreases.

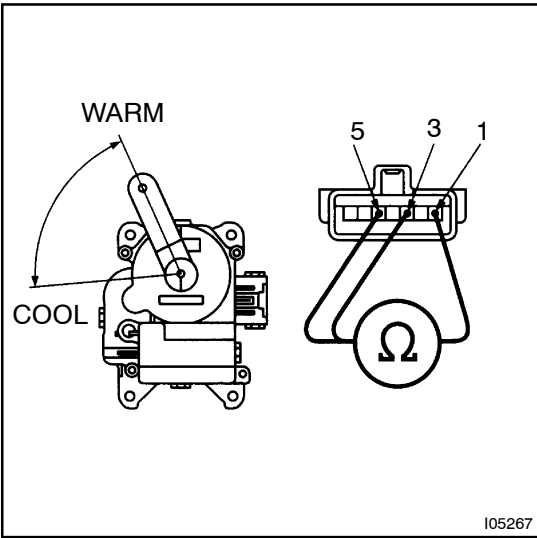
NG

Go to step 3.

Ok

Proceed to next circuit inspection shown on problem symptoms table (See page DI-59). However, if DTC B1431 displayed, check and replace A/C control assembly.

3 Check air mix damper position sensor.



PREPARATION:

Remove the air mix damper control servomotor.

CHECK:

Measure resistance between terminals 1 and 3 of air mix damper control servomotor assembly connector.

OK:

Resistance : 4.2 – 7.8 kΩ

CHECK:

While operating air mix damper control servomotor, following the procedure on [page DI-85](#), measure resistance between terminals 1 and 5 of air mix damper control servomotor assembly connector.

OK:

Position	Resistance
Max. cool	3.6 – 6.8 kΩ
Max. warm	0.5 – 1.1 kΩ

HINT:

As the air mix damper control servomotor moves from cool side to hot side, the resistance decreases.

NG

Replace air mix damper control servomotor assembly.

OK

4 Check harness and connector between A/C control assembly and air mix damper control servomotor assembly ().

NG

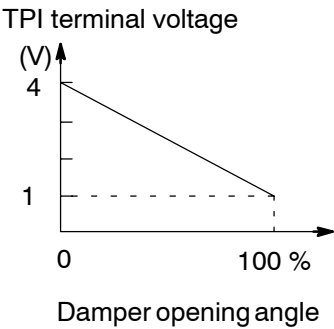
Repair or replace harness or connector.

OK

Check and replace A/C control assembly.

DTC	B1432	Air Inlet Damper Position Sensor Circuit
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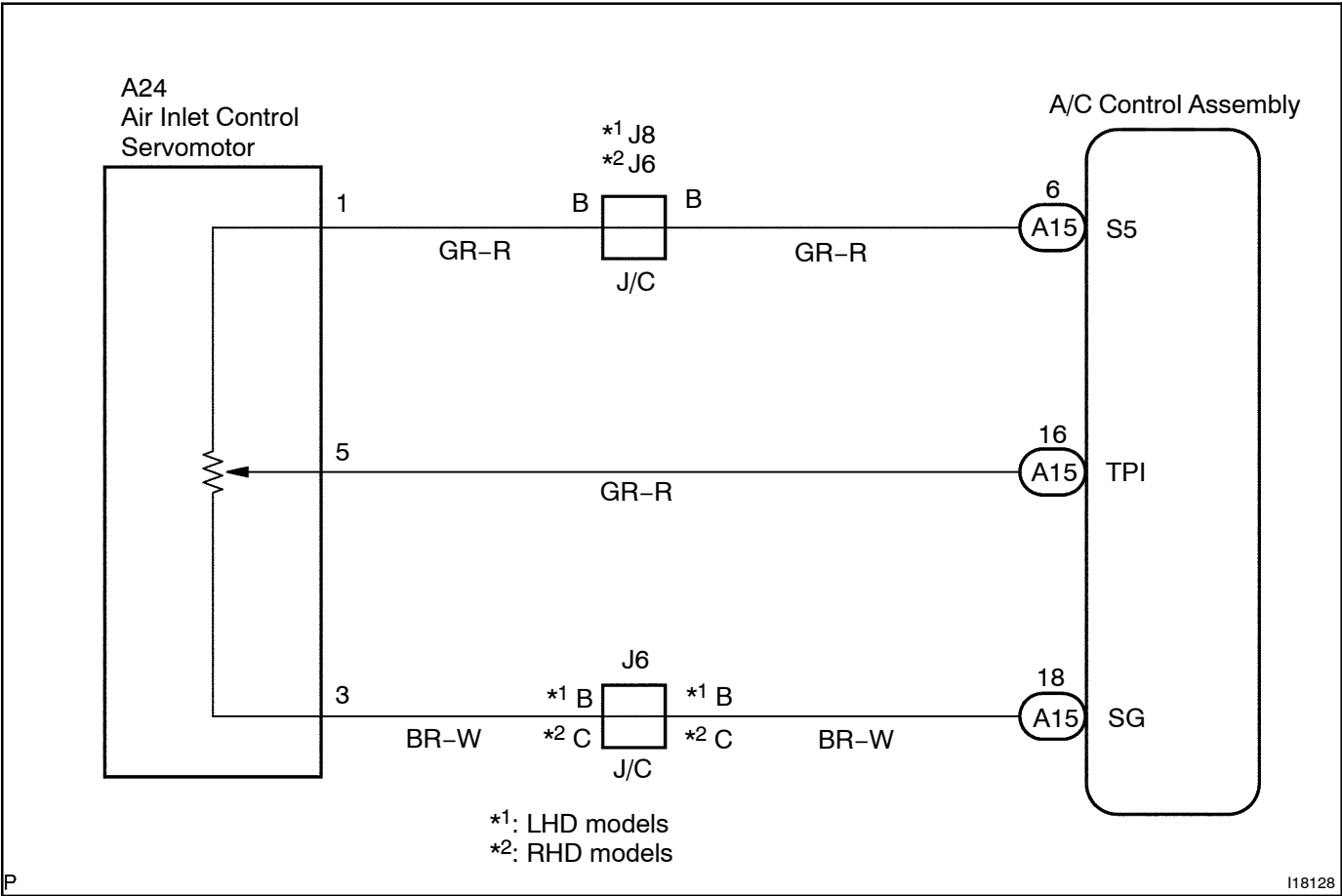
CIRCUIT DESCRIPTION



This sensor detects the position of the air inlet damper and sends the appropriate signals to the A/C control assembly. The position sensor is built into the air inlet damper control servomotor assembly.

DTC No.	Detection Item	Trouble Area
B1432	Short to ground or power source circuit in air inlet damper position sensor circuit.	• Air inlet damper position sensor. • Harness or connector between air inlet damper control servomotor assembly and A/C control assembly. • A/C control assembly.

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

In case of using the hand-held tester, start the inspection from step1 and in case of not using the hand-held tester, start from step2.

1 Check air inlet damper position using hand-held tester.

PREPARATION:

Connect the hand-held tester to the DLC3.

CHECK:

Check the current position of air inlet damper and the target position of air inlet damper.

OK:

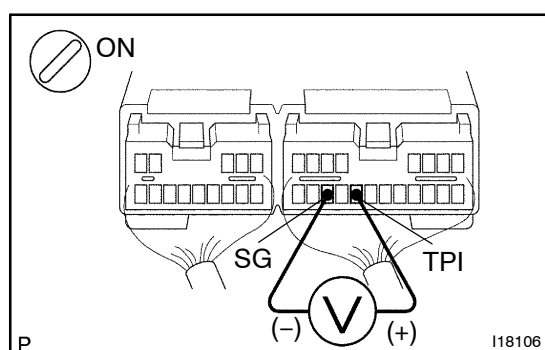
The current position and target position are almost similar.

OK

Check and replace A/C control assembly.

NG

2 Check voltage between terminals TPI and SG of A/C control assembly connector.



PREPARATION:

Remove A/C control assembly with connectors still connected.

CHECK:

- Turn ignition switch ON.
- Press REC/FRS switch to change air inlet between fresh and recirculation air, and measure voltage between terminals TPI and SG of A/C control assembly when the air inlet damper control servomotor operates.

OK:

FRS-REC Switch	Voltage
REC	3.5 – 4.5 V
FRS	0.5 – 1.5 V

HINT:

As the air inlet damper control servomotor is moved from REC side to FRS side, the voltage decreases.

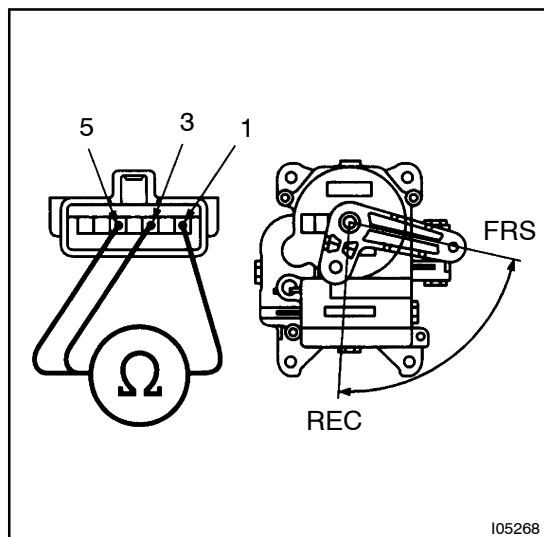
NG

Go to step 3.

OK

Proceed to next circuit inspection shown on problem symptoms table (See page DI-59). However, if DTC B1432/32 is displayed, check and replace A/C control assembly.

3 Check air inlet damper position sensor.



PREPARATION:

Remove the air inlet damper control servomotor.

CHECK:

Measure resistance between terminals 1 and 3 of air inlet damper control servomotor assembly connector.

OK:

Resistance : 4.2 – 7.8 kΩ

CHECK:

While operating air inlet damper control servomotor, following the procedure on [page DI-82](#), measure resistance between terminals 1 and 5 of air inlet damper control servomotor assembly connector.

OK:

Resistance

Damper Position	Resistance
REC side	3.1 – 5.8 kΩ
FRS side	0.8 – 1.6 kΩ

HINT:

As the air inlet damper control servomotor moves from REC side to FRS side, the resistance decreases.

NG

Replace air inlet damper control servomotor assembly.

OK

4 Check harness and connectors between A/C control assembly and air inlet damper control servomotor assembly ([See page IN-31](#)).

NG

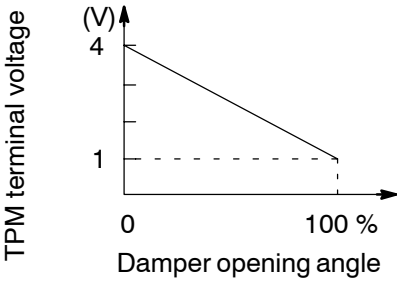
Repair or replace harness or connector.

OK

Check and replace A/C control assembly.

DTC	B1433	Air Outlet Damper Position Sensor Circuit
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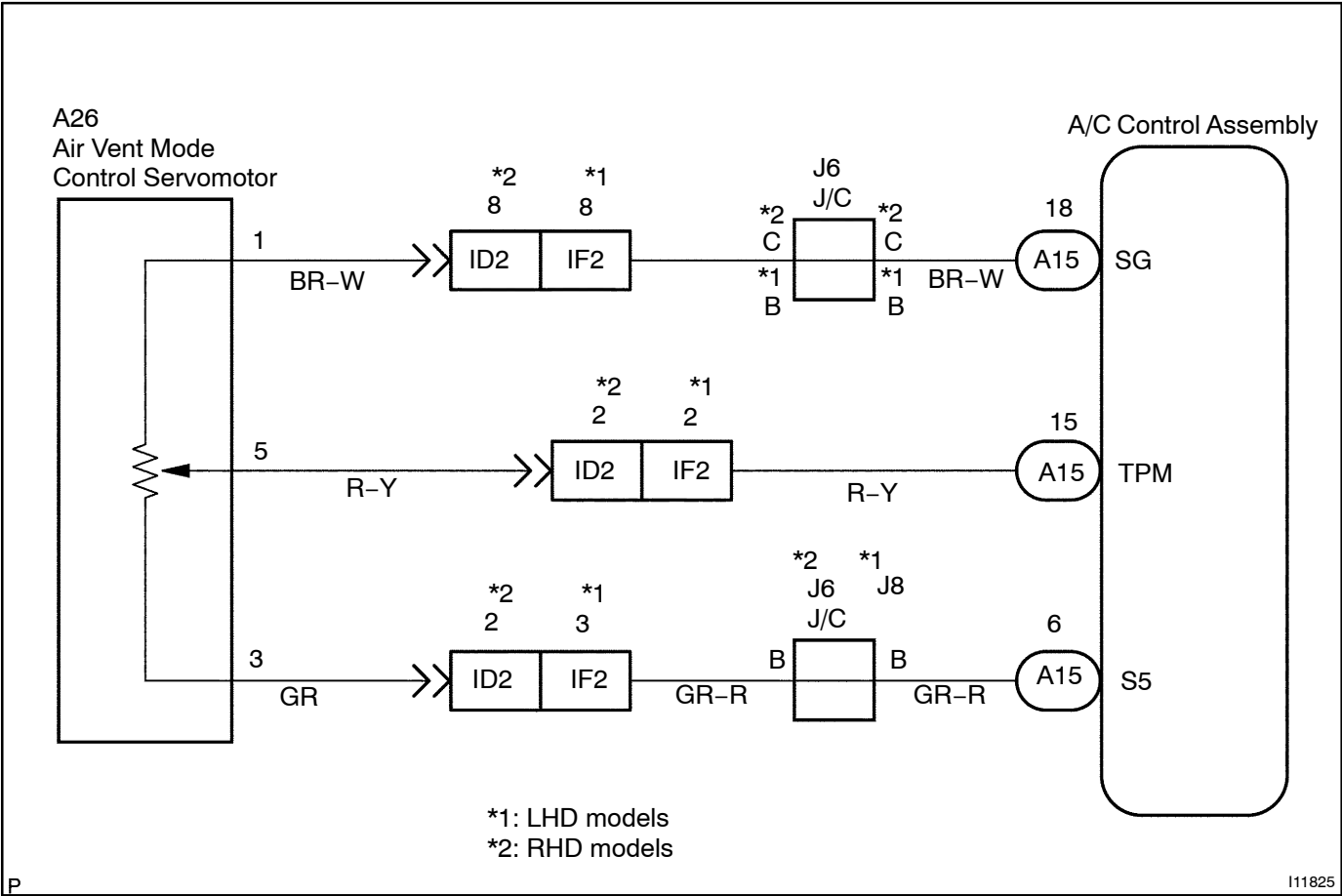
CIRCUIT DESCRIPTION



This sensor detects the position of the air mix damper and sends the appropriate signals to the A/C control assembly. The position sensor is built into the air outlet damper control servomotor assembly.

DTC No.	Detection Item	Trouble Area
B1433	Short to ground or power source circuit in air outlet damper position sensor circuit.	- Air outlet damper position sensor. - Harness or connector between air outlet damper control servomotor assembly and A/C control assembly. - A/C control assembly.

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

In case of using the hand-held tester, start the inspection from step1 and in case of not using the hand-held tester, start from step2.

1 Check air outlet damper position using hand-held tester.

PREPARATION:

Connect the hand-held tester to the DLC3.

CHECK:

Check the current position of air outlet damper and the target position of air outlet damper.

OK:

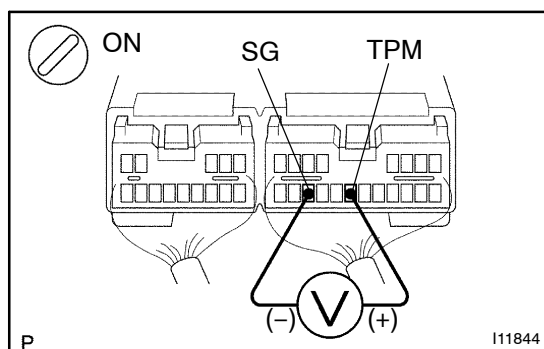
The current position and target position are almost similar.

OK

Check and replace A/C control assembly.

NG

2 Check voltage between terminals TPM and SG of A/C control assembly connector.



PREPARATION:

- Remove A/C control assembly with connectors still connected.
- Turn ignition switch to ON.

CHECK:

Measure the voltage between terminals TPM and SG of A/C control assembly.

OK:

Mode selector	Voltage
FACE	3.5 – 4.5 V
DEF	0.5 – 1.5 V

HINT:

As the air outlet damper control servomotor is moved from FACE side to DEF side, the voltage decreases gradually without interruption.

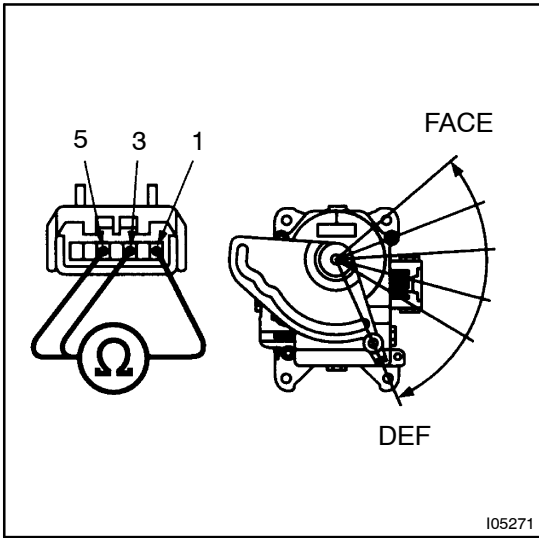
NG

Go to step 3.

OK

Proceed to next circuit inspection shown on problem symptoms table (See page DI-59). However, if DTC B1434 is displayed, check and replace A/C control assembly.

3 Check air outlet damper position sensor.



PREPARATION:

Remove the air outlet servomotor.

CHECK:

Measure resistance between terminals 1 and 3 of air outlet servomotor assembly connector.

OK:

Resistance : 4.2 – 7.8 kΩ

CHECK:

While operating air outlet damper control servomotor as in the procedure on [page DI-88](#), measure resistance between terminals 3 and 5 of air outlet damper control servomotor.

OK:

Resistance:

Damper Position	Resistance
DEF	0.5 – 1.1 kΩ
FACE	3.6 – 6.8 kΩ

HINT:

As the air outlet servomotor moves from DEF side to FACE side, the resistance decreases gradually without interruption.

NG

Replace air outlet damper control servomotor assembly.

OK

4 Check harness and connector between A/C control assembly and air outlet damper control servomotor assembly ([See page IN-31](#)).

NG

Repair or replace harness or connector.

OK

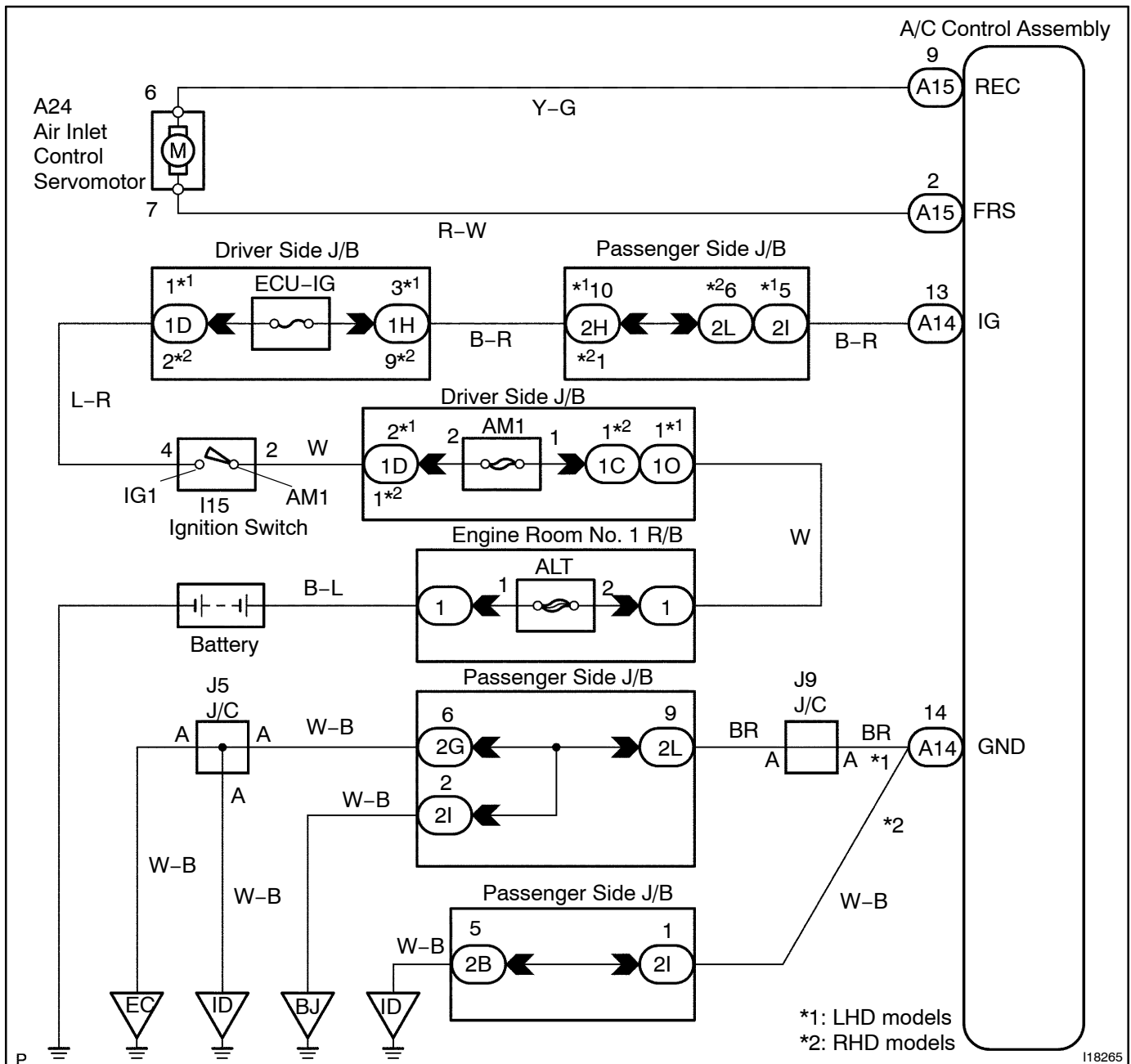
Check and replace A/C control assembly.

Air Inlet Damper Control Servomotor Circuit

CIRCUIT DESCRIPTION

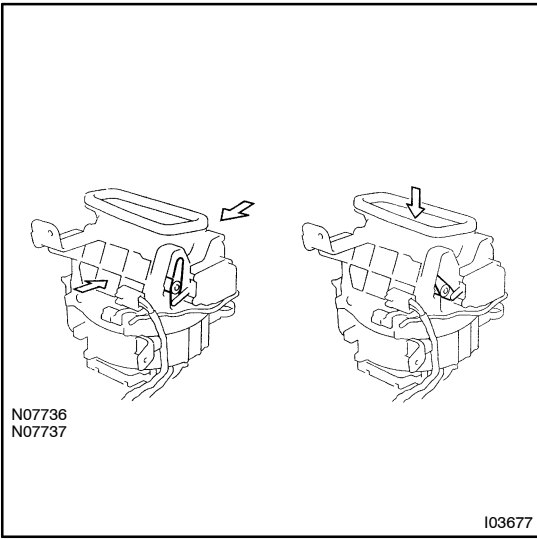
The air inlet damper control servomotor is controlled by the A/C control assembly and moves the air inlet damper to the desired position.

WIRING DIAGRAM



INSPECTION PROCEDURE

1 Actuator check.



PREPARATION:

Connect the hand-held tester to the DLC3.

CHECK:

- Enter into ACTIVE TEST function of hand-held tester.
- Check air inlet damper operates as hand-held tester directs.

OK:

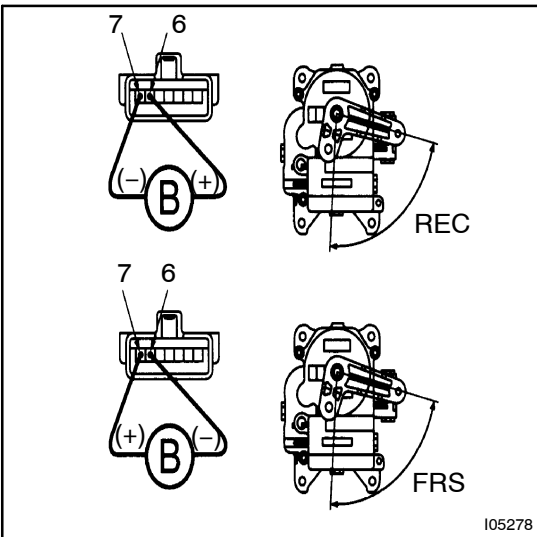
Display Code	Air Inlet Damper
0	FRS
1, 2	REC/FRS
3 – 9	REC

OK

Proceed to next circuit inspection shown on problem symptoms table (See page DI-59).

NG

2 Check air inlet damper control servomotor.



PREPARATION:

Remove the air inlet damper control servomotor.

CHECK:

Connect positive (+) lead to terminal 6 and negative (-) lead to terminal 7.

OK:

The lever moves smoothly to REC position.

CHECK:

Connect positive (+) lead to terminal 7 and negative (-) lead to terminal 6.

OK:

The lever moves smoothly to FRS position.

NG

Replace air inlet damper control servomotor assembly.

OK

3

Check harness and connector between A/C control assembly and air inlet damper control servomotor ([See page IN-31](#)).

NG

Repair or replace harness or connector.

OK

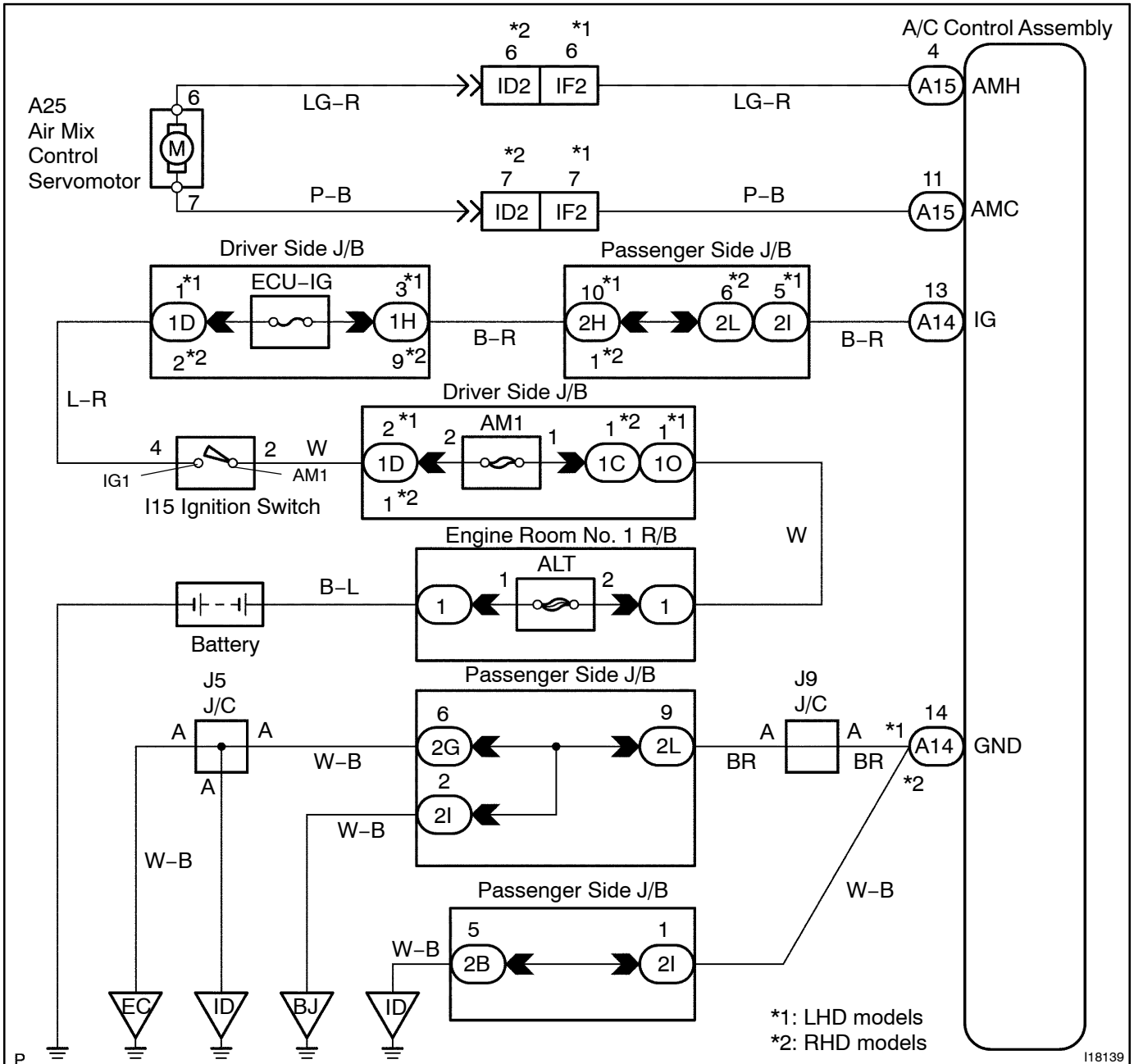
Check and replace A/C control assembly.

Air Mix Damper Control Servomotor Circuit

CIRCUIT DESCRIPTION

The air mix damper control servomotor is controlled by the A/C control assembly and moves the air mix damper to the desired position.

WIRING DIAGRAM



INSPECTION PROCEDURE

1 Actuator check.

PREPARATION:

Connect the hand-held tester to the DLC3.

CHECK:

- (a) Enter into ACTIVE TEST function of hand-held tester.
- (b) Check air mix damper operates as hand-held tester directs.

OK:

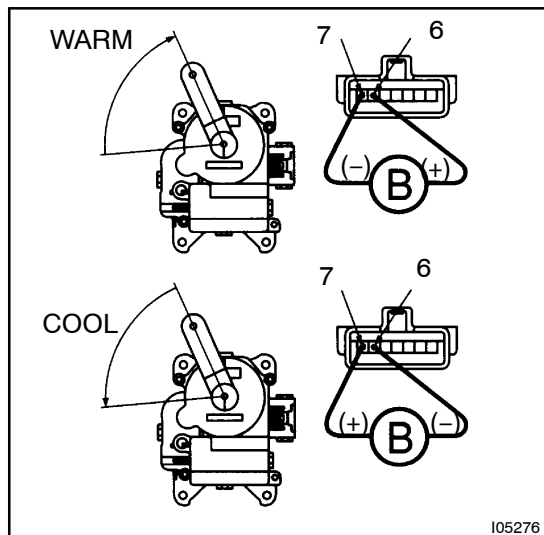
Pattern No.	Air Mix Damper	Condition
0 – 3	0% (Fully closed)	Cool air comes out
4 – 5	50%	
6 – 9	100% (Fully opened)	Warm air comes out

OK

Proceed to next circuit inspection shown on problem symptoms table ([See page DI-59](#)).

NG

2 Check air mix damper control servomotor.

**PREPARATION:**

Remove air mix damper control servomotor.

CHECK:

Connect positive (+) lead to terminal 6 and negative (-) lead to terminal 7.

OK:

The lever turns smoothly to Hot side.

CHECK:

Connect positive (+) lead to terminal 7 and negative (-) lead to terminal 6.

OK:

The lever turns smoothly to Cool side.

NG

Replace air mix damper control servomotor assembly.

OK

3	Check harness and connector between A/C control assembly and air mix damper control servomotor assembly (See page IN-31).
---	---

NG

Repair or replace harness or connector.

OK

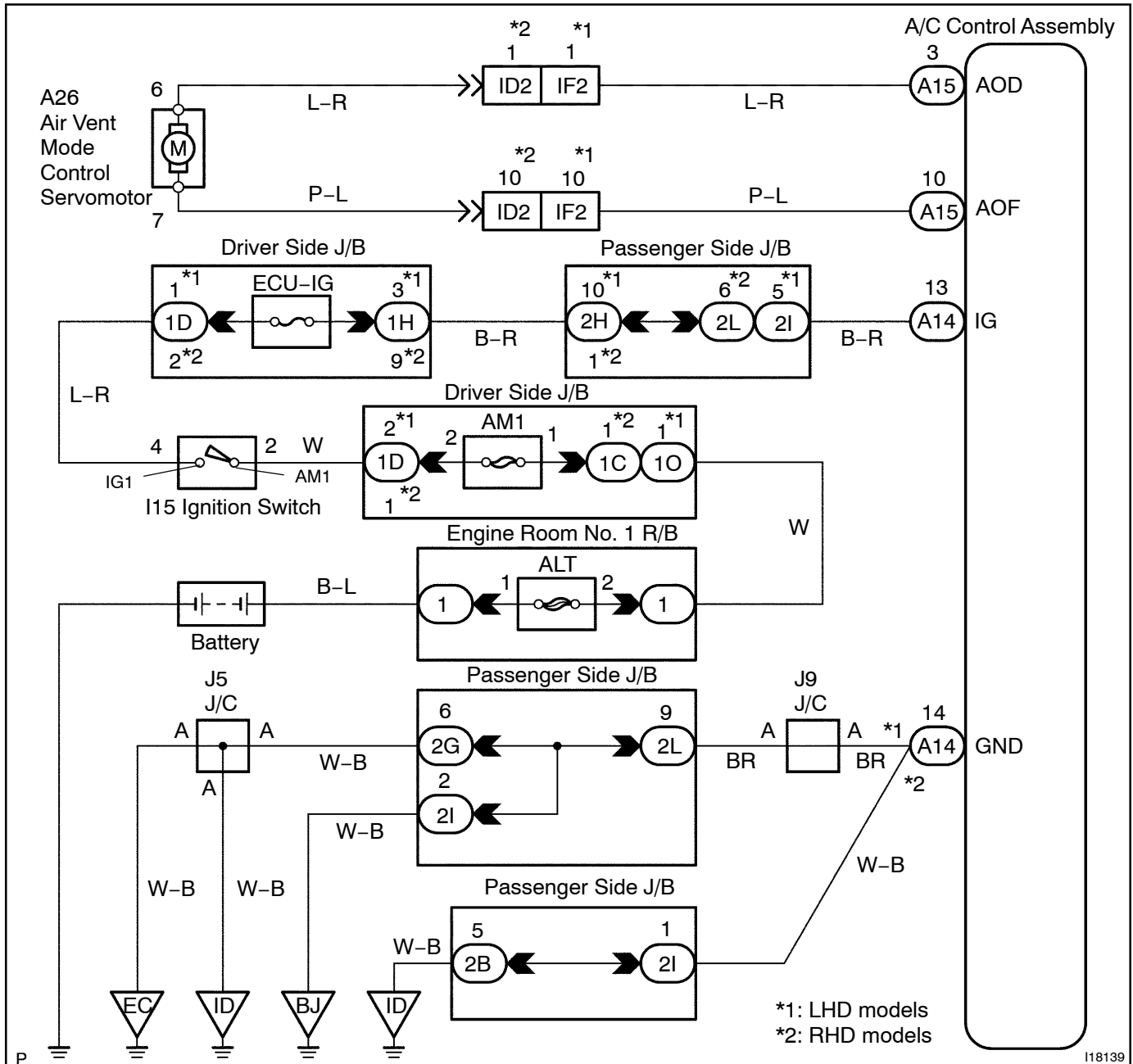
Check and replace A/C control assembly.

Air Outlet Damper Control Servomotor Circuit

CIRCUIT DESCRIPTION

This circuit turns the servomotor and changes each mode damper position by the signals from the A/C control assembly. When the AUTO switch is on, the A/C control assembly changes the mode automatically between (FACE), (BI-LEVEL) and (FOOT) according to the temperature setting.

WIRING DIAGRAM



I18139

INSPECTION PROCEDURE

1 Actuator check.

Pattern NO.	Air Flow
0 ~ 4	FACE
5	BI-LEVEL
6, 7	FOOT
8	FOOT/DEF
9	DEF

PREPARATION:

Connect the hand-held tester to the DLC3.

CHECK:

- Enter into ACTIVE TEST function of hand-held tester.
- Check mode damper operates as hand-held tester directs.

OK:

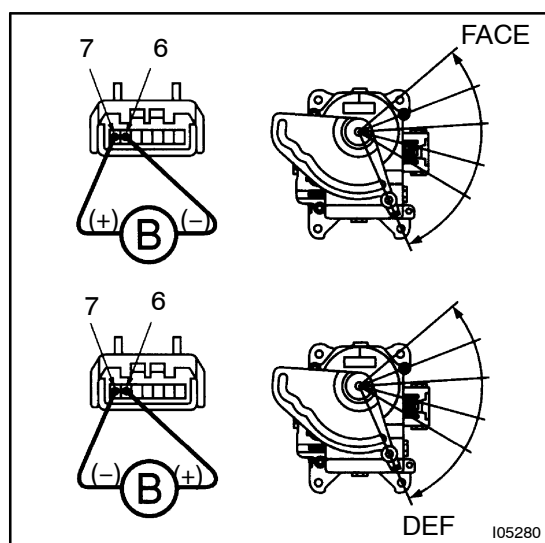
The mode changes with the change in the hand-held tester as shown in the table.

OK

Proceed to next circuit inspection shown on problem symptoms table (See page DI-59).

NG

2 Check air outlet damper control servomotor.

**PREPARATION:**

Remove the air outlet damper control servomotor.

CHECK:

Connect positive (+) lead to terminal 7 and negative (-) lead to terminal 6.

OK:

The lever moves smoothly to FACE position.

CHECK:

Connect positive (+) lead to terminal 6 and negative (-) lead to terminal 7.

OK:

The lever moves smoothly to DEF position.

NG

Replace air outlet servomotor.

OK

- | | |
|----------|---|
| 3 | Check for open and short in harness and connector between A/C control assembly and outlet servomotor, outlet damper control servomotor and battery, outlet damper control servomotor and body ground (See page IN-31). |
|----------|---|

NG

Repair or replace harness or connector.

OK

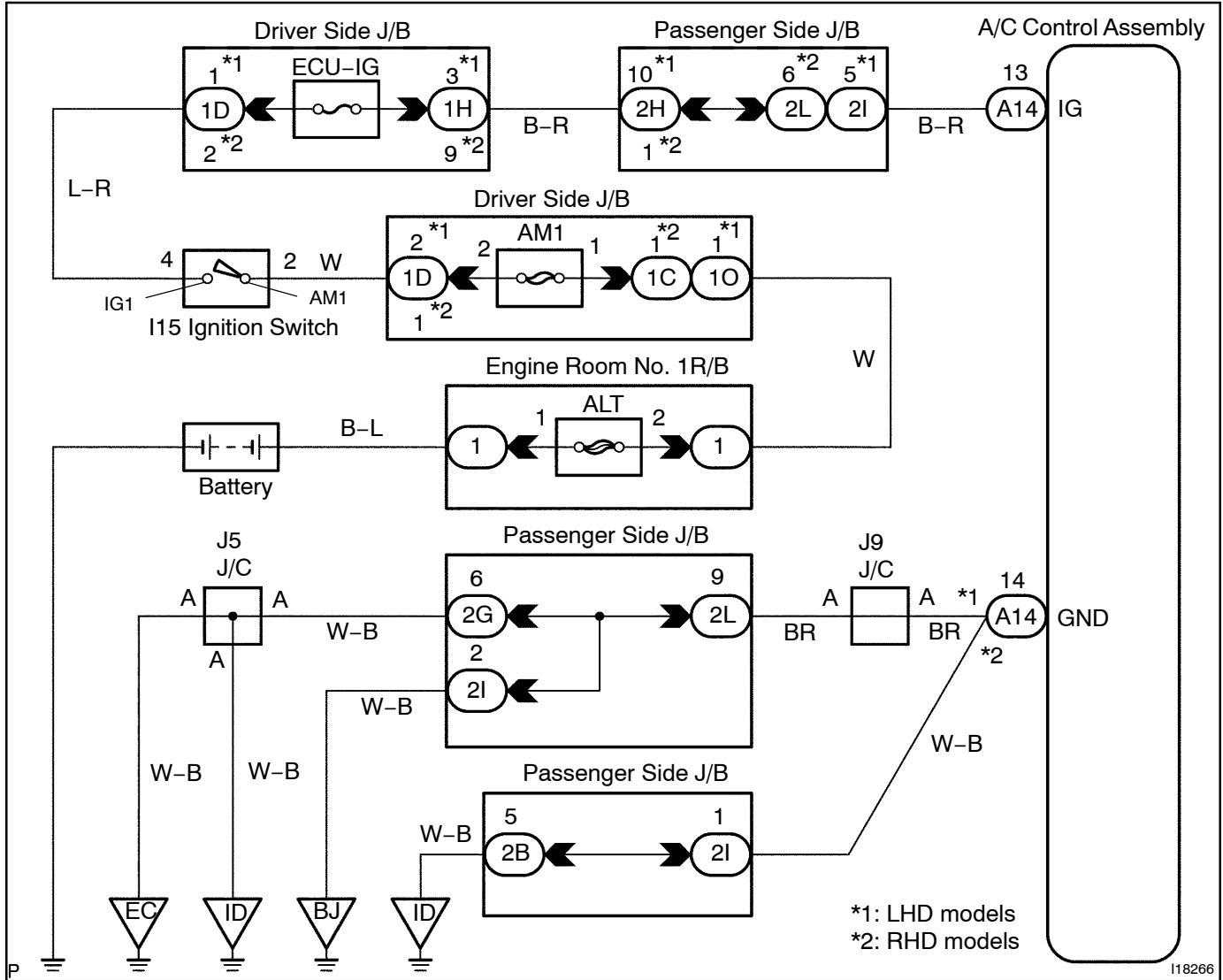
Check and replace A/C control assembly.

IG Power Source Circuit

CIRCUIT DESCRIPTION

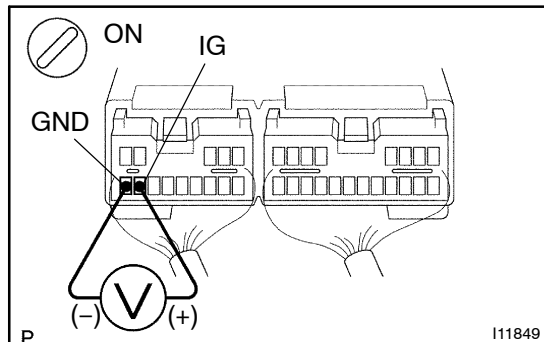
This is the power source for the A/C control assembly (contains the ECU) and servomotors, etc.

WIRING DIAGRAM



INSPECTION PROCEDURE

- | | |
|---|--|
| 1 | Check voltage between terminals IG and GND of A/C control assembly connector. |
|---|--|

**PREPARATION:**

- (a) Remove A/C control assembly with connectors still connected.
- (b) Turn ignition switch to ON.

CHECK:

Measure voltage between terminals IG and GND of A/C control assembly.

OK:

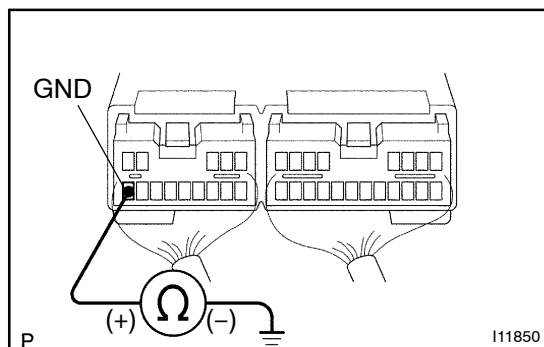
Voltage : 10 – 14 V

OK

Proceed to next circuit inspection shown on problem symptoms table ([See page DI-59](#)).

NG

- | | |
|---|---|
| 2 | Check continuity between terminal GND of A/C control assembly and body ground. |
|---|---|

**CHECK:**

Measure resistance between terminal GND of A/C control assembly and body ground.

OK:

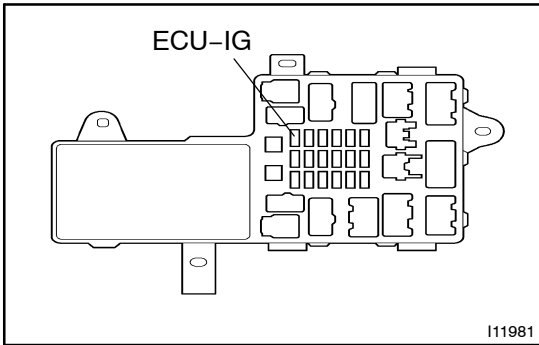
Resistance : 0 Ω (Continuity)

NG

Repair or replace harness or connector.

OK

3 Check ECU-IG fuse.



PREPARATION:

Remove ECU-IG fuse from driver side J/B.

CHECK:

Check continuity of ECU-IG fuse.

OK:

Continuity exists.

NG

Check for short in all the harness and components connected to the ECU-IG fuse (See attached wiring diagram).

OK

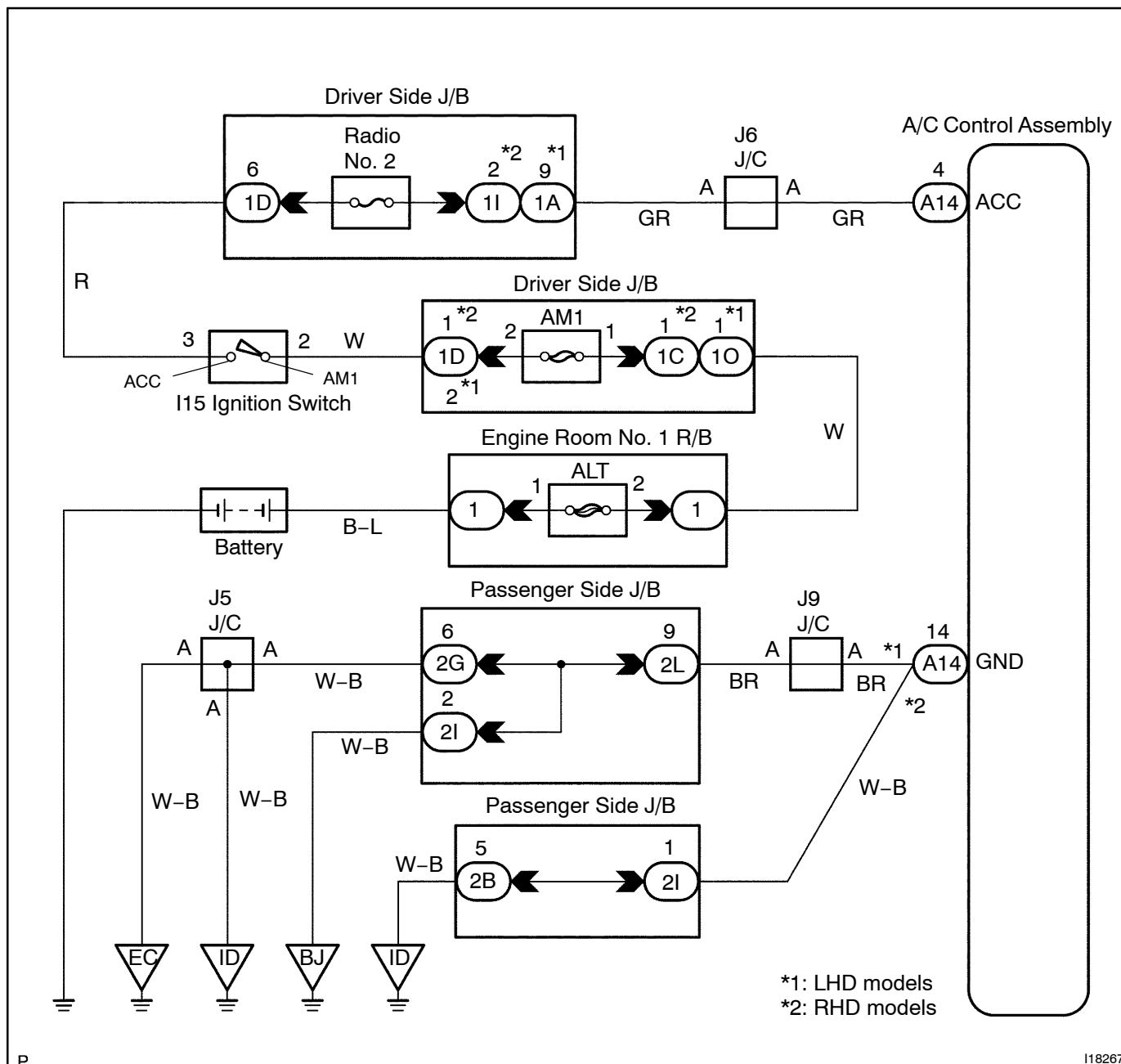
Check and repair harness and connector between A/C control assembly and battery.

ACC Power Source Circuit

CIRCUIT DESCRIPTION

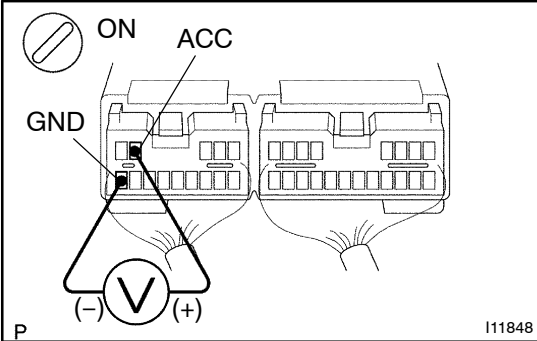
This is the power source for A/C control assembly and servomotors, etc.

WIRING DIAGRAM



INSPECTION PROCEDURE

- 1 Check voltage between terminals ACC and GND of A/C control assembly connector.



PREPARATION:

Remove A/C control assembly with connectors still connected.

CHECK:

- (a) Turn ignition switch to AAC.
- (b) Measure voltage between terminals ACC and GND of A/C control assembly.

OK:

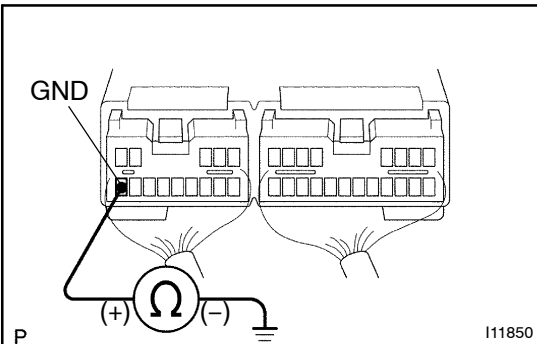
Voltage : Battery voltage

OK

Proceed to next circuit inspection shown on problem symptoms table ([See page DI-59](#)).

NG

- 2 Check continuity between terminal GND of A/C control assembly and body ground.



CHECK:

Measure resistance between terminal GND of A/C control assembly and body ground.

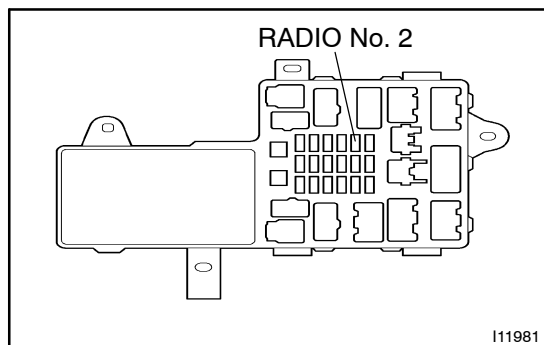
OK:

Resistance : 0 Ω (continuity)

NG

Repair or replace harness or connector.

OK

3 Check RADIO No.2 fuse.**PREPARATION:**

Remove RADIO No.2 fuse from driver side J/B.

CHECK:

Check continuity of RADIO No.2.

OK:

Continuity

NG

Check for short in all the harness and components connected to the RADIO No.2 fuse (See attached wiring diagram).

OK

Check and repair harness and connector between A/C control assembly and battery.

HOW TO USE THIS MANUAL

GENERAL INFORMATION

IN00U-64

1. INDEX

An INDEX is provided on the first page of each section to guide you to the item to be repaired. To assist you in finding your way through the manual, the Section Title and major heading are given at the top of every page.

2. GENERAL DESCRIPTION

At the beginning of each section, a General Description is given that pertains to all repair operations contained in that section.

Read these precautions before starting any repair task.

3. TROUBLESHOOTING

TROUBLESHOOTING tables are included for each system to help you diagnose the problem and find the cause. The fundamentals of how to proceed with troubleshooting are described on page IN-21.

Be sure to read this before performing troubleshooting.

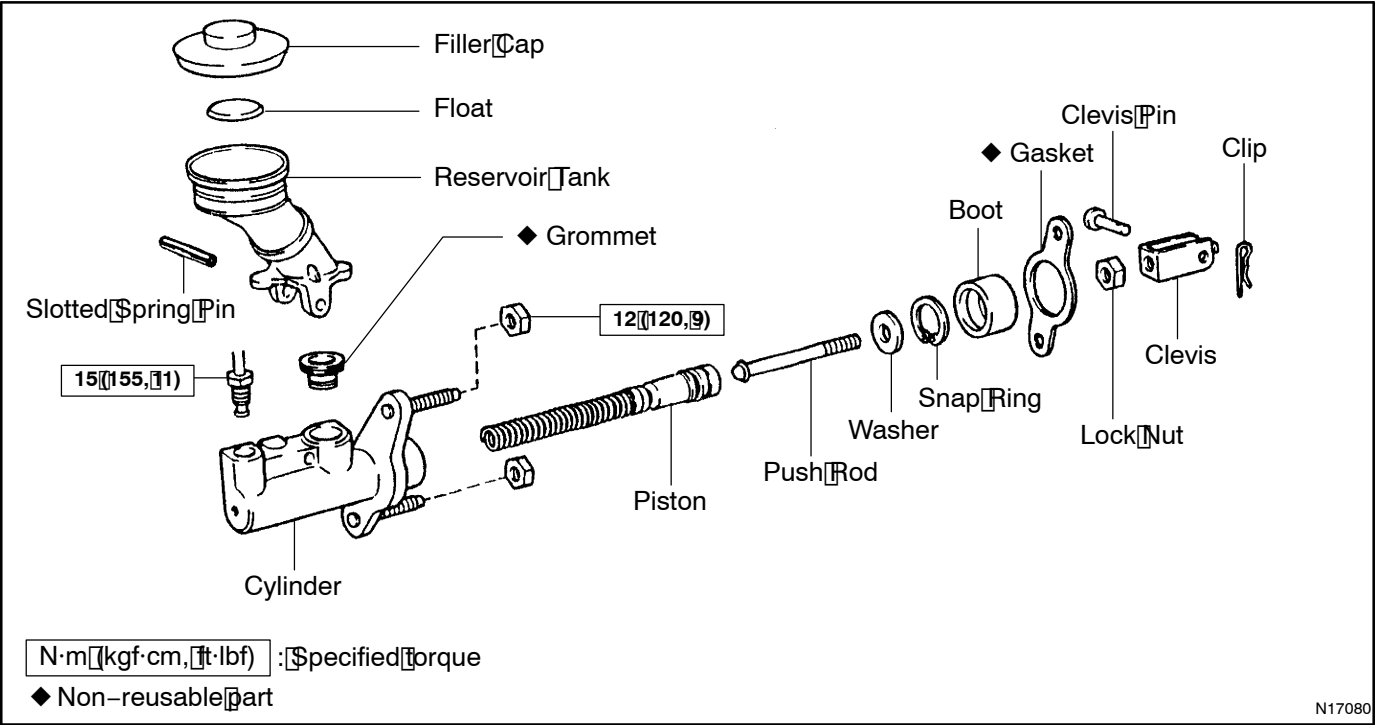
4. PREPARATION

Preparation lists the SST (Special Service Tools), recommended tools, equipment, lubricant and SSM (Special Service Materials) which should be prepared before beginning the operation and explains the purpose of each one.

5. REPAIR PROCEDURES

Most repair operations begin with an overview illustration. It identifies the components and shows how the parts fit together.

Example:



The procedures are presented in a step-by-step format:

- The illustration shows what to do and where to do it.
- The task heading tells what to do.
- The detailed text tells how to perform the task and gives other information such as specifications and warnings.

Example:

*Illustration:
what to do and where*

Task heading : what to do

21. CHECK PISTON STROKE OF OVERDRIVE BRAKE

(a) Place SST and a dial indicator onto the overdrive brake piston as shown in the illustration.

SST 09350-30020 (09350-06120)

Set part No.

Component part No.

Detailed text : how to do task

(b) Measure the stroke applying and releasing the compressed air (392 — 785 kPa, 4 — 8 kgf/cm² or 57 — 114 psi) as shown in the illustration.

Piston stroke: 1.40 — 1.70 mm (0.0551 — 0.0669 in.)

Specification

This format provides the experienced technician with a FAST TRACK to the information needed. The upper case task heading can be read at a glance when necessary, and the text below it provides detailed information. Important specifications and warnings always stand out in bold type.

6. REFERENCES

References have been kept to a minimum. However, when they are required you are given the page to refer to.

7. SPECIFICATIONS

Specifications are presented in bold type throughout the text where needed. You never have to leave the procedure to look up your specifications. They are also found in Service Specifications section for quick reference.

8. CAUTIONS, NOTICES, HINTS:

- CAUTIONS are presented in bold type, and indicate there is a possibility of injury to you or other people.
- NOTICES are also presented in bold type, and indicate the possibility of damage to the components being repaired.
- HINTS are separated from the text but do not appear in bold. They provide additional information to help you perform the repair efficiently.

9. SI UNIT

The UNITS given in this manual are primarily expressed according to the SI UNIT (International System of Unit), and alternately expressed in the metric system and in the English System.

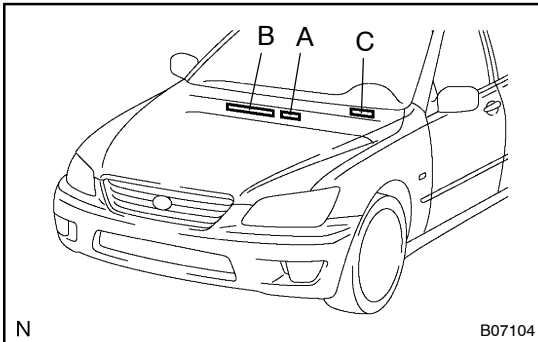
Example:

Torque: 30 N·m (310 kgf·cm, 22 ft·lbf)

IDENTIFICATION INFORMATION

VEHICLE IDENTIFICATION AND ENGINE SERIAL NUMBER

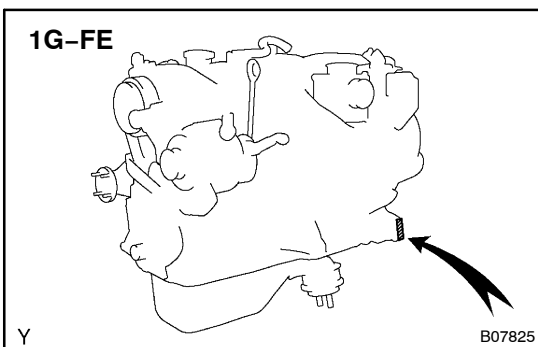
IN04P-04



1. VEHICLE IDENTIFICATION NUMBER

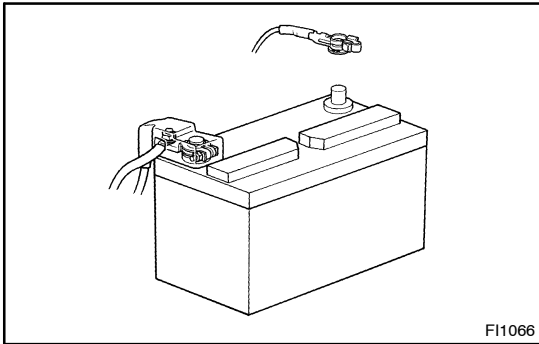
The vehicle identification number is stamped on the cowl panel. This number has also been stamped on the manufacture's plate and the identification number plate (Europe RHD), as shown in the illustration.

- A: Manufacture's Plate
- B: Vehicle Identification Number
- C: Identification Number Plate (Europe RHD)



2. ENGINE SERIAL NUMBER

The engine serial number is stamped on the engine block, as shown in the illustration.



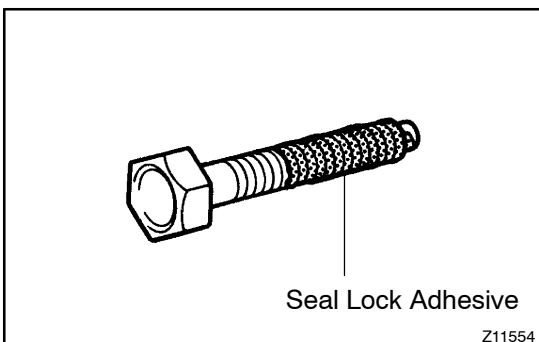
REPAIR INSTRUCTIONS

GENERAL INFORMATION

IN0DC-09

BASIC REPAIR HINT

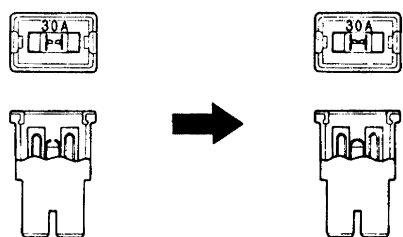
- (a) Use fender, seat and floor covers to keep the vehicle clean and prevent damage.
- (b) During disassembly, keep parts in the appropriate order to facilitate reassembly.
- (c) Installation and removal of battery terminal:
 - (1) Before performing electrical work, disconnect the negative (-) terminal cable from the battery.
 - (2) If it is necessary to disconnect the battery for inspection or repair, first disconnect the negative (-) terminal cable.
 - (3) When disconnecting the terminal cable, to prevent damage to the battery terminal, loosen the cable nut and raise the cable straight up without twisting or prying it.
 - (4) Clean the battery terminals and cable ends with a clean shop rag. Do not scrape them with a file or other abrasive objects.
 - (5) Install the cable ends to the battery terminals after loosening the nut, and tighten the nut after installation. Do not use a hammer to tap the cable ends onto the terminals.
 - (6) Be sure the cover for the positive (+) terminal is properly in place.
- (d) Check hose and wiring connectors to make sure that they are connected securely and correctly.
- (e) Non-reusable parts
 - (1) Always replace cotter pins, gaskets, O-rings, oil seals, etc. with new ones.
 - (2) Non-reusable parts are indicated in the component illustrations by the "◆" symbol.



- (f) Precoated parts
Precoated parts are bolts, nuts, etc. that are coated with a seal lock adhesive at the factory.
 - (1) If a precoated part is retightened, loosened or caused to move in any way, it must be recoated with the specified adhesive.
 - (2) When reusing precoated parts, clean off the old adhesive and dry with compressed air. Then apply the specified seal lock adhesive to the bolt, nut or threads.

- (3) Precoated parts are indicated in the component illustrations by the "★" symbol.
- (g) When necessary, use a sealer on gaskets to prevent leaks.
- (h) Carefully observe all specifications for bolt tightening torques. Always use a torque wrench.
- (i) Use of special service tools (SST) and special service materials (SSM) may be required, depending on the nature of the repair. Be sure to use SST and SSM where specified and follow the proper work procedure. A list of SST and SSM can be found in Preparation section in this manual.

Medium Current Fuse and High Current Fuse
Equal Amperage Rating

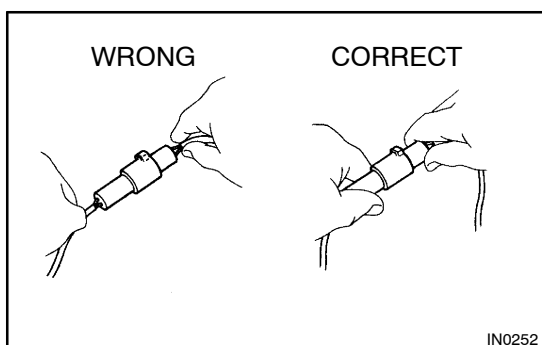
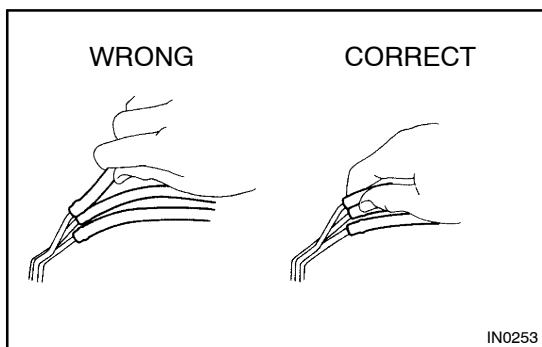


BE1367

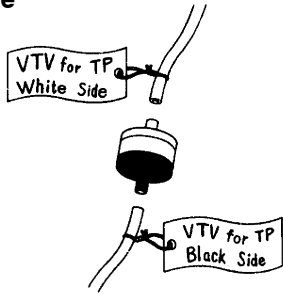
- (j) When replacing fuses, be sure the new fuse has the correct amperage rating. DO NOT exceed the rating or use one with a lower rating.

Illustration	Symbol	Part Name	Abbreviation
 BE5594	 IN0365	FUSE	FUSE
 BE5595	 IN0366	MEDIUM CURRENT FUSE	M-FUSE
 BE5596	 IN0367	HIGH CURRENT FUSE	H-FUSE
 BE5597	 IN0367	FUSIBLE LINK	FL
 BE5598	 IN0368	CIRCUIT BREAKER	CB

- (k) Care must be taken when jacking up and supporting the vehicle. Be sure to lift and support the vehicle at the proper locations ([See page IN-8](#)).
- Cancel the parking brake on the level place and shift the transmission in Neutral (or N range).
 - When jacking up the front wheels of the vehicle, at first place stoppers behind the rear wheels.
 - When jacking up the rear wheels of the vehicle, at first place stoppers before the front wheels.
 - When either the front or rear wheels only should be jacked up, set rigid racks and place stoppers in front and behind the other wheels on the ground.
 - After the vehicle is jacked up, be sure to support it on rigid racks. It is extremely dangerous to do any work on a vehicle raised on a jack alone, even for a small job that can be finished quickly.
- (l) Observe the following precautions to avoid damage to the following parts:
- (1) Do not open the cover or case of the ECU unless absolutely necessary. (If the IC terminals are touched, the IC may be destroyed by static electricity.)



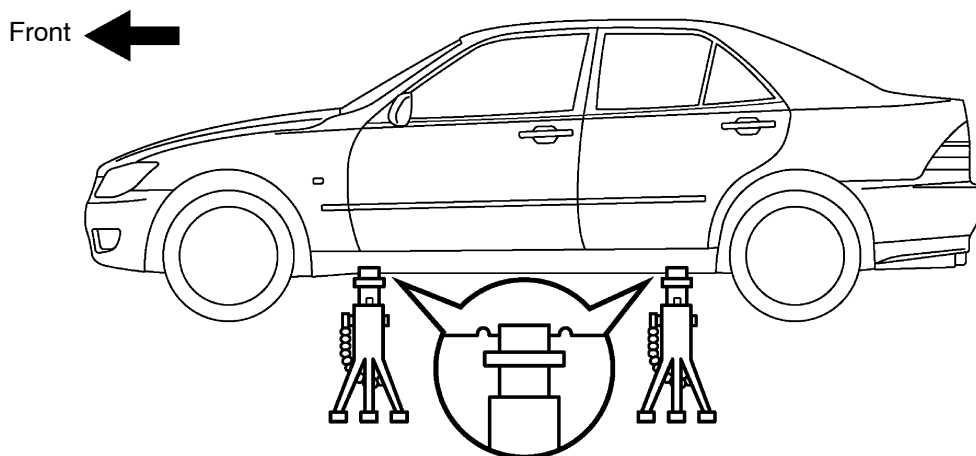
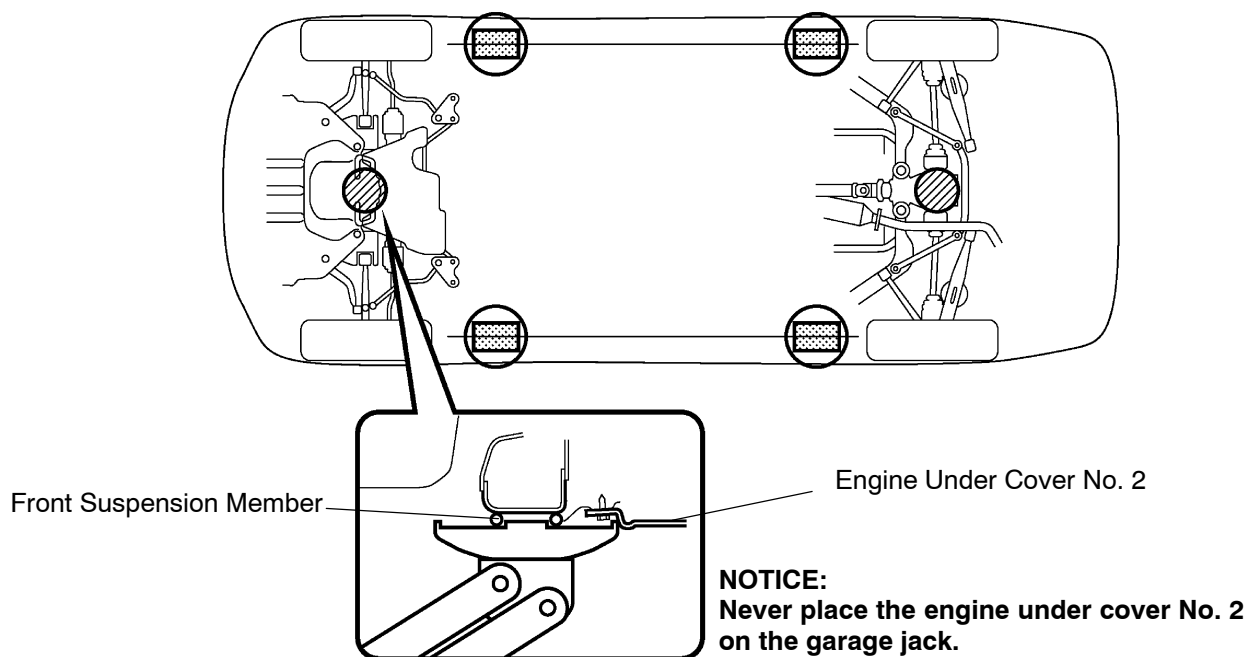
- (2) To disconnect vacuum hoses, pull off the end, not the middle of the hose.
- (3) To pull apart electrical connectors, pull on the connector itself, not the wires.
- (4) Be careful not to drop electrical components, such as sensors or relays. If they are dropped on a hard floor, they should be replaced and not reused.
- (5) When steam cleaning an engine, protect the electronic components, air filter and emission-related components from water.
- (6) Never use an impact wrench to remove or install temperature switches or temperature sensors.
- (7) When checking continuity at the wire connector, insert the tester probe carefully to prevent terminals from bending.
- (8) When using a vacuum gauge, never force the hose onto a connector that is too large. Use a step-down adapter for adjustment. Once the hose has been stretched, it may leak air.

Example

IN0002

- (m) Installation and removal of vacuum hose:
 - (1) When disconnecting vacuum hoses, use tags to identify where they should be reconnected to.
 - (2) After completing a job, double check that the vacuum hoses are properly connected. A label under the hood shows the proper layout.
- (n) Unless otherwise stated, all resistance is measured at an ambient temperature of 20°C (68°F). Because the resistance may be outside specifications if measured at high temperatures immediately after the vehicle has been running, measurement should be made when the engine has cooled down.

VEHICLE LIFT AND SUPPORT LOCATIONS



JACK POSITION

Front - - - - - Front suspension member

Rear - - - - - Differential carrier

CAUTION: When jacking-up the front and rear, make sure the vehicle is not carrying any extra weight.

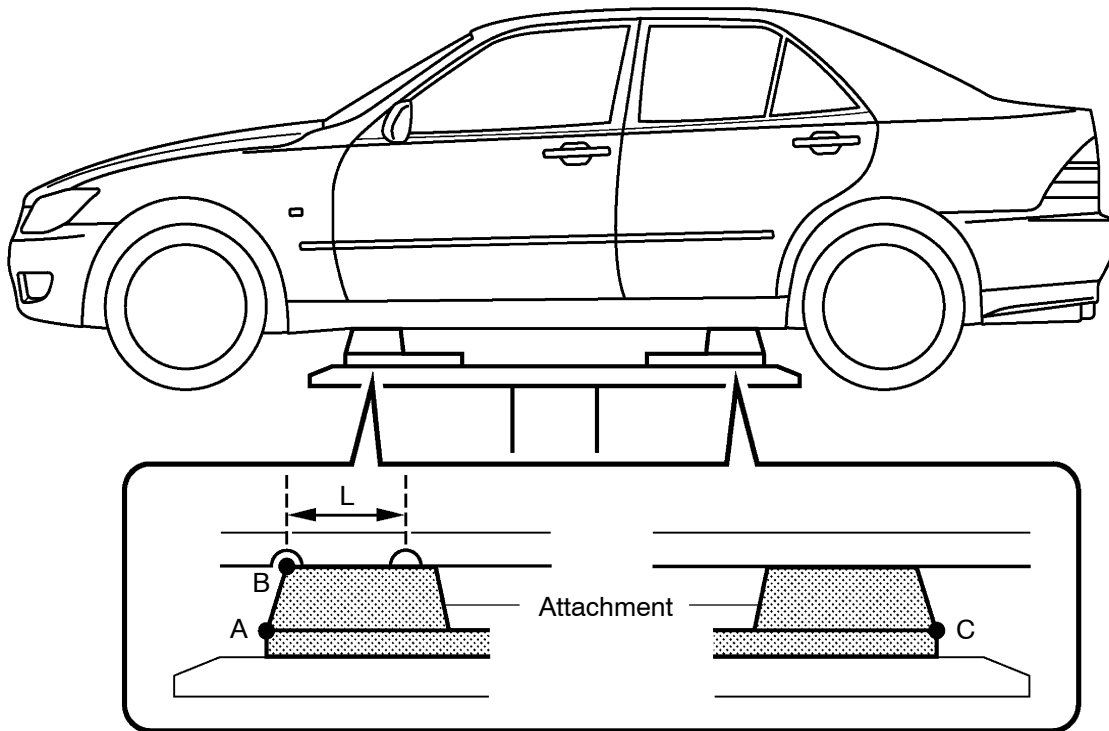
PANTOGRAPH JACK POSITION

SUPPORT POSITION

Safety stand and swing arm type lift - - - - -



Plate Type Lift



HINT:

Right and left set position

Place the vehicle over the center of the lift.

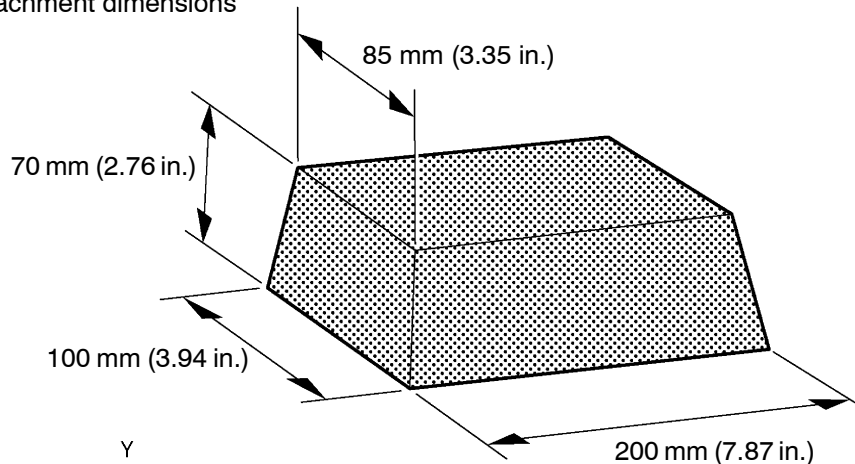
Front and rear set position

- When using attachments, place the one for front side vertically and the one for rear side horizontally to the vehicle.
- Align the cushion gum ends of the plate with the attachment lower ends (A, C).
- Align the attachment upper end (B) with the rocker flange front side notch.

NOTICE:

Check the interference of the attachment with the front floor cover when placing the attachment on the plate.

Attachment dimensions



I11884
B11105

B15227

FOR ALL OF VEHICLES PRECAUTION

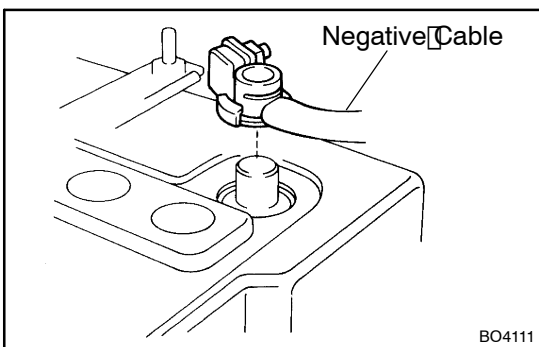
INOHT-01

1. FOR VEHICLES EQUIPPED WITH SRS AIRBAG AND SEAT BELT PRETENSIONER

- (a) The LEXUS IS200 is equipped with an SRS (Supplemental Restraint System), such as the driver airbag, front passenger airbag assembly, side airbag assembly and seat belt pretensioners.

Failure to carry out service operations in the correct sequence could cause the supplemental restraint system to unexpectedly deploy during servicing, possibly leading to a serious accident.

Further, if a mistake is made in servicing the supplemental restraint system, it is possible the SRS may fail to operate when required. Before servicing (including removal or installation of parts, inspection or replacement), be sure to read the following items carefully, then follow the correct procedure described in this manual.



(b) GENERAL NOTICE

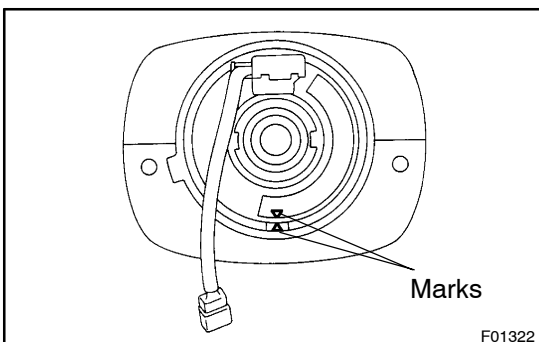
- (1) Malfunction symptoms of the supplemental restraint system are difficult to confirm, so the diagnostic trouble codes become the most important source of information when troubleshooting. When troubleshooting the supplemental restraint system, always inspect the diagnostic trouble codes before disconnecting the battery. (See page DI-3)

- (2) Work must be started after 90 seconds from the time the ignition switch is turned to the "LOCK" position and the negative (-) terminal cable is disconnected from the battery.

(The supplemental restraint system is equipped with a back-up power source so that if work is started within 90 seconds of disconnecting the negative (-) terminal cable from the battery, the SRS may deploy.)

When the negative (-) terminal cable is disconnected from the battery, memory of the clock and audio systems will be cancelled. So before starting work, make a record of the contents memorized by the each memory system. Then when work is finished, reset the clock and audio systems as before. To avoid erasing the memory of each memory system, never use a back-up power supply from another battery.

- (3) Even in cases of a minor collision where the SRS does not deploy, the steering wheel pad, front passenger airbag assembly, side airbag assembly, front airbag sensor, side airbag sensor and seat belt pretensioner should be inspected (See Pub. No. RM684E on page RS-15, RS-28, RS-42, RS-60, RS-65 and See page BO-9)
- (4) Never use SRS parts from another vehicle. When replacing parts, replace them with new parts.
- (5) Before repairs, remove the airbag sensor if shocks are likely to be applied to the sensor during repairs.
- (6) Never disassemble and repair the airbag sensor assembly, side airbag sensor assembly, steering wheel pad, front passenger airbag assembly, side airbag assembly, front airbag sensor, side airbag sensor or seat belt pretensioner.
- (7) If the airbag sensor assembly, side airbag sensor assembly, steering wheel pad, front passenger airbag assembly, side airbag assembly, front airbag sensor, side airbag sensor or seat belt pretensioner has been dropped, or if there are cracks, dents or other defects in the case, bracket or connector, replace them with new ones.
- (8) Do not directly expose the airbag sensor assembly, side airbag sensor assembly, steering wheel pad, front passenger airbag assembly, side airbag assembly, front airbag sensor, side airbag sensor or seat belt pretensioner to hot air or flames.
- (9) Use a volt/ohmmeter with high impedance (10 k Ω /V minimum) for troubleshooting of the electrical circuit.
- (10) Information labels are attached to the periphery of the SRS components. Follow the instructions on the notices.
- (11) After work on the supplemental restraint system is completed, check the SRS warning light (See page DI-3)



(c) SPIRAL CABLE (in Combination Switch)

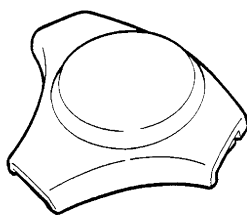
The steering wheel must be fitted correctly to the steering column with the spiral cable at the neutral position, otherwise cable disconnection and other troubles may result. Refer to Pub. No. RM684E on page SR-23 of this manual concerning correct steering wheel installation.

(d) STEERING WHEEL PAD (with Airbag)

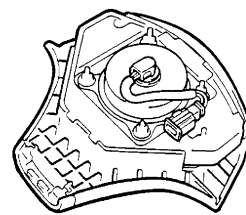
- (1) When removing the steering wheel pad or handling a new steering wheel pad, it should be placed with the pad top surface facing up.
Storing the pad with its metallic surface facing upward may lead to a serious accident if the airbag deploys for some reason. In addition do not store a steering wheel pad on top of another one.
- (2) Never measure the resistance of the airbag squib. (This may cause the airbag to deploy, which is very dangerous.)
- (3) Grease should not be applied to the steering wheel pad and the pad should not be cleaned with detergents of any kind.
- (4) Store the steering wheel pad where the ambient temperature remains below 93°C (200°F), without high humidity and away from electrical noise.
- (5) When using electric welding, first disconnect the airbag connector (yellow color and 2 pins) under the steering column near the combination switch connector before starting work.
- (6) When disposing of a vehicle or the steering wheel pad alone, the airbag should be deployed using an SST before disposal (See Pub. No. RM684E on page RS-17).
Carry out the operation in a safe place away from electrical noise.

Example:

Correct

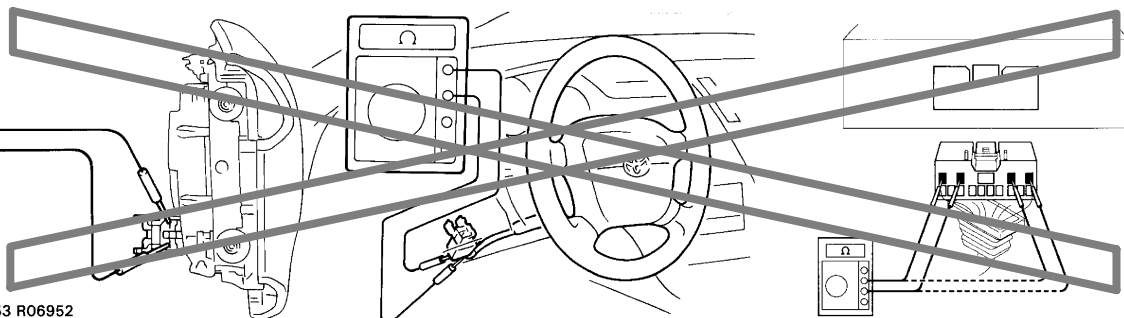
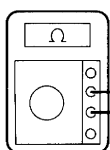


Wrong



N

I11754

Example:

R05643 R06953 R06952

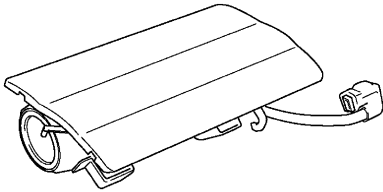
Z13950

(e) FRONT PASSENGER AIRBAG ASSEMBLY

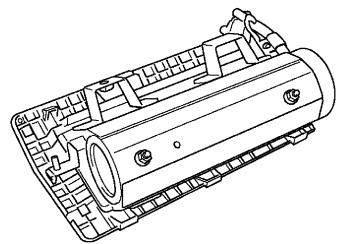
- (1) Always store a removed or new front passenger airbag assembly with the airbag deployment direction facing up.
Storing the airbag assembly with the airbag deployment direction facing down could cause a serious accident if the airbag deploys.
- (2) Never measure the resistance of the airbag squib (This may cause the airbag to deploy, which is very dangerous.).
- (3) Grease should not be applied to the front passenger airbag assembly and the airbag door should not be cleaned with detergents of any kind.
- (4) Store the airbag assembly where the ambient temperature remains below 93°C (200°F), without high humidity and away from electrical noise.
- (5) When using electric welding, first disconnect the airbag connector (yellow color and 2 pins) installed on the assembly before starting work.
- (6) When disposing of a vehicle or the front passenger airbag assembly alone, the airbag should be deployed using an SST before disposal (See Pub. No. RM684E on page RS-30).
Perform the operation in a safe place away from electrical noise.

Example:

Correct

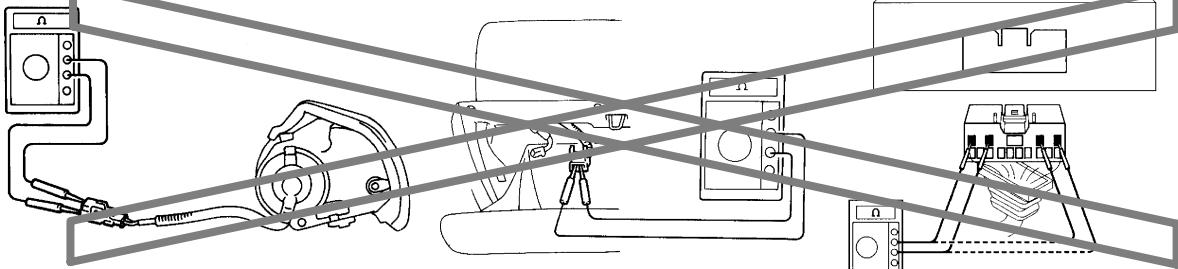


Wrong



Y

B07590

Example:

R05648 R05649 R06952

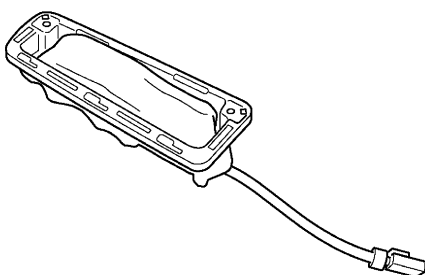
Z13951

(f) SIDE AIRBAG ASSEMBLY

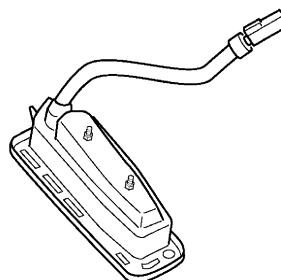
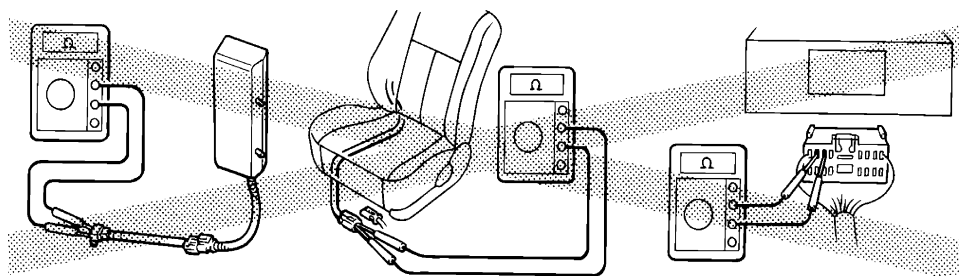
- (1) Always store a removed or new side airbag assembly with the airbag deployment direction facing up. Storing the airbag assembly with the airbag deployment direction facing down could cause a serious accident if the airbag deploys.
- (2) Never measure the resistance of the airbag squib (This may cause the airbag to deploy, which is very dangerous.).
- (3) Grease should not be applied to the side airbag assembly and the surface should not be cleaned with detergents of any kind.
- (4) Store the airbag assembly where the ambient temperature remains below 93°C (200°F), without high humidity and away from electrical noise.
- (5) When using electric welding, first disconnect the airbag connector (yellow color and 2 pins) under the seat before starting work.
- (6) When disposing of a vehicle or the side airbag assembly alone, the airbag should be deployed using an SST before disposal (See Pub. No. RM684E on page RS-43).
Perform the operation in a safe place away from electrical noise.

Example:

Correct



Wrong

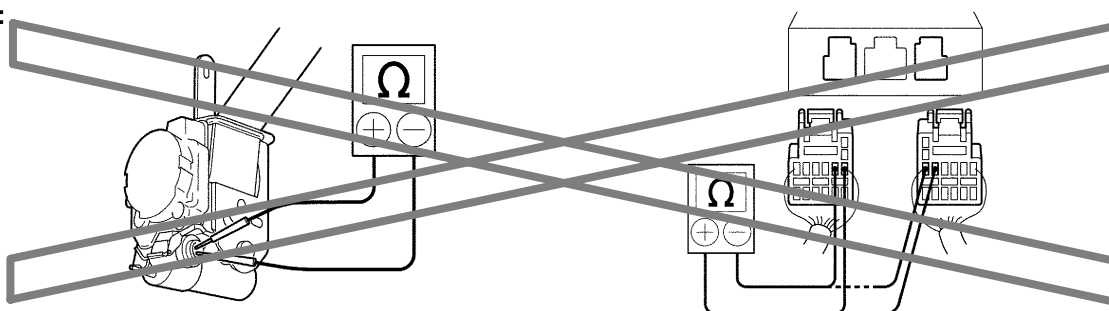
**Example:**

B07100

B01546

(g) SEAT BELT PRETENSIONER

- (1) Never measure the resistance of the seat belt pretensioner. (This may cause the seat belt pretensioner to activate, which is very dangerous.)
- (2) Never disassemble the seat belt pretensioner.
- (3) Never install the seat belt pretensioner in another vehicle.
- (4) Store the seat belt pretensioner where the ambient temperature remains below 80°C (176°F) and away from electrical noise without high humidity.
- (5) When using electric welding, first disconnect the connector (yellow color and 2 pins) before starting work.
- (6) When disposing of a vehicle or the seat belt pretensioner alone, the seat belt pretensioner should be activated before disposal. [\(See page BO-10\)](#)
Perform the operation in a safe place away from electrical noise.
- (7) The seat belt pretensioner is hot after activation, so let it cool down sufficiently before the disposal. However never apply water to the seat belt pretensioner.
- (8) Oil or water should not be put on the front seat outer belt and the front seat outer belt should not be cleaned with detergents of any kind.

Example:

B02121

(h) AIRBAG SENSOR ASSEMBLY

- (1) Never reuse the airbag sensor assembly involved in a collision when the SRS has deployed.
- (2) The connectors to the airbag sensor assembly should be connected or disconnected with the sensor mounted on the floor. If the connectors are connected or disconnected while the airbag sensor assembly is not mounted to the floor, it could cause undesired ignition of the supplemental restraint system.
- (3) Work must be started after 90 seconds from the time the ignition switch is turned to the "LOCK" position and the negative (–) terminal cable is disconnected from the battery, even if only loosening the set bolts of the airbag sensor assembly.

(i) WIRE HARNESS AND CONNECTOR

The SRS wire harness is integrated with the instrument panel wire harness assembly. All the connectors in the system are a standard yellow color. If the SRS wire harness becomes disconnected or the connector becomes broken due to an accident, etc., repair or replace it as shown Pub. No. RM684E on page RS-68.

2. FOR VEHICLES EQUIPPED WITH A CATALYTIC CONVERTER

CAUTION:

If large amount of unburned gasoline flows into the converter, it may overheat and create a fire hazard. To prevent this, observe the following precautions and explain them to your customer.

- (a) Use only unleaded gasoline.
- (b) Avoid prolonged idling.
Avoid running the engine at idle speed for more than 20 minutes.
- (c) Avoid spark jump test.
 - (1) Perform spark jump test only when absolutely necessary. Perform this test as rapidly as possible.
 - (2) While testing, never race the engine.
- (d) Avoid prolonged engine compression measurement.
Engine compression tests must be done as rapidly as possible.
- (e) Do not run engine when fuel tank is nearly empty.
This may cause the engine to misfire and create an extra load on the converter.
- (f) Avoid coasting with ignition turned off.
- (g) Do not dispose of used catalyst along with parts contaminated with gasoline or oil.

3. IF VEHICLE IS EQUIPPED WITH MOBILE COMMUNICATION SYSTEM

For vehicles with mobile communication systems such as two-way radios and cellular telephones, observe the following precautions.

- (1) Install the antenna as far as possible away from the ECU and sensors of the vehicle's electronic system.
- (2) Install the antenna feeder at least 20 cm (7.87 in.) away from the ECU and sensors of the vehicle's electronic systems. For details about ECU and sensors locations, refer to the section on the applicable component.
- (3) Avoid winding the antenna feeder together with other wiring as much as possible, and also avoid running the antenna feeder parallel with other wire harnesses.
- (4) Check that the antenna and feeder are correctly adjusted.
- (5) Do not install powerful mobile communications system.

4. FOR USING HAND-HELD TESTER

CAUTION:

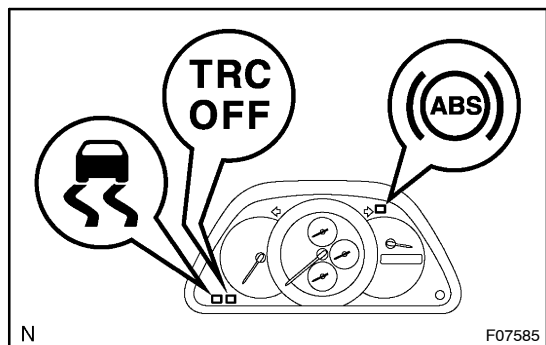
Observe the following items for safety reasons:

- **Before using the hand-held tester, the hand-held tester's operator manual should be read thoroughly.**
- **Be sure to route all cables securely when driving with the hand-held tester connected to the vehicle. (i.e. Keep cables away from feet, pedals, steering wheel and shift lever.)**
- **Two persons are required when test driving with the hand-held tester, one person to drive the vehicle and the other person to operate the hand-held tester.**

5. FOR VEHICLES EQUIPPED WITH TRACTION CONTROL (TRC) SYSTEM

NOTICE:

When using a 2-wheel drum tester such as a speedometer tester or chassis dynamometer, etc., or jacking up the rear wheels and driving the wheels, always push in the TRC cut switch and turn the TRC system OFF.

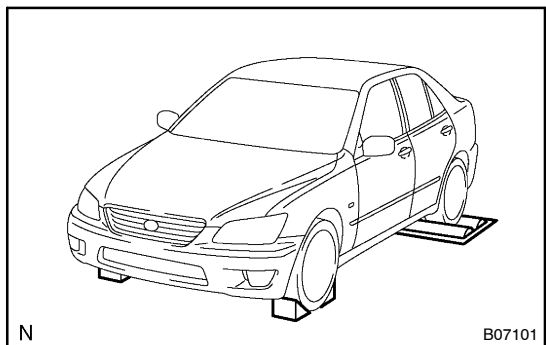


Confirm TRC system is OFF.

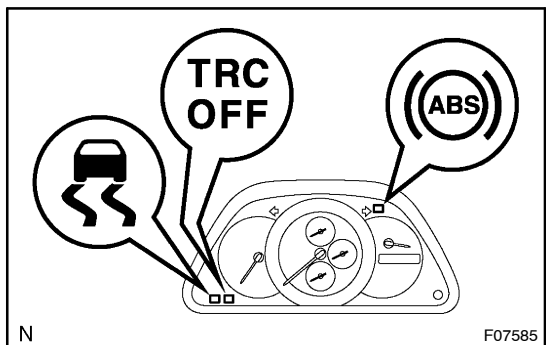
- (1) Press the TRC cut switch.
- (2) Check that the TRC system is turned OFF by the TRC cut switch.

HINT:

The SLIP indicator light should be always on immediately after the engine is restarted.



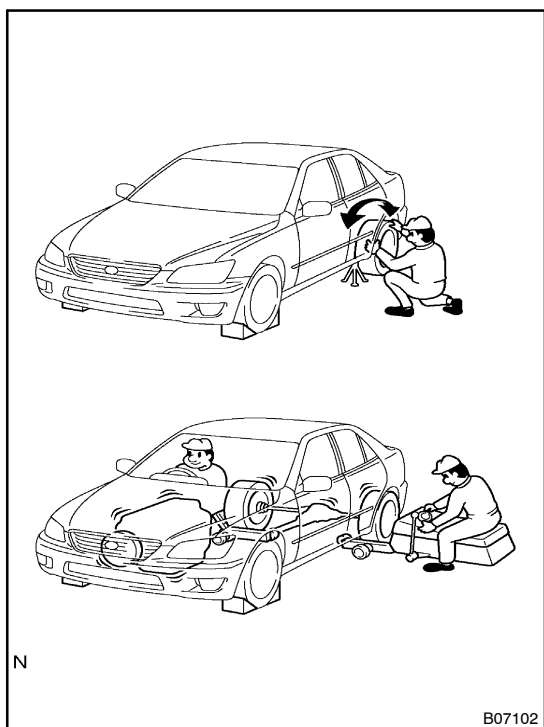
- (3) Begin measurements.



- (4) Press the TRC cut switch to turn the TRC to the operative mode and check that the TRC OFF indicator light goes off.

HINT:

The SLIP indicator light blinks when the TRC system is operational.



B07102

6. FOR VEHICLES EQUIPPED WITH LIMITED SLIP DIFFERENTIAL

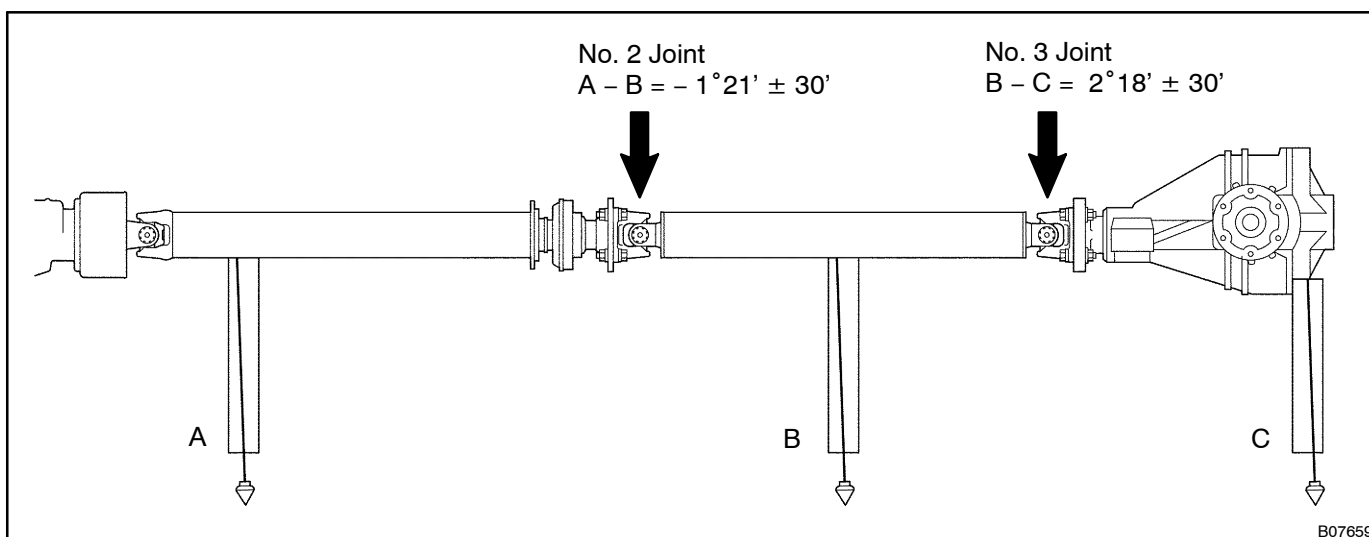
- (a) Never apply driving force when RH or LH rear wheel only is touching the ground.
- (b) During service/rectification work never spin (race) the RH or LH rear wheel only such as with ON-The Car type wheel balancer, both rear wheels must be off the ground.

HINT:

- In case of the above, due to the construction of the LSD the driving force is transmitted to the opposite wheel and therefore it is possible for the vehicle to start suddenly if only one rear wheel is off the ground. Furthermore it could result in component damage to the LSD due to the loads acting on it.
- Always raise both rear wheels off the ground and support the vehicle on suitable safety stand.

7. INSPECTION AND ADJUSTMENT OF JOINT ANGLE DURING REMOVAL AND INSTALLATION OF PROPELLER SHAFT

When performing operations which involve the removal and installation of the propeller shaft, always check the joint angle. Make adjustments if necessary (See Pub. No. RM684E on page PR-11).



B07659

HOW TO TROUBLESHOOT ECU CONTROLLED SYSTEMS

GENERAL INFORMATION

A large number of ECU controlled systems are used in the LEXUS IS200. In general, the ECU controlled system is considered to be a very intricate system requiring a high level of technical knowledge and expert skill to troubleshoot. However, the fact is that if you proceed to inspect the circuits one by one, troubleshooting of these systems is not complex. If you have adequate understanding of the system and a basic knowledge of electricity, accurate diagnosis and necessary repair can be performed to locate and fix the problem. This manual is designed through emphasis of the above standpoint to help service technicians perform accurate and effective troubleshooting, and is compiled for the following major ECU controlled systems: The troubleshooting procedure and how to make use of it are described on the following pages.

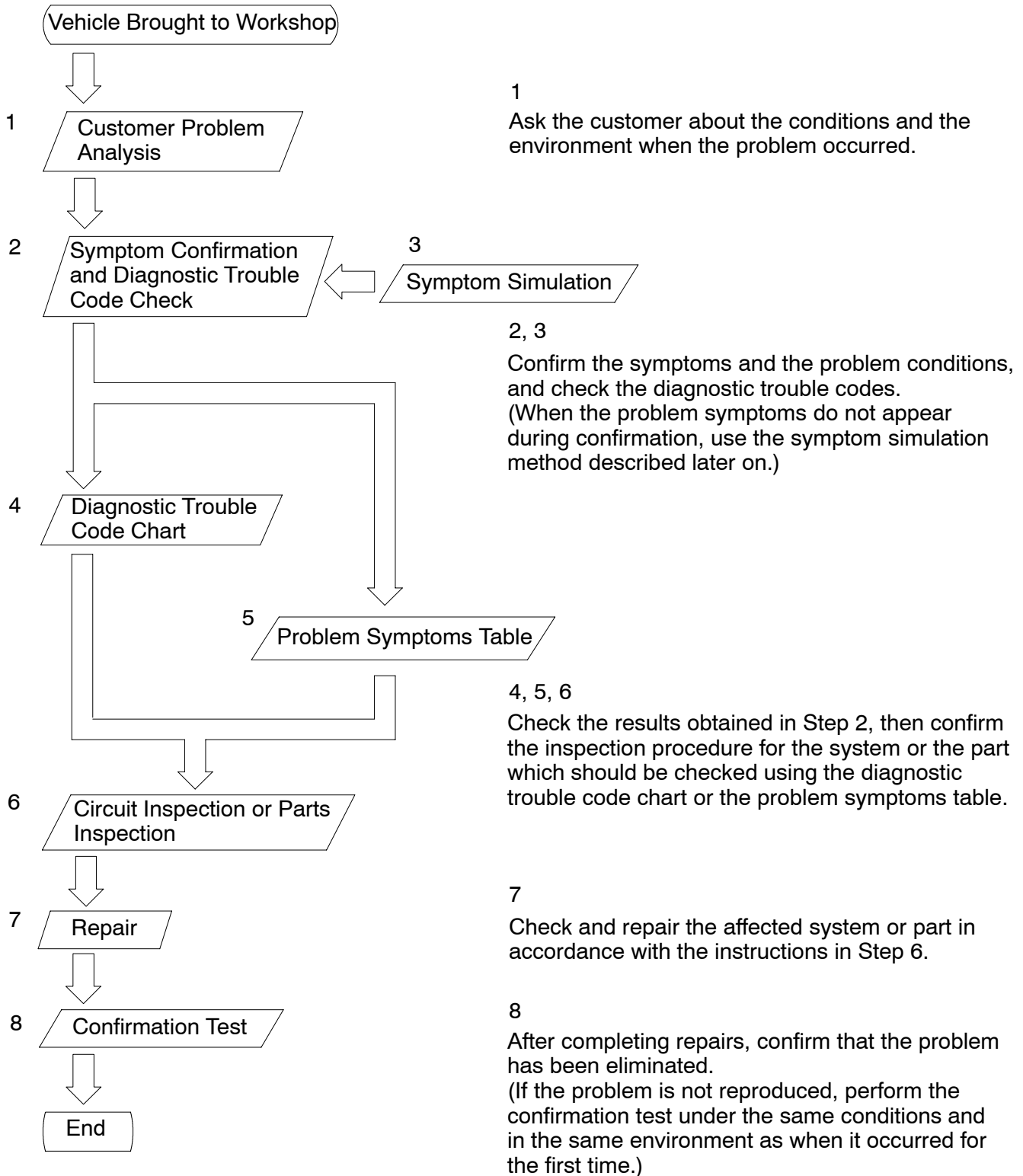
System	Page
1. Supplemental Restraint System	DI-1
2. Air Conditioning System	DI-52

FOR USING HAND-HELD TESTER

- Before using the tester, the tester's operator manual should be read thoroughly.
- If the tester cannot communicate with ECU controlled systems when you have connected the cable of the tester to DLC3, turned the ignition switch ON and operated the tester, there is a problem on the vehicle side or tester side.
 - (1) If communication is normal when the tester is connected to another vehicle, inspect the diagnosis data link line (Bus $\oplus$ line) or ECU power circuit of the vehicle.
 - (2) If communication is still not possible when the tester is connected to another vehicle, the problem is probably in the tester itself, so perform the Self Test procedures outline in the Tester Operator's Manual.

HOW TO PROCEED WITH TROUBLESHOOTING

Carry out troubleshooting in accordance with the procedure on the following page. Here, only the basic procedure is shown. Details are provided in Diagnostics section, showing the most effective methods for each circuit. Confirm the troubleshooting procedures first for the relevant circuit before beginning troubleshooting of that circuit.



1. CUSTOMER PROBLEM ANALYSIS

In troubleshooting, the problem symptoms must be confirmed accurately and all preconceptions must be cleared away in order to give an accurate judgment. To ascertain just what the problem symptoms are, it is extremely important to ask the customer about the problem and the conditions at the time it occurred.

Important Point in the Problem Analysis:

The following 5 items are important points in the problem analysis. Past problems which are thought to be unrelated and the repair history, etc. may also help in some cases, so as much information as possible should be gathered and its relationship with the problem symptoms should be correctly ascertained for reference in troubleshooting. A customer problem analysis table is provided in Diagnostics section for each system for your use.

Important Points in the Customer Problem Analysis

- What ----- Vehicle model, system name
- When ----- Date, time, occurrence frequency
- Where ----- Road conditions
- Under what conditions? ----- Running conditions, driving conditions, weather conditions
- How did it happen? ----- Problem symptoms

(Sample) Engine control system check sheet.

ENGINE CONTROL SYSTEM Check Sheet				Inspector's Name _____
Customer's Name		Model and Model Year		
Driver's Name		Frame No.		
Data Vehicle Brought in		Engine Model		
License No.		Odometer Reading	km miles	

Problem Symptoms	☐ Engine does not Start	☐ Engine does not crank ☐ No initial combustion ☐ No complete combustion			
	☐ Difficult to Start	☐ Engine cranks slowly ☐ Other _____			
	☐ Poor Idling	☐ Incorrect first idle ☐ Idling rpm is abnormal ☐ High (rpm) ☐ Low (rpm) ☐ Rough idling ☐ Other _____			
	☐ Poor Drive ability	☐ Hesitation ☐ Back fire ☐ Muffler explosion (after-fire) ☐ Surging ☐ Knocking ☐ Other _____			
	☐ Engine Stall	☐ Soon after starting ☐ After accelerator pedal depressed ☐ After accelerator pedal released ☐ During A/C operation ☐ Shifting from N to D ☐ Other _____			
	☐ Others				

☐ Constant ☐ Sometimes (times per day/month)

2. SYMPTOM CONFIRMATION AND DIAGNOSTIC TROUBLE CODE CHECK

The diagnostic system in the LEXUS IS200 fulfills various functions. The first function is the Diagnostic Trouble Code Check in which a malfunction in the signal circuits to the ECU is stored in code in the ECU memory at the time of occurrence, to be output by the technician during troubleshooting. Another function is the Input Signal Check which checks if the signals from various switches are sent to the ECU correctly. By using these check functions, the problem areas can be narrowed down quickly and troubleshooting can be performed effectively. Diagnostic functions are incorporated in the following systems in the LEXUS IS200.

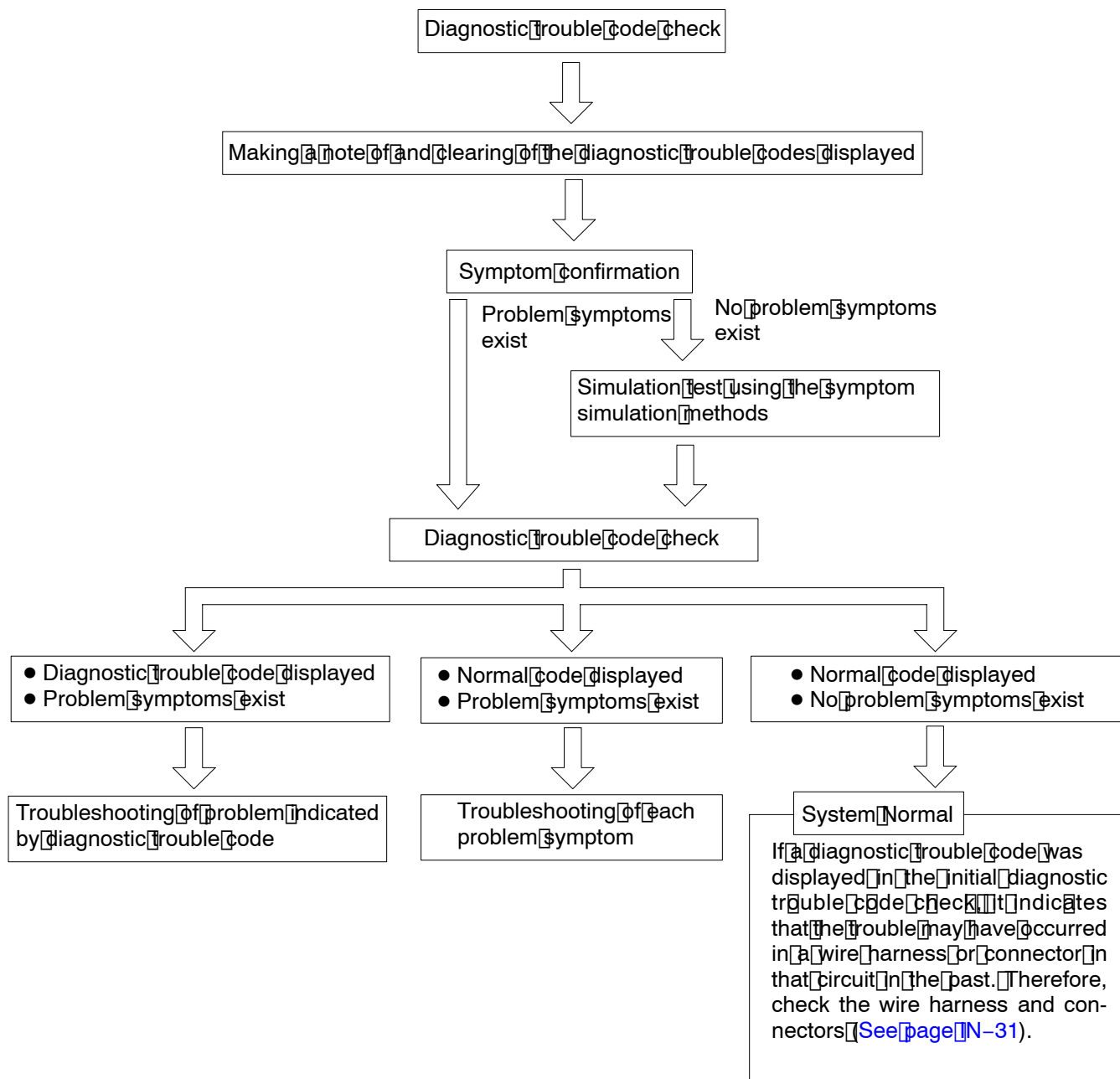
System	Diagnostic Trouble Code Check	Input Signal Check (Sensor Check)	Diagnostic Test Mode (Active Test)
Supplemental Restraint System	○		
Air Conditioning System	○		○

In diagnostic trouble code check, it is very important to determine whether the problem indicated by the diagnostic trouble code is still occurring or occurred in the past but returned to normal at present. In addition, it must be checked in the problem symptom check whether the malfunction indicated by the diagnostic trouble code is directly related to the problem symptom or not. For this reason, the diagnostic trouble codes should be checked before and after the symptom confirmation to determine the current conditions, as shown in the table below. If this is not done, it may, depending on the case, result in unnecessary troubleshooting for normally operating systems, thus making it more difficult to locate the problem, or in repairs not pertinent to the problem. Therefore, always follow the procedure in correct order and perform the diagnostic trouble code check.

DIAGNOSTIC TROUBLE CODE CHECK PROCEDURE

Diagnostic Trouble Code Check (Make a note of and then clear)	Confirmation of Symptoms	Diagnostic Trouble Code Check	Problem Condition
Diagnostic Trouble Code Display 	Problem symptoms exist	Same diagnostic trouble code is displayed	Problem is still occurring in the diagnostic circuit
		Normal code is displayed	The problem is still occurring in a place other than in the diagnostic circuit (The diagnostic trouble code displayed first is either for a past problem or it is a secondary problem)
	 No problem symptoms exist		The problem occurred in the diagnostic circuit in the past
Normal Code Display 	Problem symptoms exist	Normal code is displayed	The problem is still occurring in a place other than in the diagnostic circuit
	 No problem symptoms exist	Normal code is displayed	The problem occurred in a place other than in the diagnostic circuit in the past

Taking into account the points on the previous page, a flow chart showing how to proceed with troubleshooting using the diagnostic trouble code check is shown below. This flow chart shows how to utilize the diagnostic trouble code check effectively, then by carefully checking the results, indicates how to proceed either to diagnostic trouble code troubleshooting or to troubleshooting of problem symptoms table.

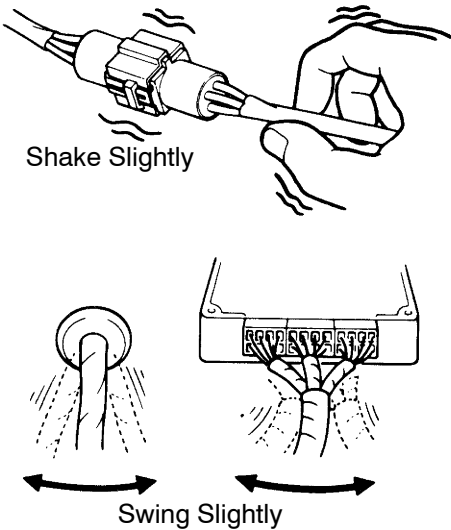
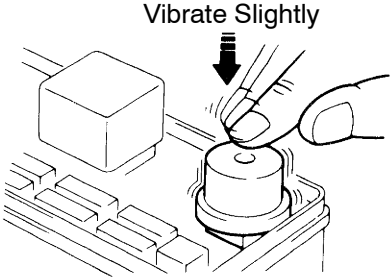


3. SYMPTOM SIMULATION

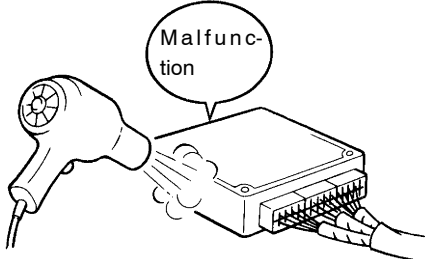
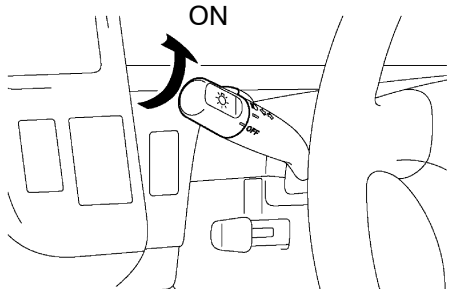
The most difficult case in troubleshooting is when there are no problem symptoms occurring. In such cases, a thorough customer problem analysis must be carried out, then simulate the same or similar conditions and environment in which the problem occurred in the customer's vehicle. No matter how much experience a technician has, or how skilled he may be, if he proceeds to troubleshoot without confirming the problem symptoms he will tend to overlook something important in the repair operation and make a wrong guess somewhere, which will only lead to a standstill. For example, for a problem which only occurs when the engine is cold, or for a problem which occurs due to vibration caused by the road during driving, etc., the problem can never be determined so long as the symptoms are confirmed with the engine hot condition or the vehicle at a standstill. Since vibration, heat or water penetration (moisture) is likely cause for problem which is difficult to reproduce, the symptom simulation tests introduced here are effective measures in that the external causes are applied to the vehicle in a stopped condition.

Important Points in the Symptom Simulation Test:

In the symptom simulation test, the problem symptoms should of course be confirmed, but the problem area or parts must also be found out. To do this, narrow down the possible problem circuits according to the symptoms before starting this test and connect a tester beforehand. After that, carry out the symptom simulation test, judging whether the circuit being tested is defective or normal and also confirming the problem symptoms at the same time. Refer to the problem symptoms table for each system to narrow down the possible causes of the symptom.

1	VIBRATION METHOD: When vibration seems to be the major cause.	
CONNECTORS Slightly shake the connector vertically and horizontally. WIRE HARNESS Slightly shake the wire harness vertically and horizontally. The connector joint, fulcrum of the vibration, and body through portion are the major areas to be checked thoroughly.	 Shake Slightly Swing Slightly F12331 F12332	
PARTS AND SENSOR Apply slight vibration with a finger to the part of the sensor considered to be the problem cause and check that the malfunction occurs. HINT: Applying strong vibration to relays may result in open relays.	 Vibrate Slightly F12330	

V07268

2	HEAT METHOD: When the problem seems to occur when the suspect area is heated.
Heat the component that is the likely cause of the malfunction with a hair dryer or similar object. Check to see if the malfunction occurs. NOTICE: (1) Do not heat to more than 60 °C (140 °F). (Temperature is limited not to damage the components.) (2) Do not apply heat directly to parts in the ECU.	 F12334
3	WATER SPRINKLING METHOD: When the malfunction seems to occur on a rainy day or in a high-humidity condition.
Sprinkle water onto the vehicle and check to see if the malfunction occurs. NOTICE: (1) Never sprinkle water directly into the engine compartment, but indirectly change the temperature and humidity by applying water spray onto the radiator front surface. (2) Never apply water directly onto the electronic components. HINT: If a vehicle is subject to water leakage, the leaked water may contaminate the ECU. When testing a vehicle with a water leakage problem, special caution must be taken.	 F16649
4	OTHER: When a malfunction seems to occur when electrical load is excessive.
Turn on all electrical loads including the heater blower, head lights, rear window defogger, etc. and check to see if the malfunction occurs.	 B02389

4. DIAGNOSTIC TROUBLE CODE CHART

The inspection procedure is shown in the table below. This table permits efficient and accurate troubleshooting using the diagnostic trouble codes displayed in the diagnostic trouble code check. Proceed with troubleshooting in accordance with the inspection procedure given in the diagnostic chart corresponding to the diagnostic trouble codes displayed. The engine diagnostic trouble code chart is shown below as an example.

- DTC No.
Indicates the diagnostic trouble code.
- Page or Instructions
Indicates the page where the inspection procedure for each circuit is to be found, or gives instructions for checking and repairs.

- Trouble Area
Indicates the suspect area of the problem.

- Detection Item
Indicates the system of the problem or contents of the problem.

DTC CHART (SAE Controlled)

HINT:
Parameters listed in the chart may not be exactly the same as your reading due to the type of instrument or other factors.

If a malfunction code is displayed during the DTC check mode, check the circuit for that code listed in the table below. For details of each code, turn to the page referred to under the "See page" for the respective "DTC No." in the DTC chart.

DTC No. (See page)	Detection Item	Trouble Area	MIL*	Memory
P0100 (DI-24)	Mass Air Flow Circuit Malfunction	● Open or short in mass air flow meter circuit ● Mass air flow meter ● ECM	○	○
P0101 (DI-28)	Mass Air Flow Circuit Range/ Performance Problem	● Mass air flow meter	○	○
P0110 (DI-29)	Intake Air Temp. Circuit Malfunction	● Open or short in intake air temp. sensor circuit ● Intake air temp. sensor ● ECM	○	○
P0115 (DI-33)	Engine Coolant Temp. Circuit Malfunction	● Open or short in engine coolant temp. sensor circuit ● Engine coolant temp. sensor ● ECM	○	○
P0116 (DI-37)	Engine Coolant Temp. Circuit Range/Performance Problem	● Engine coolant temp. sensor ● Cooling system	○	○
	Throttle Position Sensor/Switch Malfunction	● Open or short in throttle position sensor circuit ● Throttle position sensor ● ECM		
	Throttle Position Sensor/Switch Range/Performance Problem	● Throttle position sensor		

5. PROBLEM SYMPTOMS TABLE

The suspected circuits or parts for each problem symptom are shown in the table below. Use this table to troubleshoot the problem when a "Normal" code is displayed in the diagnostic trouble code check but the problem is still occurring. Numbers in the table indicate the inspection order in which the circuits or parts should be checked.

HINT:

When the problem is not detected by the diagnostic system even though the problem symptom is present, it is considered that the problem is occurring outside the detection range of the diagnostic system, or that the problem is occurring in a system other than the diagnostic system.

- Page
Indicates the page where the flow chart for each circuit is located.

- Circuit Inspection, Inspection Order
Indicates the circuit which needs to be checked for each problem symptom. Check in the order indicated by the numbers.

- Problem Symptom

- Circuit or Part Name
Indicates the circuit or part which needs to be checked.

PROBLEM SYMPTOMS TABLE

Symptom	Suspect Area	See page
Engine does not crank (Does not start)	1. Starter and starter relay	ST-2 ST-17
No initial combustion (Does not start)	1. ECM power source circuit 2. Fuel pump control circuit 3. Engine control module (ECM)	DI-147 DI-151 IN-29
No complete combustion (Does not start)	1. Fuel pump control circuit	DI-151
Engine cranks normally (Difficult to start)	1. Starter signal circuit 2. Fuel pump control circuit 3. Compression	DI-144 DI-151 EM-3
Cold engine (Difficult to start)	1. Starter signal circuit 2. Fuel pump control circuit	DI-144 DI-151
Hot engine	1. Starter signal circuit 2. Fuel pump control circuit	DI-144 DI-151
Idle speed (Poor idling)	1. A/C signal circuit (Compressor circuit) 2. ECM power source circuit	AC-88
Idle speed (Poor idling)	1. A/C signal circuit 2. Fuel pump control circuit	
Idle speed (Poor idling)	1. Compression 2. Fuel pump control circuit	

6. CIRCUIT INSPECTION

How to read and use each page is shown below.

● Diagnostic Trouble Code No. and Detection Item

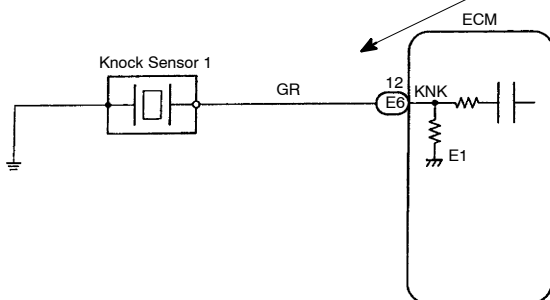
● Circuit Description
The major role and operation, etc. of the circuit and its component parts are explained.

DTC	P0325	Knock Sensor 1 Circuit Malfunction
CIRCUIT DESCRIPTION		
Knock sensor is fitted to the cylinder block to detect engine knocking. This sensor contains a piezoelectric element which generates a voltage when it becomes deformed, which occurs when the cylinder block vibrates due to knocking. If engine knocking occurs, ignition timing is retarded to suppress it.		
DTC No.	DTC Detecting Condition	Trouble Area
P0325	No knock sensor 1 signal to ECM with engine speed, 1,200 rpm or more.	- Open or short in knock sensor1 circuit - Knock sensor 1 (looseness) - ECM

If the ECM detects the above diagnosis conditions, it operates the fail safe function in which the corrective retard angle value is set to the maximum value.

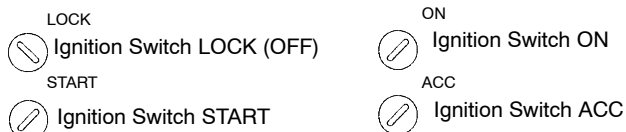
● Indicates the diagnostic trouble code, diagnostic trouble code set parameter and suspect area of the problem.

WIRING DIAGRAM



- Wiring Diagram
This shows a wiring diagram of the circuit. Use this diagram together with ELECTRICAL WIRING DIAGRAM to thoroughly understand the circuit.
Wire colors are indicated by an alphabetical code.
B = Black, L = Blue, R = Red, BR = Brown, LG = Light Green, V = Violet, G = Green, O = Orange, W = White, GR = Gray, P = Pink, Y = Yellow, SB = Sky Blue
The first letter indicates the basic wire color and the second letter indicates the color of the stripe.

- Indicates the position of the ignition switch during the check.

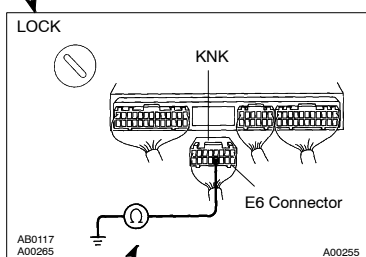


- Inspection Procedure

Use the inspection procedure to determine if the circuit is normal or abnormal, and, if it is abnormal, use it to determine whether the problem is located in the sensors, actuators, wire harness or ECU.

INSPECTION PROCEDURE

1 Check continuity between terminal KNK of ECM connector and body ground.



PREPARATION:

- Remove the glove compartment (See page SF-68).
- Disconnect the E6 connector of ECM.

CHECK:

Measure resistance between terminal KNK of ECM connector and body ground.

OK:

Resistance: 1 MΩ or higher

OK

Go to step 3.

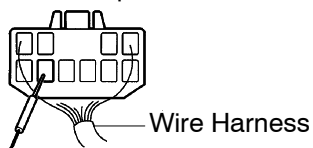
NG

2 Check knock sensor (See page SF-61).

OK

Replace knock sensor.

- Indicates the place to check the voltage or resistance.
- Indicates the connector position to be checked, from the front or back side.

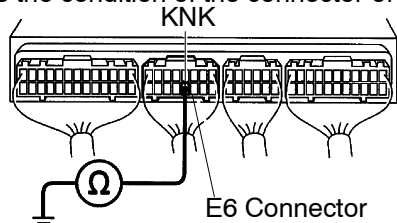


Check from the connector back side.
(with harness)

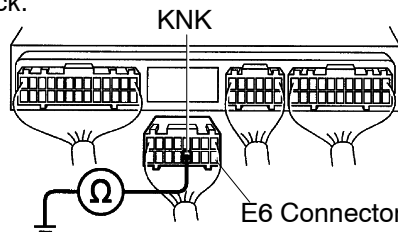


Check from the connector front side. (without harness)
In this case, care must be taken not to bend the terminals.

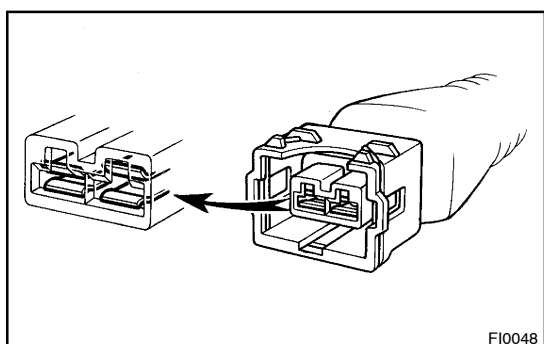
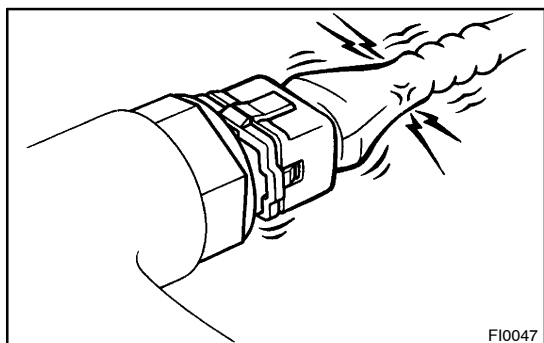
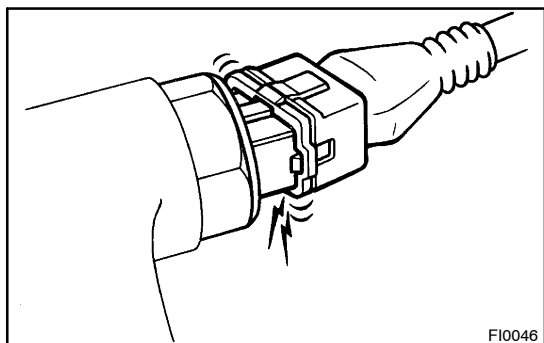
- Indicates the condition of the connector of ECU during the check.



Connector being checked is connected.



Connector being checked is disconnected.



HOW TO USE THE DIAGNOSTIC CHART AND INSPECTION PROCEDURE

1. CONNECTOR CONNECTION AND TERMINAL INSPECTION

- For troubleshooting, diagnostic trouble code charts or problem symptom table are provided for each circuit with detailed inspection procedures on the following pages.
- When all the component parts, wire harnesses and connectors of each circuit except the ECU are found to be normal in troubleshooting, then it is determined that the problem is in the ECU. Accordingly, if diagnosis is performed without the problem symptoms occurring, refer to step 8 to replace the ECU. So always confirm that the problem symptoms are occurring, or proceed with inspection while using the symptom simulation method.
- The instructions "Check wire harness and connector" and "Check and replace ECU" which appear in the inspection procedure, are common and applicable to all diagnostic trouble codes. Follow the procedure outlined below whenever these instructions appear.

OPEN CIRCUIT:

This could be due to a disconnected wire harness, faulty contact in the connector, and a connector terminal pulled out, etc.

HINT:

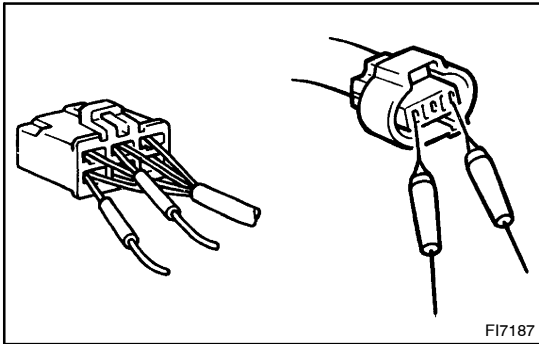
- It is rarely the case that a wire is broken in the middle of it. Most cases occur at the connector. In particular, carefully check the connectors of sensors and actuators
- Faulty contact could be due to rusting of the connector terminals, to foreign materials entering terminals or a deformation of connector terminals. Simply disconnecting and reconnecting the connectors once changes the condition of the connection and may result in a return to normal operation. Therefore, in troubleshooting, if no abnormality is found in the wire harness and connector check, but the problem disappears after the check, then the cause is considered to be in the wire harness or connectors.

SHORT CIRCUIT:

This could be due to a contact between wire harness and the body ground or to a short circuit occurred inside the switch, etc.

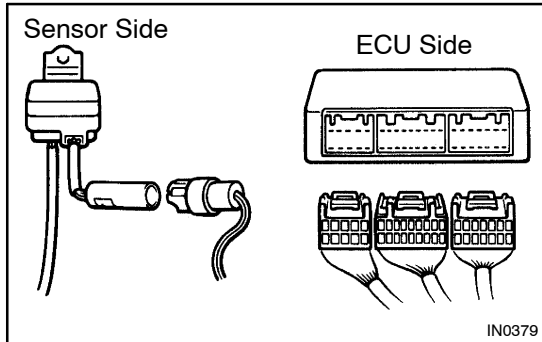
HINT:

When there is a short circuit between the wire harness and body ground, check thoroughly whether the wire harness is caught in the body or is clamped properly.



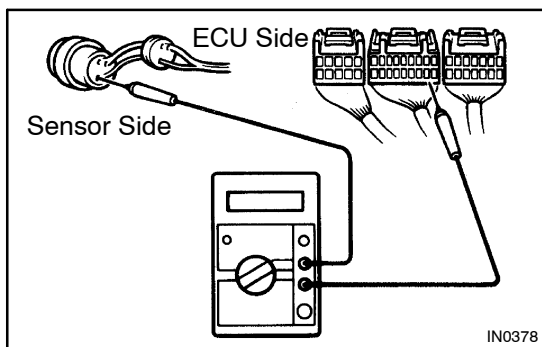
2. CONNECTOR HANDLING

When inserting tester probes into a connector, insert them from the rear of the connector. When necessary, use mini test leads. For water resistant connectors which cannot be accessed from behind, take good care not to deform the connector terminals.



3. CONTINUITY CHECK (OPEN CIRCUIT CHECK)

- Disconnect the connectors at both ECU and sensor sides.

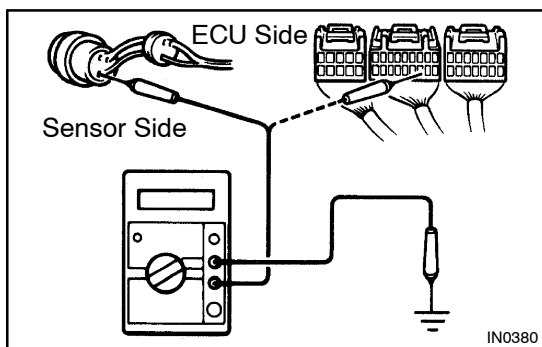


- Measure the resistance between the applicable terminals of the connectors.

Resistance: 1 Ω or less

HINT:

Measure the resistance while lightly shaking the wire harness vertically and horizontally.



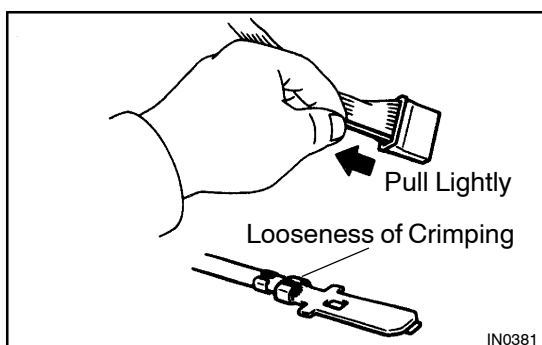
4. RESISTANCE CHECK (SHORT CIRCUIT CHECK)

- Disconnect the connectors on both ends.
- Measure the resistance between the applicable terminals of the connectors and body ground. Be sure to carry out this check on the connectors on both ends.

Resistance: 1 M Ω or higher

HINT:

Measure the resistance while lightly shaking the wire harness vertically and horizontally.



5. VISUAL CHECK AND CONTACT PRESSURE CHECK

- Disconnect the connectors at both ends.
- Check for rust or foreign material, etc. in the terminals of the connectors.
- Check crimped portions for looseness or damage and check that the terminals are secured in lock portion.

HINT:

The terminals should not come out when pulled lightly from the back.

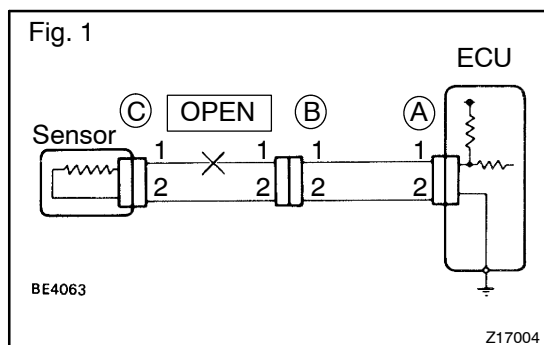
- (d) Prepare a test male terminal and insert it in the female terminal, then pull it out.

NOTICE:

When testing a gold-plated female terminal, always use a gold-plated male terminal.

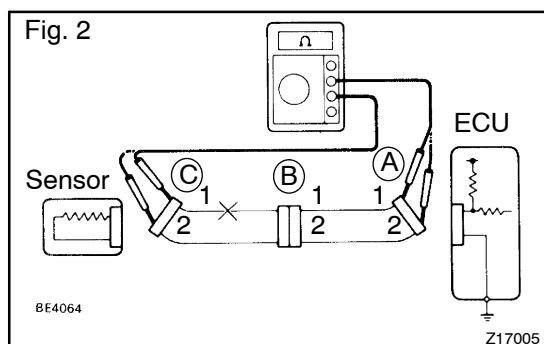
HINT:

When the test terminal is pulled out more easily than others, there may be poor contact in that section.



6. CHECK OPEN CIRCUIT

For the open circuit in the wire harness in Fig. 1, perform "(a) Continuity Check" or "(b) Voltage Check" to locate the section.



- (a) Check the continuity.

- (1) Disconnect connectors "A" and "C" and measure the resistance between them.

In the case of Fig. 2:

Between terminal 1 of connector "A" and terminal 1 of connector "C" → No continuity (open)

Between terminal 2 of connector "A" and terminal 2 of connector "C" → Continuity

Therefore, it is found out that there is an open circuit between terminal 1 of connector "A" and terminal 1 of connector "C".

- (2) Disconnect connector "B" and measure the resistance between the connectors.

In the case of Fig. 3:

Between terminal 1 of connector "A" and terminal 1 of connector "B1" → Continuity

Between terminal 1 of connector "B2" and terminal 1 of connector "C" → No continuity (open)

Therefore, it is found out that there is an open circuit between terminal 1 of connector "B2" and terminal 1 of connector "C".

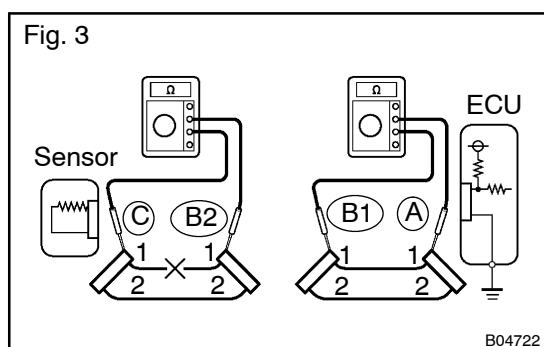
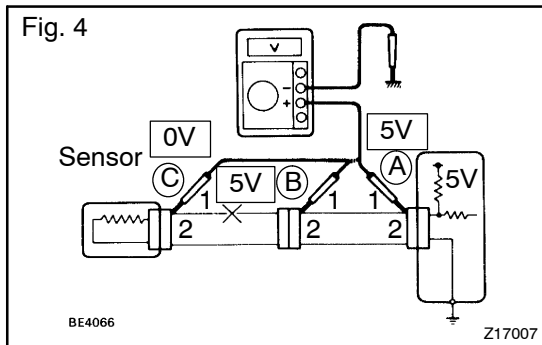


Fig. 4



(b) Check the voltage.

In a circuit in which voltage is applied (to the ECU connector terminal), an open circuit can be checked for by conducting a voltage check.

As shown in Fig. 4, with each connector still connected, measure the voltage between body ground and terminal 1 of connector "A" at the ECU 5V output terminal, terminal 1 of connector "B", and terminal 1 of connector "C", in that order.

If the results are:

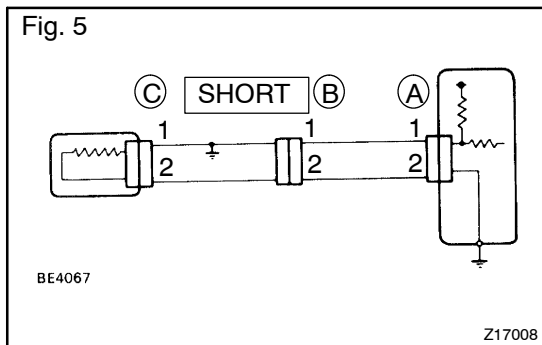
5V: Between Terminal 1 of connector "A" and Body Ground

5V: Between Terminal 1 of connector "B" and Body Ground

0V: Between Terminal 1 of connector "C" and Body Ground

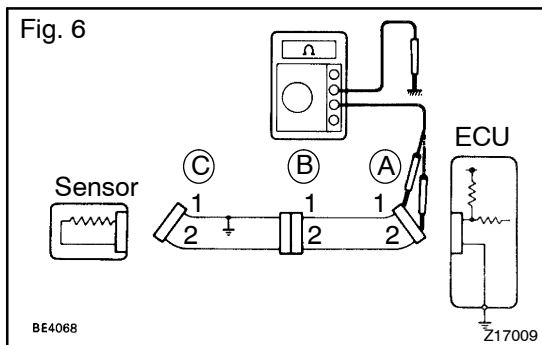
Then it is found out that there is an open circuit in the wire harness between terminal 1 of "B" and terminal 1 of "C".

Fig. 5

**7. CHECK SHORT CIRCUIT**

If the wire harness is ground shorted as in Fig. 5, locate the section by conducting a "continuity check with ground".

Fig. 6



Check the continuity with ground.

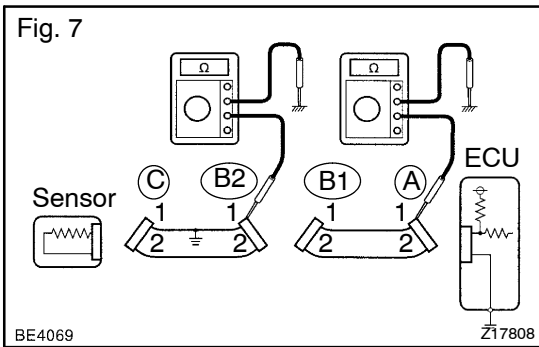
- (1) Disconnect connectors "A" and "C" and measure the resistance between terminal 1 and 2 of connector "A" and body ground.

In the case of Fig. 6:

Between terminal 1 of connector "A" and body ground → Continuity (short)

Between terminal 2 of connector "A" and body ground → No continuity

Therefore, it is found out that there is a short circuit between terminal 1 of connector "A" and terminal 1 of connector "C".



- (2) Disconnect connector "B" and measure the resistance between terminal 1 of connector "A" and body ground, and terminal 1 of connector "B2" and body ground.

In the case of Fig. 7:

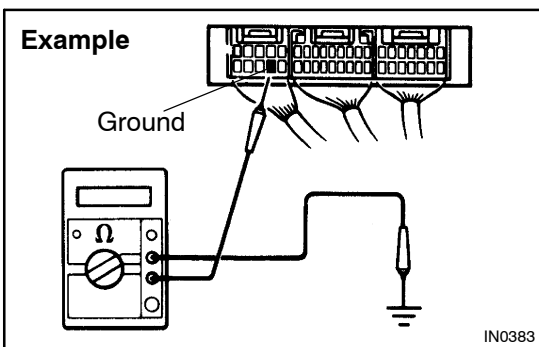
Between terminal 1 of connector "A" and body ground → No continuity

Between terminal 1 of connector "B2" and body ground → Continuity (short)

Therefore, it is found out that there is a short circuit between terminal 1 of connector "B2" and terminal 1 of connector "C".

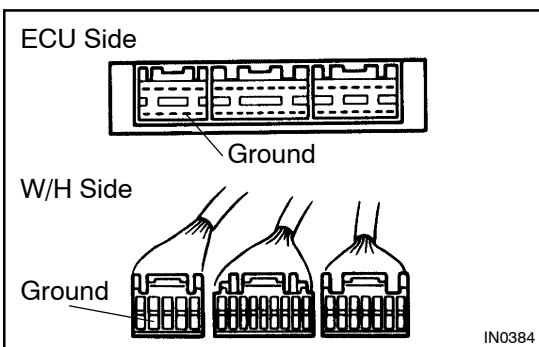
8. CHECK AND REPLACE ECU

First check the ECU ground circuit. If it is faulty, repair it. If it is normal, the ECU could be faulty, so replace the ECU with a normal functioning one and check that the symptoms appear.



- (1) Measure the resistance between the ECU ground terminal and the body ground.

Resistance: 1 Ω or less



- (2) Disconnect the ECU connector, check the ground terminals on the ECU side and the wire harness side for bend and check the contact pressure.

TERMS

ABBREVIATIONS USED IN THIS MANUAL

IN00T-01

Abbreviations	Meaning
ABS	Anti-Lock Brake System
A/C	Air Conditioner
AC	Alternating Current
ACC	Accessory
ACIS	Acoustic Control Induction System
ACSD	Automatic Cold Start Device
A.D.D.	Automatic Disconnecting Differential
A/F	Air-Fuel Ratio
AHC	Active Height Control Suspension
ALR	Automatic Locking Retractor
ALT	Alternator
AMP	Amplifier
ANT	Antenna
AP	Accelerator Pedal
APPROX.	Approximately
A/T	Automatic Transmission (Transaxle)
ATF	Automatic Transmission Fluid
AUTO	Automatic
AUX	Auxiliary
AVG	Average
BACS	Boost Altitude Compensation System
BAT	Battery
BDC	Bottom Dead Center
B/L	Bi-Level
B/S	Bore-Stroke Ratio
BTDC	Before Top Dead Center
BVSV	Bimetallic Vacuum Switching Valve
CARB	Carburetor
CB	Circuit Breaker
CCo	Catalytic Converter For Oxidation
CD	Compact Disc
CF	Cornering Force
CG	Center Of Gravity
CH	Channel
COMB.	Combination
CPE	Coupe
CPS	Combustion Pressure Sensor
CPU	Central Processing Unit
CRS	Child Restraint System
CTR	Center
C/V	Check Valve
CV	Control Valve

INTRODUCTION – TERMS

CW	Curb Weight
DC	Direct Current
DEF	Defogger
DFL	Deflector
DIFF.	Differential
DIFF. LOCK	Differential Lock
D/INJ	Direct Injection
DLC	Data Link Connector
DLI	Distributorless Ignition
DOHC	Double Over Head Cam
DP	Dash Pot
DS	Dead Soak
DSP	Digital Signal Processor
DTC	Diagnostic Trouble Code
ECAM	Engine Control And Measurement System
ECD	Electronic Controlled Diesel
ECDY	Eddy Current Dynamometer
ECT	Electronic Control Transmission
ECU	Electronic Control Unit
ED	Electro-Deposited Coating
EDU	Electronic Driving Unit
EDIC	Electric Diesel Injection Control
EFI	Electronic Fuel Injection
E/G	Engine
EGR	Exhaust Gas Recirculation
EGR-VM	Egr-Vacuum Modulator
ELR	Emergency Locking Retractor
ENG	Engine
EPROM	Erasable Programmable Read Only Memory
ESA	Electronic Spark Advance
ETCS	Electronic Throttle Control System
EVAP	Fuel Evaporative System
EVP	Evaporator
E-VRV	Electric Vacuum Regulating Valve
EXH	Exhaust
FE	Fuel Economy
FF	Front-Engine Front-Wheel-Drive
F/G	Fuel Gage
FIPG	Formed In Place Gasket
FL	Fusible Link
F/P	Fuel Pump
FPU	Fuel Pressure Up
Fr	Front
FR	Front-Engine Rear-Wheel-Drive
F/W	Flywheel
FW/D	Flywheel Damper

FWD	Front-Wheel-Drive
GAS	Gasoline
GND	Ground
HAC	High Altitude Compensator
H/B	Hatchback
H-FUSE	High Current Fuse
HI	High
HID	High Intensity Discharge (Head Lamp)
HSG	Housing
HT	Hard Top
HWS	Heated Windshield System
IAC	Idle Air Control
IC	Integrated circuit
IDI	Indirect Diesel Injection
IFS	Independent Front Suspension
IG	Ignition
IIA	Integrated Ignition Assembly
IN	Intake (Manifold, Valve)
INT	Intermittent
I/P	Instrument Panel
IRS	Independent Rear Suspension
ISC	Idle Speed Control
J/B	Junction Block
J/C	Junction Connector
KD	Kick-Down
LAN	Local Area Network
LB	Liftback
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LH	Left-Hand
LHD	Left-Hand Drive
L/H/W	Length, Height, Width
LLC	Long-Life Coolant
LNG	Liquified Natural Gas
LO	Low
LPG	Liquified Petroleum Gas
LSD	Limited Slip Differential
LSP & PV	Load Sensing Proportioning And Bypass Valve
LSPV	Load Sensing Proportioning Valve
MAP	Manifold Absolute Pressure
MAX.	Maximum
MIC	Microphone
MIL	Malfunction Indicator Lamp
MIN.	Minimum
MP	Multipurpose
MPI	Multipoint Electronic Fuel Injection

INTRODUCTION – TERMS

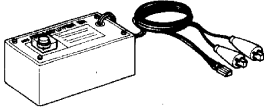
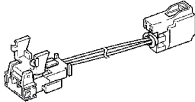
MPX	Multiplex Communication System
M/T	Manual Transmission
MT	Mount
MTG	Mounting
N	Neutral
NA	Natural Aspiration
No.	Number
O2S	Oxygen Sensor
OC	Oxidation Catalyst
O/D	Overdrive
OEM	Original Equipment Manufacturing
OHC	Overhead Camshaft
OHV	Overhead Valve
OPT	Option
O/S	Oversize
P & BV	Proportioning And Bypass Valve
PCS	Power Control System
PCV	Positive Crankcase Ventilation
PKB	Parking Brake
PPS	Progressive Power Steering
PROM	Programmable Read Only Memory
PS	Power Steering
PTO	Power Take-Off
R & P	Rack And Pinion
RAM	Random Access Memory
R/B	Relay Block
RBS	Recirculating Ball Type Steering
R/F	Reinforcement
RFS	Rigid Front Suspension
RH	Right-Hand
RHD	Right-Hand Drive
RLY	Relay
ROM	Read Only Memory
Rr	Rear
RR	Rear-Engine Rear-Wheel Drive
RRS	Rigid Rear Suspension
RWD	Rear-Wheel Drive
SC	Supercharger
SDN	Sedan
SEN	Sensor
SICS	Starting Injection Control System
SOC	State Of Charge
SOHC	Single Overhead Camshaft
SPEC	Specification
SPI	Single Point Injection
SRS	Supplemental Restraint System

SSM	Special Service Materials
SST	Special Service Tools
STD	Standard
STJ	Cold-Start Fuel Injection
SW	Switch
SYS	System
T/A	Transaxle
TACH	Tachometer
TBI	Throttle Body Electronic Fuel Injection
TC	Turbocharger
TCCS	TOYOTA Computer-Controlled System
TCV	Timing Control Valve
TDC	Top Dead Center
TEMP.	Temperature
TEMS	TOYOTA Electronic Modulated Suspension
TIS	Total Information System For Vehicle Development
T/M	Transmission
TRC	Traction Control System
TURBO	Turbocharge
TVV	Thermal Vacuum Valve
U/D	Underdrive
U/S	Undersize
VCV	Vacuum Control Valve
VENT	Ventilator
VIN	Vehicle Identification Number
VPS	Variable Power Steering
VSC	Vehicle Skid Control Vehicle Stability Control
VSV	Vacuum Switching Valve
VTV	Vacuum Transmitting Valve
w/	With
WGN	Wagon
W/H	Wire Harness
w/o	Without
WU-TWC	Warm Up Three-Way Catalytic Converter
WU-OC	Warm Up Oxidation Catalytic Converter
1st	First
2nd	Second
2WD	Two Wheel Drive Vehicle (4x2)
4WD	Four Wheel Drive Vehicle (4x4)

BODY

SST (Special Service Tools)

PP3BO-01

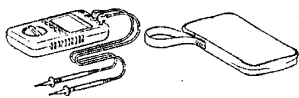
	09812-00010 Door Hinge Set Bolt Wrench	
	09082-00700 SRS Airbag Deployment Tool	
	09082-00730 Airbag Deployment Wire Sub-Harness No.1	

EQUIPMENT

Clip remover	
Torque wrench	
Rope (no projections, difficult to break)	Seat belt pretensioner disposal
Tire Width: 185 mm (7.28 in.) Inner diam: 360 mm (14.17 in.)	Seat belt pretensioner disposal
Tire with disc wheel Width: 185mm (7.28 in.) Inner diam 360 mm (14.17 in.)	Seat belt pretensioner disposal
Vinyl bag	Seat belt pretensioner disposal

AIR CONDITIONING
RECOMMENDED TOOLS

PP3BM-01

	09082-00040 TOYOTA Electrical Tester.	
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EQUIPMENT

Voltmeter	
Ammeter	
Ohmmeter	
Test lead	
Thermometer	Sernsor

TIRE AND WHEEL INSPECTION

1. INSPECT TIRE

(a) Check the tires for wear and proper inflation pressure.

Cold tire inflation pressure (Great Britain sports package):

Up to 4 passengers:

Tire size	Front kPa (kgf/cm ² , psi)	Rear kPa (kgf/cm ² , psi)
215/45ZR17	250 (2.5, 36)* ¹	260 (2.6, 38)* ¹
	240 (2.4, 35)* ²	240 (2.4, 35)* ²
	230 (2.3, 33)* ³	230 (2.3, 33)* ³
205/55R16 89V	230 (2.3, 33)* ¹	240 (2.4, 35)* ¹
	230 (2.3, 33)* ²	230 (2.3, 33)* ²
	230 (2.3, 33)* ³	230 (2.3, 33)* ³

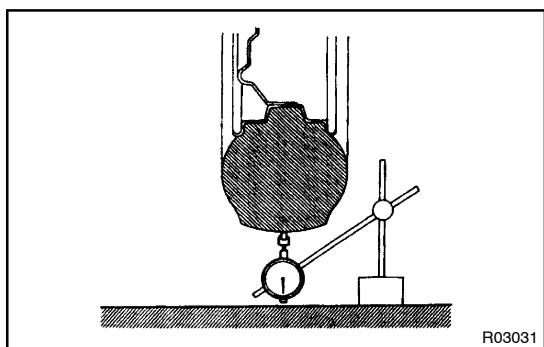
5 passengers:

Tire size	Front kPa (kgf/cm ² , psi)	Rear kPa (kgf/cm ² , psi)
215/45ZR17	260 (2.6, 38)* ¹	340 (3.4, 49)* ¹
	250 (2.5, 36)* ²	280 (2.8, 41)* ²
	230 (2.3, 33)* ³	240 (2.4, 35)* ³
205/55R16 89V	240 (2.4, 35)* ¹	310 (3.1, 45)* ¹
	240 (2.4, 35)* ²	270 (2.7, 39)* ²
	230 (2.3, 33)* ³	230 (2.3, 33)* ³

*¹: For driving at 210 km/h (131 mph) or over

*²: For driving at 160 km/h (100 mph) to 210 km/h (131 mph)

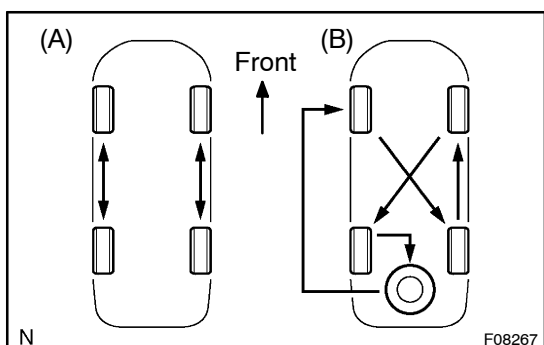
*³: For driving under 160 km/h (100 mph)



R03031

(b) Check the tire runout.

Tire runout: 1.4 mm (0.055 in.) or less

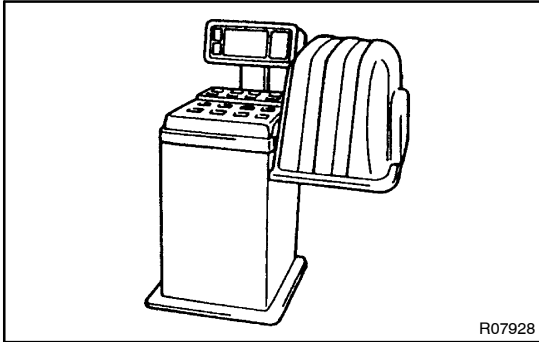


F08267

2. ROTATING TIRES

HINT:

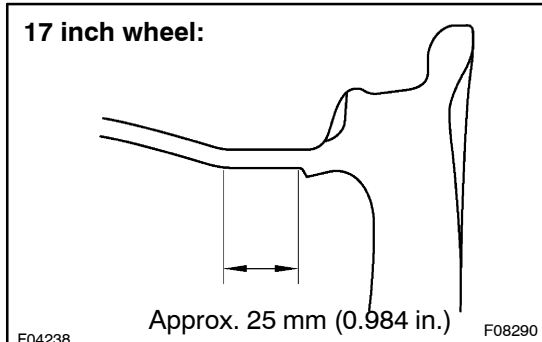
Rotate tires as shown in the illustration as rotation way differs according to whether the tire turning direction is specified (A) or (B).



3. INSPECT WHEEL BALANCE

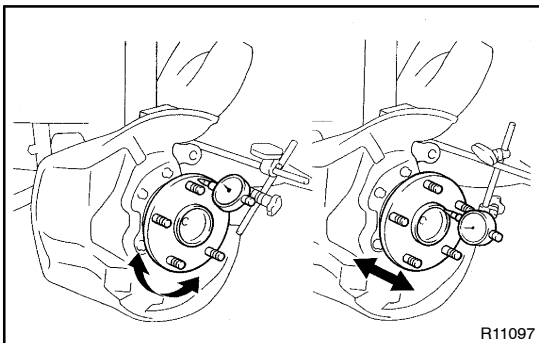
- (a) Check and adjust the off-the-car balance.
- (b) If necessary, check and adjust the on-the-car balance.

Imbalance after adjustment: 8.0 g (0.018 lb) or less



NOTICE:

- Adhere the sticking type balance weight to the flat position as shown in the illustration.
- Push the balance weight securely with a finger to adhere it to the position.
(Pushing force: 10 kgf/more than 2 secs.)
- After cleaning the surface which the balance weight will be adhered to of dirt, oil and water with a cleaning detergent, adhere the balance weight to the surface.
- Do not touch the sticking surface of the tape.
- Do not use the once used balance weight.
- Please use the TOYOTA genuine sticking type balance weight.



4. CHECK WHEEL BEARING LOOSENESS

- (a) Check the backlash in the bearing shaft direction.

Maximum: 0.05 mm (0.0020 in.)

- (b) Check the axle hub deviation.

Maximum: 0.05 mm (0.0020 in.)

5. CHECK FRONT SUSPENSION FOR LOOSENESS

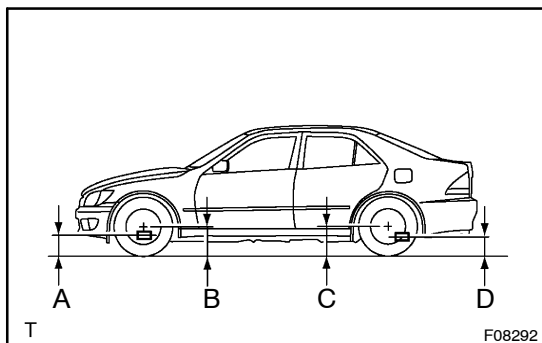
6. CHECK STEERING LINKAGE FOR LOOSENESS

7. CHECK BALL JOINT FOR LOOSENESS AND

EXCESSIVE PLAY (See Pub. No. RM684E on page SA-36)

8. CHECK SHOCK ABSORBER WORKS PROPERLY

- Check if oil leaks
- Check mounting bushings for wear
- Bounce front and rear of the vehicle



FRONT WHEEL ALIGNMENT INSPECTION

SA20F-01

1. MEASURE VEHICLE HEIGHT

Vehicle height (Great Britain sports package):

Front vehicle height	Rear vehicle height
72 mm (2.83 in.)	85 mm (3.35 in.)

Measuring points:

A: Ground clearance of the front No. 1 lower suspension arm mounting bolt center.

B: Ground clearance of the front wheel center.

C: Ground clearance of the rear wheel center.

D: Ground clearance of the No. 2 lower suspension arm mounting bolt (Suspension member side) tail center.

Vehicle height:

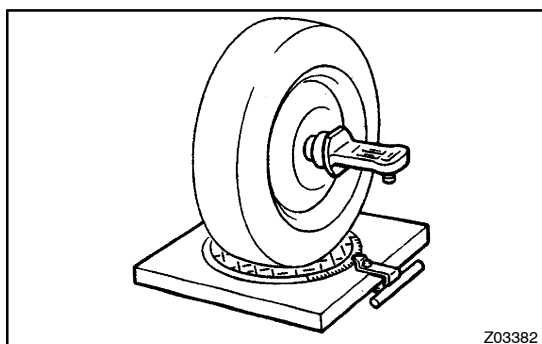
Front: B – A

Rear: C – D

NOTICE:

Before inspecting the wheel alignment, adjust the vehicle height to the specified value.

If the vehicle height is not the specified value, try to adjust it by pushing down on or lifting the body.



2. INSTALL CAMBER-CASTER-KINGPIN GAUGE OR POSITION VEHICLE ON WHEEL ALIGNMENT TESTER

Follow the specific instructions of the equipment manufacturer.

3. INSPECT CAMBER, CASTER AND STEERING AXIS INCLINATION

Camber, caster and steering axis inclination
(Great Britain sports package):

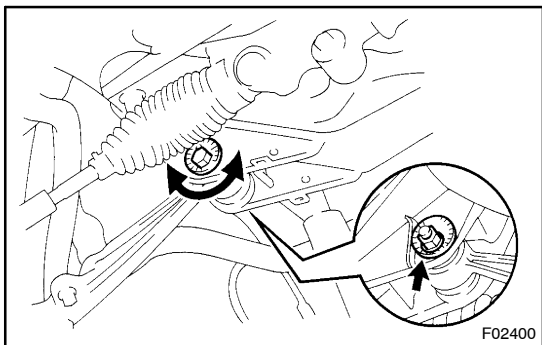
Camber	Right-left error	$-0^{\circ}30' \pm 30'$ ($-0.5^{\circ} \pm 0.5^{\circ}$) 30' (0.5°) or less
Caster	Right-left error	$6^{\circ}07' \pm 30'$ ($6.12^{\circ} \pm 0.5^{\circ}$) 30' (0.5°) or less
Steering axis inclination	Right-left error	$9^{\circ}25' \pm 30'$ ($9.42^{\circ} \pm 0.5^{\circ}$) 30' (0.5°) or less

If the caster and steering axis inclination are not within the specified values, after the camber has been correctly adjusted, re-check the suspension parts for damaged and/or worn out parts.

4. ADJUST CAMBER

HINT:

After adjusting the camber, inspect the caster and toe-in.

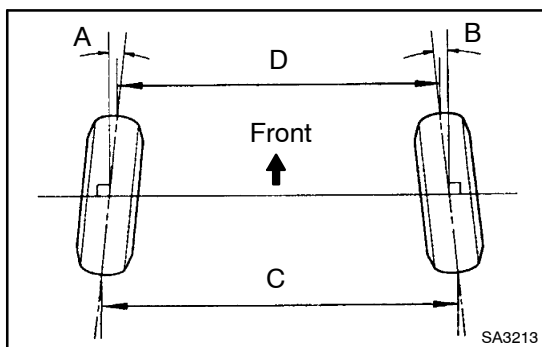


- Loosen the camber adjusting cam nut of the No. 1 lower suspension arm.
- Turn the camber adjusting cam of the No. 1 lower suspension arm and adjust the camber.

HINT:

- Try to adjust the camber to the center of the specified value.
 - Camber will change about 7.5' (0.13°) with each graduation of the adjusting cam.
- Torque the camber adjusting cam nut of the No. 1 lower suspension arm.

Torque: 184 N·m (1,880 kgf·cm, 136 ft·lbf)



5. INSPECT TOE-IN

Toe-in (Great Britain sports package):

Toe-in (total)	A + B: $0^{\circ}06' \pm 12'$ ($0.1^{\circ} \pm 0.2^{\circ}$) C - D: 1 ± 2 mm (0.04 ± 0.08 in.)
-------------------	---

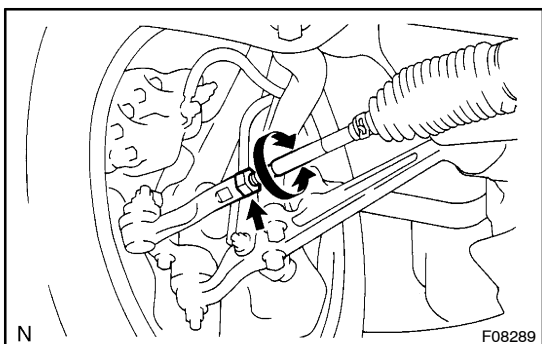
If the toe-in is not within the specified value, adjust it at the rack ends.

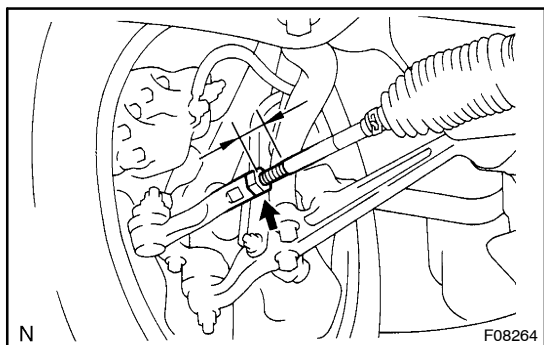
6. ADJUST TOE-IN

- Using pliers, remove the boot clips.
- Loosen the tie rod end lock nuts.
- Turn the right and left rack ends by an equal amount to adjust the toe-in.

HINT:

Try to adjust the toe-in to the center of the specified value.





- (d) Make sure that the lengths of the right and left rack ends are same.

Rack end length difference: 1.5 mm (0.059 in.) or less

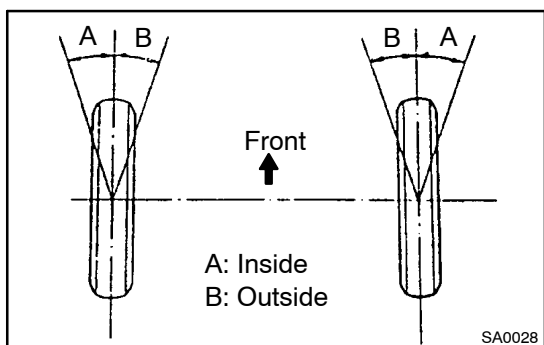
- (e) Torque the tie rod end lock nuts.

Torque: 56 N·m (570 kgf·cm, 41 ft·lbf)

- (f) Place the boots on the seats and using pliers, install the clips.

HINT:

Make sure that the boots are not twisted.



7. INSPECT WHEEL ANGLE

Turn the steering wheel fully, and measure the turning angle.

Wheel turning angle (Great Britain sports package):

Inside wheel	41°01' (39°01' – 42°01')
	41.02° (39.02° – 42.02°)
Outside wheel (Reference)	33°23'
	33.38°

If the right and left inside wheel angles differ from the specified value, inspect the toe-in.

REAR WHEEL ALIGNMENT INSPECTION

SA20G-01

1. MEASURE VEHICLE HEIGHT (See page SA-3)
2. INSTALL CAMBER-CASTER-KINGPIN GAUGE OR POSITION VEHICLE ON WHEEL ALIGNMENT TESTER

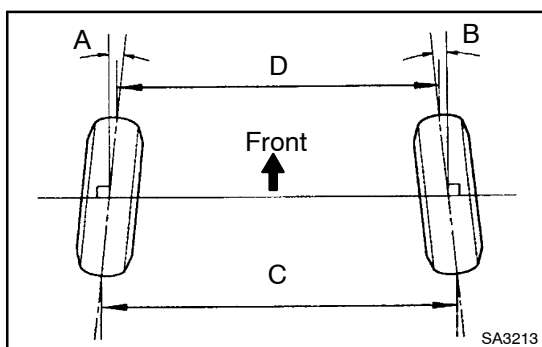
Follow the specific instructions of the equipment manufacturer.

3. INSPECT CAMBER

Camber (Great Britain sports package):

Camber	$-0^{\circ}55' \pm 30'$ ($-0.92^{\circ} \pm 0.5^{\circ}$)
Right-left error	30' (0.5°) or less

If the camber is not within the specified value, after the toe-in is inspected, see step 5. to adjust.

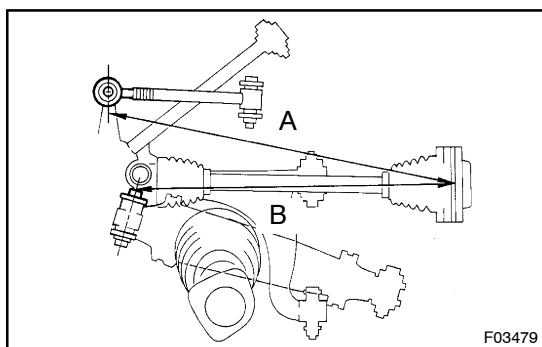


4. INSPECT TOE-IN

Toe-in (Great Britain sports package):

Toe-in (total)	A + B: $0^{\circ}12' \pm 12'$ ($0.2^{\circ} \pm 0.2^{\circ}$)
	C - D: 2 ± 2 mm (0.08 ± 0.08 in.)

If the toe-in is not within the specified value, after the camber is inspected, see step 5. to adjust.



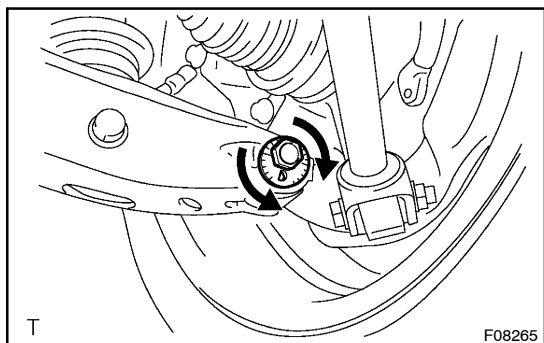
5. ADJUST CAMBER AND TOE-IN

- (a) Measure the lengths of the toe control link "A" and No. 2 lower suspension arm "B", as shown in the illustration.
- (b) Obtain the difference between "A" and "B".
- (c) Employ the same manner described above to the other side.
- (d) Obtain the difference between right and left from the values obtained above.

Right and left difference: 4.0 mm (0.157 in.) or less

If they are not within the specified value, adjust the lengths of them by turning the adjusting cam.

- (e) Inspect the camber and toe-in.



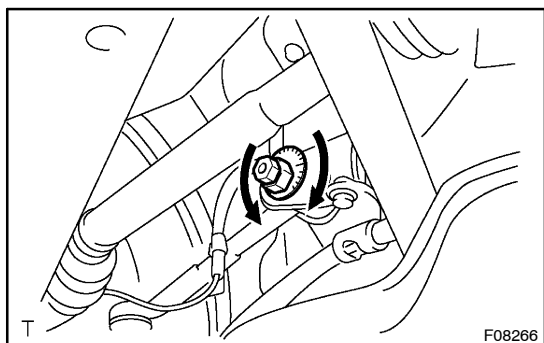
- (f) Adjust the camber.
- (1) Loosen the camber adjusting cam nut of the No. 2 lower suspension arm.
 - (2) Turn the camber adjusting cam of the No. 2 lower suspension arm and adjust the camber.

HINT:

Camber will change about 5.0' (0.08°) with each graduation of the adjusting cam.

- (3) Torque the camber adjusting cam nut.

Torque: 110 N·m (1,120 kgf·cm, 81 ft·lbf)



- (g) Adjust the toe-in.
- (1) Loosen the camber adjusting cam nut of the toe control link.
 - (2) Turn the camber adjusting cam of the toe control link and adjust the toe-in.

HINT:

Toe-in will change about 4.0 mm (0.157 in.) with each graduation of the adjusting cam.

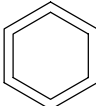
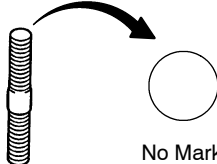
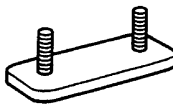
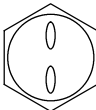
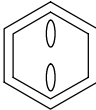
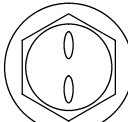
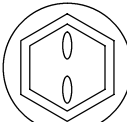
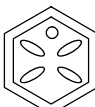
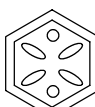
- (3) Torque the camber adjusting cam nut.

Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)

STANDARD BOLT

HOW TO DETERMINE BOLT STRENGTH

SS02S-01

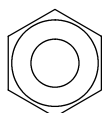
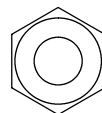
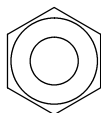
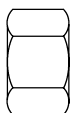
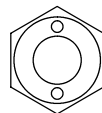
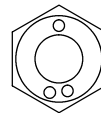
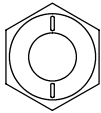
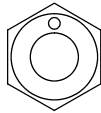
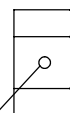
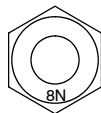
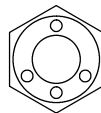
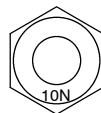
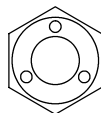
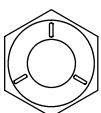
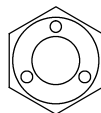
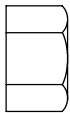
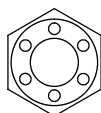
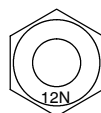
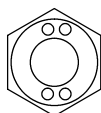
Bolt Type				Class
Hexagon Head Bolt		Stud Bolt	Weld Bolt	
Normal Recess Bolt	Deep Recess Bolt			
 No Mark	 No Mark	 No Mark		4T
 				5T
  w/ Washer	 w/ Washer			6T
 	 			7T
		 		8T
				9T
	 			10T
	 			11T

B06431

SPECIFIED TORQUE FOR STANDARD BOLTS

Class	Diameter mm	Pitch mm	Specified torque					
			Hexagon head bolt			Hexagon flange bolt		
			N·m	kgf·cm	ft·lbf	N·m	kgf·cm	ft·lbf
4T	6	1	5	55	48 in.·lbf	6	60	52 in.·lbf
	8	1.25	12.5	130	9	14	145	10
	10	1.25	26	260	19	29	290	21
	12	1.25	47	480	35	53	540	39
	14	1.5	74	760	55	84	850	61
	16	1.5	115	1,150	83	–	–	–
5T	6	1	6.5	65	56 in.·lbf	7.5	75	65 in.·lbf
	8	1.25	15.5	160	12	17.5	175	13
	10	1.25	32	330	24	36	360	26
	12	1.25	59	600	43	65	670	48
	14	1.5	91	930	67	100	1,050	76
	16	1.5	140	1,400	101	–	–	–
6T	6	1	8	80	69 in.·lbf	9	90	78 in.·lbf
	8	1.25	19	195	14	21	210	15
	10	1.25	39	400	29	44	440	32
	12	1.25	71	730	53	80	810	59
	14	1.5	110	1,100	80	125	1,250	90
	16	1.5	170	1,750	127	–	–	–
7T	6	1	10.5	110	8	12	120	9
	8	1.25	25	260	19	28	290	21
	10	1.25	52	530	38	58	590	43
	12	1.25	95	970	70	105	1,050	76
	14	1.5	145	1,500	108	165	1,700	123
	16	1.5	230	2,300	166	–	–	–
8T	8	1.25	29	300	22	33	330	24
	10	1.25	61	620	45	68	690	50
	12	1.25	110	1,100	80	120	1,250	90
9T	8	1.25	34	340	25	37	380	27
	10	1.25	70	710	51	78	790	57
	12	1.25	125	1,300	94	140	1,450	105
10T	8	1.25	38	390	28	42	430	31
	10	1.25	78	800	58	88	890	64
	12	1.25	140	1,450	105	155	1,600	116
11T	8	1.25	42	430	31	47	480	35
	10	1.25	87	890	64	97	990	72
	12	1.25	155	1,600	116	175	1,800	130

HOW TO DETERMINE NUT STRENGTH

Nut Type			Class
Present Standard Hexagon Nut	Old Standard Hexagon Nut		
	Cold Forging Nut	Cutting Processed Nut	
 No Mark			4N
 No Mark (w/ Washer)	 No Mark (w/ Washer)	 No Mark	5N (4T)
  			6N
	 	 	7N (5T)
 			8N
 	 	 No Mark	10N (7T)
 			11N
 			12N

*: Nut with 1 or more marks on one side surface of the nut.

HINT:

Use the nut with the same number of the nut strength classification or the greater than the bolt strength classification number when tightening parts with a bolt and nut.

Example: Bolt = 4T

Nut = 4N or more

LEXUS IS200 SUP (RM776E)

SUSPENSION AND AXLE

SERVICE DATA

SSOFD-06

Cold tire inflation pressure	Up to 4 passengers		
	Tire size 215/45ZR17	Front*1	250 kPa (2.5 kgf/cm ² , 36 psi)
		Rear*1	260 kPa (2.6 kgf/cm ² , 38 psi)
		Front*2	240 kPa (2.4 kgf/cm ² , 35 psi)
		Rear*2	240 kPa (2.4 kgf/cm ² , 35 psi)
		Front*3	230 kPa (2.3 kgf/cm ² , 33 psi)
		Rear*3	230 kPa (2.3 kgf/cm ² , 33 psi)
	205/55R16 89V	Front*1	230 kPa (2.3 kgf/cm ² , 33 psi)
		Rear*1	240 kPa (2.4 kgf/cm ² , 35 psi)
		Front*2	230 kPa (2.3 kgf/cm ² , 33 psi)
		Rear*2	230 kPa (2.3 kgf/cm ² , 33 psi)
		Front*3	230 kPa (2.3 kgf/cm ² , 33 psi)
		Rear*3	230 kPa (2.3 kgf/cm ² , 33 psi)
Front wheel alignment	5 passengers		
	Tire size 215/45ZR17	Front*1	260 kPa (2.6 kgf/cm ² , 38 psi)
		Rear*1	340 kPa (3.4 kgf/cm ² , 49 psi)
		Front*2	250 kPa (2.5 kgf/cm ² , 36 psi)
		Rear*2	280 kPa (2.8 kgf/cm ² , 41 psi)
		Front*3	230 kPa (2.3 kgf/cm ² , 33 psi)
		Rear*3	240 kPa (2.4 kgf/cm ² , 35 psi)
	205/55R16 89V	Front*1	240 kPa (2.4 kgf/cm ² , 35 psi)
		Rear*1	310 kPa (3.1 kgf/cm ² , 45 psi)
		Front*2	240 kPa (2.4 kgf/cm ² , 35 psi)
		Rear*2	270 kPa (2.7 kgf/cm ² , 39 psi)
		Front*3	230 kPa (2.3 kgf/cm ² , 33 psi)
		Rear*3	230 kPa (2.3 kgf/cm ² , 33 psi)
Rear wheel alignment	Vehicle height	Front: B*5 – A*4	72 mm (2.83 in.)
		Rear: C*6 – D*7	85 mm (3.35 in.)
	Camber		–0°30' ± 30' (–0.5° ± 0.5°)
		Right–left error	30' (0.5°) or less
	Caster		6°07' ± 30' (6.12° ± 0.5°)
		Right–left error	30' (0.5°) or less
Front axle	Steering axis inclination		9°25' ± 30' (9.42° ± 0.5°)
		Right–left error	30' (0.5°) or less
	Toe–in (total)		0°06' ± 12' (0.1° ± 0.2°, 1 ± 2 mm, 0.04 ± 0.08 in.)
		Rack end length difference	1.5 mm (0.059 in.) or less
Wheel angle	Inside wheel		41°01' (39°01' – 42°01')
		Outside wheel: Reference	41.02° (39.02° – 42.02°)
Rear wheel alignment	Camber		–0°55' ± 30' (–0.92° ± 0.5°)
		Right–left error	30' (0.5°) or less
Front axle	Toe–in (total)		0°12' ± 12' (0.2° ± 0.2°, 2 ± 2 mm, 0.08 ± 0.08 in.)
		Right and left length difference	4.0 mm (0.157 in.) or less
Front axle	Wheel bearing backlash	Maximum	0.05 mm (0.0020 in.)
	Axle hub deviation	Maximum	0.05 mm (0.0020 in.)

*1: For driving at 210 km/h (131 mph) or over

*2: For driving at 160 km/h (100 mph) to 210 km/h (131 mph)

- *3: For driving under 160 km/h (100 mph)
- *4: Ground clearance of the front No .1 lower suspension arm mounting bolt center.
- *5: Ground clearance of the front wheel center.
- *6: Ground clearance of the rear wheel center.
- *7: Ground clearance of the No. 2 lower suspension arm mounting bolt (Suspension member side) tail center.

TORQUE SPECIFICATION

Part tighten	N·m	kgf·cm	ft·lbf
FRONT WHEEL ALIGNMENT			
Tie rod end lock nut	56	570	41
No. 1 lower suspension arm x Front suspension member	184	1,880	136
REAR WHEEL ALIGNMENT			
No. 2 lower suspension arm x Rear suspension member	110	1,120	81
Toe control link x Rear suspension member	49	500	36

BODY

TORQUE SPECIFICATION

SS137-05

Part tightened	N·m	kgf·cm	ft·lbf
FRONT DOOR			
Door hinge x Body	26	265	19
Door hinge x Door panel	27	275	20
Door lock striker	23	235	17
REAR DOOR			
Door hinge x Body	26	265	19
Door hinge x Door panel	27	275	20
Door lock striker	23	235	17
SEAT BELT			
Front seat outer belt:			
Shoulder anchor x Adjuster anchor	41	420	30
Floor anchor x Body	41	420	30
Retractor x Body Upper bolt	7.8	80	69 in·lbf
Adjustable anchor x Body	41	420	30
Front seat inner belt:			
Inner belt x Seat track	41	420	30
Rear seat outer belt:			
Shoulder anchor x Body	41	420	30
Floor anchor x Body	41	420	30
Rear seat inner belt:			
Inner belt x Body	41	420	30
Rear seat center belt:			
Shoulder anchor x Body	41	420	30
Floor anchor x Body	41	420	30